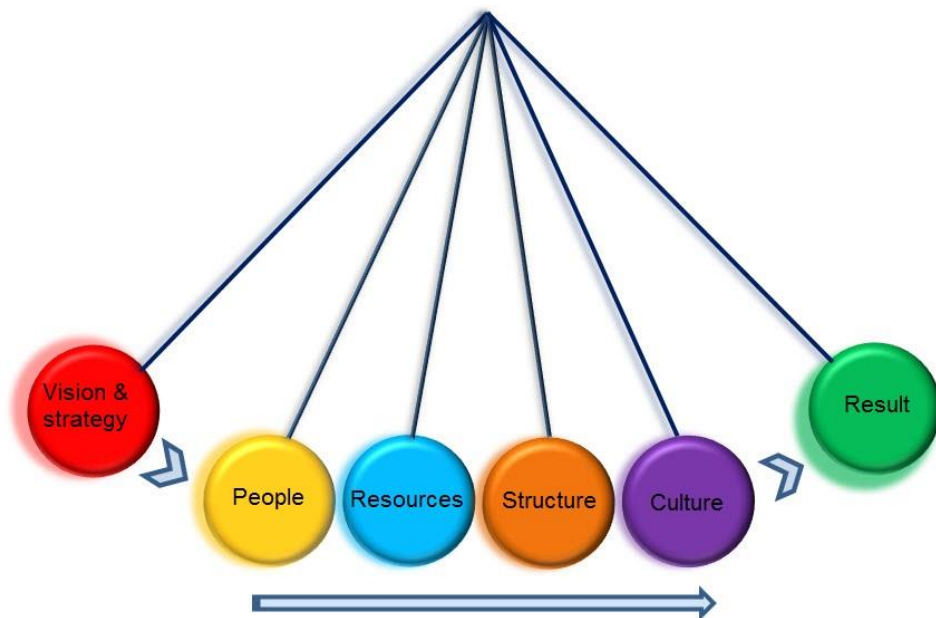


MBO ICT policy monitor

To control the use of ICT in the educational process of secondary vocational education (MBO) in the Netherlands



Based on the perception of the teacher and the balance between the management building blocks, People, Resources, Structure and Culture of the educational organization

September 2014
Robert Koerts

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Reference:

Koerts R. MBO ICT policy monitor Master Thesis, Delft University of Technology, Delft (The Netherlands). 22th of September 2014

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Preface

The past 25 years the use of ICT in education has rapidly developed. In the 80's and 90's there were high expectations about the use of online learning and Computer Based Training (CBT) in the education and business sectors. Online learning could replace the traditional teacher, based on a traditional classroom setting. These expectations were overestimated. Today, however, the use of ICT in our daily lives can no longer be ignored. We make full use of social media, on-demand information and digital media. The rapid development of technology has great potential to support the primary educational process in secondary vocational education (MBO). However, the management of a vocational educational organization is overtaken by new kinds of applications and interactive software that is introduced or recommended by both teachers and students. The institutional Management should control the use and implementation of those applications based on the intuitional vision and strategy for the use of ICT in the primary educational process. Working with a clear vision on the use of ICT is a complex issue and affects almost the entire organization.

Major subjects are: the vision on the use of ICT and awareness of this, the role and skills of the teachers, the available resources, the structure and even the culture of the educational organization. The developed of the MBO ICT policy monitor gives insight information and reduces the complexity of this issue. The MBO ICT policy monitor also provides the management of the educational organization concrete specific information to control to the use of ICT in vocational education.

Besides, I'm also working on the cutting edge of new ICT applications and educational reform. Almost daily I experience the differences between these two worlds and the complexity of this issue. I am motivated to reduce this complexity and make it understandable for every stakeholder within the organisation. By doing so I strive to increase the use of ICT in education in the direction it coincides with the organisation's ambitions.

I want to thank the following people for their support in conducting this study:

Mr. Dr. P. (Pieter) de Vries, first mentor;

Mrs. Drs. J (Jolien) Ubacht, second mentor;

Mrs. Prof. Dr. F.M.T (Frances) Blazier, Head of the section System engineering;

Mr. Drs. H (Harm) Weistra, expert in the field of ICT questionnaires.

Expert panel members:

Mr. H (Henk) de Canne,

Mrs. R (Ria) Jacobi, Mr. W (Wim) Decherling, Mr. M (Marchel) Dupuis, Mr. H (Henk) Frencken,

Mr. C (Chris) Kuijpers,

Mr. N (Nico) Juist,

Mr. R (Roelof) Kooy,

Mrs. E (Ellen) Sjoer, Mrs. S (Sofia) Dopper, Mrs. J (Jolien) Ubacht, Mrs. M (Maartje) van den Bogaard,

Mrs. G (Gwen) Kolfshoten, Mr. J (Joost) Groot Kormelink, Mr. P (Piet) van der Zanden

Mr. N (Nel) Pouw.

This research study has won the contest of "*The best education improvement idea of 2012*". I would like to thank the jury and most of all its chairman, Dick van der Ent, for this award.

And last but not least, I thank my wife Ria and children, Matthijs, Mirthe and Sarah for their endless support to finish this research study.

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22th of September 2014

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Summary

Background use of ICT in vocational education MBO in the Netherlands

Secondary vocational education (MBO) in the Netherlands sets its own targets for the coming years by emphasizing three P's: Personalize, Professionalize and Performance. Personalize the student's program by being able to differentiate study content, the pace of study and where possible differentiate on learning styles. Professionalizing involves teacher's skills to learn different new didactic approaches by the use of ICT. Performance has to do with the increase of academic success. The assumption is that by being able to differentiate there is more attention to the specific needs of the student. This kind of study guidance must lead to a deduction of student dropouts.

The use of Information Communication Technology (ICT) in education should personalize, and professionalize the educational environment and lead to a better performances. The use of ICT must be based on the vision and ICT policies that are formulated by the management or board of directors of the educational institution. However, the required use of ICT in the primary education process brings new business risks along. For this reason, more and more managers of vocational educational organizations have the need to understand better the real impact of investments done in ICT. To identify this specific management information it is necessary to know the subjective opinion or perception of the teachers on the use of ICT in their own teaching environment. Important to know are the specific needs of teachers, what holds them back and what motivates them to use ICT in their classes? To answer these questions, there is no existing management information instrument available. This research focuses on the development of an ICT policy monitor that provides in this need.

Objective of this research

Developing a MBO ICT policy monitor for the management of a MBO organization to provide them with management information. They need to achieve their own objectives for the use of ICT in the primary education process, based on the actual experience and perception of the teachers themselves.

Professionalization and performing better with ICT

Professionalizing in the MBO branch has to do with the deepening and broadening the knowledge competencies and skills of the teachers, including the use of ICT. Performance improvement is the end result of all efforts in which academic success is increased. The Carnegie Foundation defines in *Next Generation Learning Defining the Opportunity (2011)* two useful criteria for this thesis, in order to determine whether the use of ICT will actually lead to performance improvement. (1) *Does it facilitate sustained breakthrough learning gains by all students, and particularly those who chronically underperform?* (2) *Does it create efficiencies that make them at least cost neutral to deliver compared to traditional models?*

A complex issue

The large-scale implementation and use of ICT in education is clearly a complex issue. The reorganisation of the primary education process may have a large impact on the entire organization. It has also become clear that there is no single right way for deploying ICT in vocational education, although this depends highly on the purpose the management of the educational institution aims at accomplishing with it. The key actor here is the teacher; he or she can determine how ICT is used in their own classes. The teachers should be supported by the organisation for the use of ICT. This is often done by specific departments; Department ICT and Department Counselling, Education and Quality.

Research of instruments

For the development of the MBO ICT policy monitor an extensive literature research has been done. This research focused on two areas: one on instrument development and the other on management models and theories. For the development of MBO ICT policy monitor several organizational frameworks were explored that qualified the use of ICT in education. It concerns the methodology of benchmarking and maturity determination of educational organizations in the application of ICT.

The models are; Capability Maturity Model (CMM) Paulk (1993), the Computing Education Maturity Model (CEMM) Christof Lutteroth (2007) and the e-Learning Maturity Model (eMM) Marshall & Mitchell (2006). Also, the Dutch Four in balance model of Ten Brummelhuis (2011) was examined. Here a link is established between the traditional teaching methods and new methods that are possible through the use of ICT. The maturity models originally come from the software industry and are very technical, detailed and comprehensive. The application of those models requires an intensive field study at an educational organization. The principles of the instruments examined were not in line with the objectives of this research. The objectives of this research are based on the perception of the teacher in the use of ICT in education. The models are useful in order to determine the factors that are important in the use of ICT in education. The factors that generated from this in-depth study are: *vision and strategy, ICT policy,*

expertise and skills of the teacher, team collaboration, leadership, management, pedagogical didactic support, technical support, possibility of education and training, possibility of developing digital material, quality, organization and evaluation and, of course, the ICT infrastructure.

Research of management models and theories

There are many different departments and employees involved in the use of ICT in education. Those stakeholders have their own interests and opinions about this subject. To control the use of ICT by management in a recognizable manner, the following management and organizational theories are examined; the Balance Consistency and Heterogeneity (ESH) model Weggeman (1997) as a particularization of the 7S model (McKinsey) and the INK (Dutch Quality Institute) model, which in turn is particularization of the EFQM (European Foundation for Quality Management) model. The ESH and 7S models assumed that management's attention must be evenly distributed over the (management) building blocks; vision & strategy, people, resources, structure and culture of the organization itself. This principle of balance is used to develop the MBO ICT policy monitor to assess whether there is sufficient and proportional attention paid to the individual management building blocks. The quality models EFQM and INK are based on the principle that the organization enters into a process of continuous improvement. Hereby the organization learned from past experience and can grow to a higher level of maturity. This aspect is also included in the development of the MBO ICT policy monitor. By periodically using the MBO ICT policy monitor the organization can learn from past experiences. Specific management actions are evaluated and measured. The individual factors that are important for the use of ICT are divided into recognisable management building blocks. The MBO ICT policy monitor presents its information in a dashboard based on those building blocks. The MBO ICT policy monitor consists of the following management building blocks:

- **Results** of the organization, what is to be achieved?
- **Vision and Strategy** of the organization, what we want to achieve, how and when?
- **People** of the organization, with whom?
- **Resources** of the organization, which and what?
- **Structure** of the organization, how to organize it?
- **Culture** of the organization, the way we do think together?

Service quality of staff departments

The staff departments of ICT and of Counselling Education & Quality are special resources of the organization to assist the teachers in the use of ICT. Also the offering of training in the field of ICT is a service that is offered by the organisation. To determine the extent to which teachers are satisfied with this service, it is important to be able to qualify this provided service. To realise this, the following service quality models were examined: Servqual Parasuraman (1988), Serperf Landrum (2008), Customer Satisfaction Index (CSI) Fornell (1989) and Customer Experience Index (CxPi) Forrester (2007) were examined for this particular use. Based on these models, the following items were determined to measure the service quality of the staff departments: reliability; *Support delivers what is promised on time, responsiveness; Support has pleasant hours of operation, Assurance; Support helps me out, Empathy; Support gives me enough attention, Tangibles; The ICT products and materials, Usefulness; The support helps me to use ICT in education more effectively, Satisfaction / Enjoyability; The staff employees are customer friendly, Perceived quality; The service is of a high quality, Customer expectation; Support helps me to use ICT more effectively when I need support, Perceived value; Due to the support I'm able to use ICT more effectively, Ease of Use; The support helps me to use ICT in education more effectively, Competence; Support has good ideas, Access to service; The support is easily accessible.*

Design and validation

Based on the literature research the framework of the MBO ICT policy monitor was established as a first draft. This design was submitted to expert teams in the field of ICT use in education. This way content and construct validation was achieved. In the third and last session there was a try-out with the adapted questionnaire. Important outcomes of content validation were: (1) The definitions of the management building blocks must be unambiguous, (2) The statements must be consistent with the concepts that the educational organization itself uses, (3) It should be possible to indicate whether a particular service or product is not present according to the teachers. By the construct validation the main observations were: (1) Should the questions and statements be related to the ICT policy of the organization or are they solely based on the opinion of the teacher? The experts are of the opinion that it is better to ask straight for their opinion, because the chances are that the teachers are not aware of the ICT policies and principles of the organisation. This bottom-up approach has been implemented in the MBO ICT policy monitor. (2) The

questions of the survey were initially grouped by the management building blocks. It is more understandable for the teachers to rank the questions by subject. (3) Formulate all statements in a positive affirmative form. During the try-out session the questionnaire was further tightened and the average duration to answer all questions was estimated less than 14 minutes. The framework of the MBO ICT policy monitor consists of the management building blocks: Results, People, Resources, Structure and Culture was considered innovative.

Optimising the MBO ICT policy monitor

The MBO ICT policy monitor is initially administered at a metropolitan ROC (ROC Uitholland) where 146 teachers have completed the survey. On the basis of these data the survey was considerably shortened by making use of statistical data reduction. The number of the common components in the data set have been determined by the application of the Monte Carlo algorithm O'Connor (2000). Data reduction, to reduce the items of each component, was done by the use of Principal Component Analysis (PCA).

The selected items to determine the service quality of the staff departments are valid constructs. For ICT support ($\alpha = 0.948$), for educational support ($\alpha = 0.876$) and for the provision of training ($\alpha = 0.661$). The original survey of 303 questions was reduced to a Quick Scan of 55 questions and contains 14 valid components.

Verification of the MBO ICT policy monitor

For verification, the MBO ICT policy monitor with the Quick scan is again applied by a vocational educational MBO organization (Glide Veste) where 63 teachers participated. The result of this verification was that four components were found not strong enough and lapsed. Those components found in the dataset of ROC Uitholland were valid, but also not very strong. The components lapsed for the final versions are: (1) Primary preconditions, (2) Influence of the organization, (3) Encouragement the use of internal digital material, and (4) Encouragement the use of external digital material. The underlying variables of these components are included in the MBO ICT policy monitor as individual items. The final version of the MBO ICT policy monitor consists of 10 valid components namely: *Vision and Strategy*, *ICT resources*, *Education and training*, *Technical support*, *Educational support*, *Accessibility of internal digital materials*, *Accessibility of external digital material*, *(Development) tools*, *Management*, and *Team*. It is true that the underlying items grouped by the management building blocks; *People*, *Resources*, *Structure* and *Culture* pose not significant components. For example the management building block resources could imply that the nature of the product or service is different. The resources of time, money, training, support, and digital content development tools are by nature too different to form a single valid component.

Presentation of the results

The results of the MBO ICT policy monitor are presented in a dashboard that is designed to provide an overview of all management building blocks on one screen where it is immediately visualised if the organization is in balance or not. The user can scan through it, down to the underlying components and items from this dashboard screen by using the provided links. From each screen the user can be transferred back to the dashboard.

The use of the MBO ICT policy monitor

The MBO ICT policy monitor can be used as a *baseline measurement instrument*, but also *preventively* to give inside information on future risks of the use of ICT in education. To come to a process of *continuous improvement*, the MBO ICT policy monitor can be used periodically to monitor the progress of the improvement and so management can make adjustments when needed. The management has more *confidence* by knowing what how ICT is used in the classroom. The MBO ICT policy monitor *differs* in this respect greatly from other instruments used in the field of vocational education. Management gets in recognizable way management information based on the management building blocks: results, vision and strategy, people, resources, structure and culture of the organization. This gives management the information *on issues that actually perform less*, making it possible to establish when possible where *improvements* could made. It is possible to *prioritize* an informed improvement strategy and the MBO ICT policy monitor also provides a classification of the service quality delivered by the staff departments supporting the teachers in the use of ICT.

The end results

When the dashboards of ROC Uitholland and Guild Veste are put together the pattern of the results are largely in line with each other. Further research on this matter clarifies that the monitor doesn't tends to a common average, but it is due to the same results on the level of items. Although both vocational education organizations are very different. ROC Uitholland is a metropolitan ROC and puts a lot of responsibility on the teams of teachers, while Gilde Veste is more top-down organized.

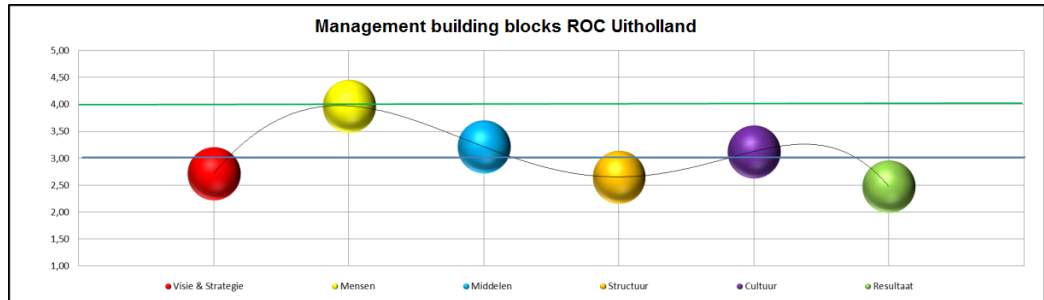


Figure 1: Result overview ROC Uitholland

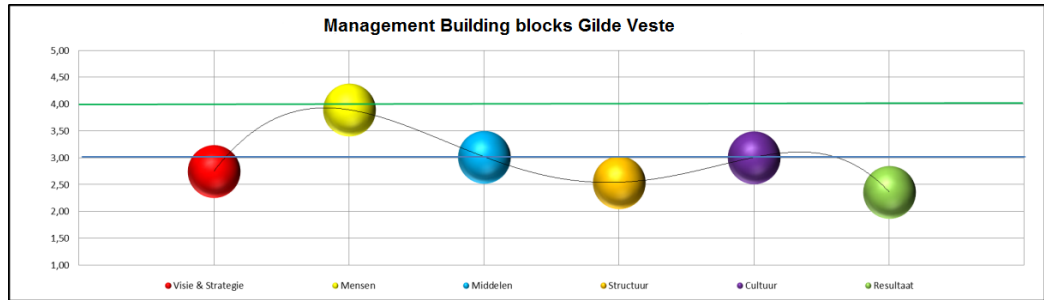


Figure 2: Result overview Gilde Veste

Insufficient results

By both organizations the management building blocks are not sufficiently balanced. This has a negative impact on the use of ICT in education. Visible in the dashboard result (green ball) falls below the value 2.5 meaning lower than a neutral opinion.

Moderate results

What is striking about the management building block *vision and strategy* is that there is a small correlation between the educational vision and vision of the use of ICT in education and the teachers are insufficiently aware of the ICT policies. The management building block structure also ranks low because the teachers do not know what the management expects of them in case they make use of ICT. The teachers decide largely for themselves how to apply ICT in the provision of education. Also, the use of ICT is seldom or never evaluated. This results in a situation that the organisation does not learn from past experiences and there is no quality assurance possible. Quality assurance has no sustainable place in the structure of the organization for the use of ICT. Moderate results have a value range of 2.5 to 3.0 meaning the teachers have a neutral opinion.

Normal results

Management building blocks *resources* and *culture* are scoring normal. Teachers from both educational organizations are indicating that they wish to receive more time for the use of ICT in education. Also management of both educational organizations has to identify the added value of ICT in education more and encourage the use of ICT more clearly. In addition most of the teachers are saying that they can learn more by sharing each other's knowledge and skills in the use of ICT in education. Normal results have a value range of 3.0 to 3.5 meaning the teachers have a positive opinion.

Good results

The management building block *people* scores high. This has mainly to do with the high own assessment of knowledge and skills for the use ICT in education by the teachers and the high motivation to want to do more than management expects of them. Teachers are also giving a clear statement that they are the ones who make the decisions on how to use ICT in their education. Good results have a value range of 3.5 to 5.0 meaning the teachers have a strong positive opinion.

Relevance to science

The nature of the MBO ICT policy monitor is different than commonly used instruments that are used to review the use of ICT in education. Knowing that teachers see the way they teach as an important part of their own professional identity and this conviction is strong and not easy to change, the approach of this study is based on the perception of the teacher. This study is based on quantitatively and qualitatively research. Qualitatively because the reference point of this study is the perception of the teachers and not for example the number of personal computers available. The aim is to look at a group of teachers and not specific to one teacher and his behaviour on the use of ICT. So in order to say something about the

perception of a group of teachers quantitatively research is necessary. The ICT factors of the instruments research, benchmarking on your own policies, and grow to the wanted maturity level those factors are placed in the organisational elements (Management building blocks, Nieuwenhuis, 2006) and the aspect of quality fits in by having a feedback loop between the operational process and the achieved results. (EFQM/INK)

The learning aspect of the organisation is important and embedded in the management cycle of; plan, do, check and act, in this way quality is used by management and not only for accountability. A spring off of this research is service quality to measure the service quality of the support departments on the use of ICT. This is been done by using service quality items of SERVQUAL(Parasuraman, 1988) and is placed under the management building block *Resources*.

The MBO ICT policy monitor combines all those aspects in one practical model.

Reflection of the researcher

The amount of factors that are important for the use of ICT, found in the literature was a problem there were to many valid factors. Even the use of three expert sessions didn't reduce the number of factors. The experts were of the opinion that the factors were relevant and valid. The only way to reduce them was on the base of statistical reduction of items. To do this you need enough data to begin with. To obtain the data the long survey with all the factors was set out by a large MBO organisation. With this data a statistical reduction of items could be made. The survey was set up in sections and not all sections were relevant to all respondents. There was a possibility to answer only those questions of sections, where the respondent has experience in. This was a problem using the Principal Component Analysis (PCA) to reduce the number of items. To do this all items must be valid, in this case answered. The result was that PCA was done on section level.

Another problem was those questions that were answered in a strong one sided way. Those variables were not suitable to carry out a PCA analyse. By a large number of respondents >500 those variables should be more normal distributed and good enough to carry out a PCA analyse.

As a result both organisations ROC Uitholland and Gilde Veste have the same pattern of end results on the management building block, *Vision & strategy, People, Resources, Structure and Culture* of the organization. This is due to almost the same score on item level. The monitor doesn't tender in this direction due to the calculation rules to obtain the results.

Recommendation 1

The MBO organization Gilde Veste has, based on the results of the MBO ICT policy monitor, made an improvement plan with concrete actions. In order to evaluate the effect of these actions, it is recommended that the MBO ICT policy monitor is deployed again after a year.

Recommendation 2

By the realization and development of the MBO ICT policy monitor a number of variables were lapsed. This was due to the distribution of these variables. They did not meet the requirements for performing a Principal Component Analysis (PCA). It is recommended to use these variables with a nationwide deployment of the MBO ICT policy monitor where the response would be high enough to include them.

Further research study 1

Examining whether the pattern found whereby the management building block *people* scores high and management building blocks *vision & strategy* and *structure* are scoring low is a nationwide recurring pattern in the Netherlands. This could well be done by implementing the MBO ICT policy monitor nationwide and compare the results taking into account the differences of management control of those MBO organizations. The recommended hypotheses and research questions for this type of study are:

1. Teachers assess their own competencies for the use of ICT as strong.
 - a. Do teachers know what kind of knowledge, skills and attitude is expected from the organisation for the use of ICT?
 - b. Based on the demanded ICT competence profile, do teachers still assess their own ICT competence as strong?
2. Most educational organisations have a weak strategic ICT policy.
 - a. Is there a significant difference between organisations that have a clear strategic ICT policy and those how haven't in the (successful) use of ICT in education?
3. The use of ICT in education is seldom evaluated.
 - a. Are there significant differences between educational organisations that use a Total Quality model and those how don't in the use of ICT in education.

Further research study 2

Research can be done on the major differences in the results between vocational MBO education,

secondary education and higher education in the Netherlands by using the ICT policy monitor. Also take into account the specific characteristics of each educational sector. The recommended hypotheses and research questions for this type of study are:

1. There are no significant differences based on the outcome of the ICT policy monitor between the different types of education in the Netherlands.
 - a. With specific adjustments must be done to make the ICT policy monitor suitable for secondary and higher education.
 - b. The difference is measured on the level of the management building blocks: *Vision & Strategy, People, Resources, Structure and Culture* of the organisation.

1. Introduction and Research Approach

Reason	Information Communication Technology (ICT) plays an important role in vocational MBO (Middelbaar Beroeps Onderwijs) education in the Netherlands. With the use of ICT, education can be organized so that teaching and learning are adapted to the changing population and changing demand for learning. More effective and efficiently organized, MBO education wants to focus on the development of the individual student, both in terms of guidance and learning development. This change requires an extra effort from management and staff of a MBO organization. To implement this flexible approach MBO organizations receive no additional funding from the Ministry of Education, Culture and Science. In order to achieve the desired flexibility, a strong appeal is done on the use of ICT.
Management information	However, the widespread use of ICT in primary education process brings new business risks with it. For this reason, more and more managers of MBO organizations have the need to understand the real impact of ICT investments made in primary education process. Management has often sufficient insight into the hard data on the ICT infrastructure and, but little or no understanding of the actual use of ICT by teachers in their education. To gather this information you have to look at the primary education process itself and explore what teachers moves and stops using ICT in their classes. By focusing on the actual use of ICT in education and assess what the teachers are doing and want to do with ICT, it becomes possible to develop an instrument that will give the required management information. By choosing this approach, we are interested in the subjective opinion or perception of the teachings themselves in the use of ICT in their classes.
Focus on actual use of ICT	This study therefore focuses on developing an ICT policy monitor to measure the actual use of ICT by teachers. The main goal of the MBO ICT policy monitor is to measure subjective information in a correct way. For management, this is again relevant to see how this relates to their own ICT policy principles. The developed policy monitor ICT can be a valuable tool in optimizing the use of ICT in primary educational process.
Different approaches	This approach comes from the Emerge project Quick Scan ICT for Higher Education, where I was a member of the development team. The Emerge project was aborted due to lack of cooperation with other universities to use the Quick Scan in its development stage. The emphasis in this project was mainly on the extent to which the teaching staff is prepared and feels supported to achieve the ICT policy goals. While the emphasis of MBO ICT policy monitor is based on the opinion of the teachers in their use of ICT. With this information, the existing policies and future policies can be reviewed and discussed according to the problems found.
1.1. Approach and method: bottom-up	
The perception of the teachers	By developing the MBO ICT policy monitor the perception of the teacher about the use of ICT in their classes is the key issue. It may well be possible that according to the perception of the teacher there is no possibility to make use of educational support for the use of ICT, while the MBO organization does actually offering this support. Also, this type of information is important for management. Apparently teachers are not aware of the existence of this kind of support. This approach can be seen as a bottom-up approach which examines the reality in the workspace.
Vision and policy on the use of ICT	A top-down approach focuses on the vision, policies and guidelines for the use of ICT in education and describe the added value of the use of ICT. The main question by such an approach is: are there specific policy documents or guidelines within the educational organization that prescribe or provide support to the teacher in the use of ICT in education? If there are policy documents or guidelines, are they known to the teachers and are they usefull. This approach has been followed by the Emerge project Quick Scan ICT.
1.2. Research plan	
Research model	The model, used for making a research plan, is the model described by Oost (Oost, 2004) and presented in figure 3. The elements of the model are described in separate sections. The basis of the plan is the question, section 1.2.1. The reason why the question is interesting to answer is given by describing the relevance in section 1.2.2. The theoretical frame to anchor the question provides the main theories that

will be used to answer the question in section 1.2.3. Associated with the question is the answer in section 1.2.4. What can be said in advance about the answer? For example on which objects will the answer provide statements? The strategy, i.e. the way to find an answer to the question, defines the research methods in section 1.2.5.

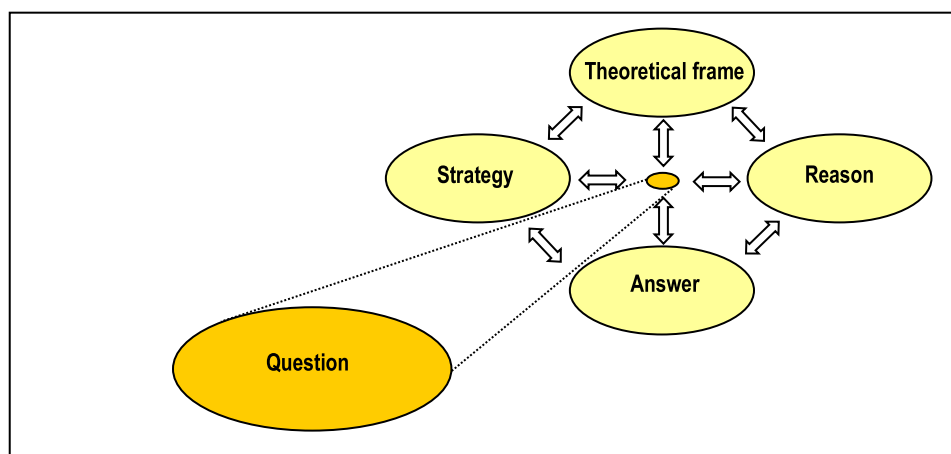


Figure 3: Model for making a research plan (Oost, 2006)

1.2.1. Question

Problem perception

The problem addressed is that the management of a MBO organization has little insight knowledge of the use of ICT in the primary education process. This observation is done by Koerst (2014) during his carrier of fifteen years by tree major MBO organisations. The determining actors in the deployment of ICT in the learning process are the teachers themselves. A number of studies suggest that teachers often think that the way they organise their education is part of their own professional identity and this conviction is strong and is not easy to change. (Ertmer 2005; Ertmer 2009). So they must have confidence and understand that the use of ICT has added value in the learning process. This is crucial for effective use of ICT. The motive of the teaching staff for the use of ICT in the learning process has to be determined. For management, it is important to know this motive. What kind of support really helps the teacher and what doesn't?

Problem definition

How can management of a MBO organization gain more insight knowledge into the motivation of the teaching staff in the use of ICT in the learning process and based on this information achieving their own objectives in the field of ICT use in primary education process?

Main objective

Developing a policy monitor ICT for the management of a MBO educational organization to obtain relevant management information over what is really happening with ICT in the primary education process based on the actual experience and perception of the teacher's, so management is better prepared to achieve their on ICT objectives.

Main research question

In with way should it be possible to develop an ICT policy monitor for the management of a MBO educational organization based on the actual experience and perception of the teacher in the use of ICT in primary education process and obtain adequate management information to achieve the prescribed ICT goals for education?

Research questions

1. Which types of measurement instruments are there in the educational field to qualify the use of ICT in the primary educational process?
 - 1.1. What kind of research method is used for the development of the MBO ICT policy monitor?
 - 1.2. With research studies are relevant for the development of the MBO ICT policy monitor?

-
2. Which requirements must the MBO ICT policy monitor have?
 - 2.1. How are the users requirements identified and defined?
 - 2.2. Which user requirements must the MBO ICT policy monitor have?
 - 2.3. How are the design requirements established?
 - 2.4. Which design requirements must the MBO ICT policy monitor have?
 - 2.5. How are the results of the MBO ICT policy monitor presented?
 3. Which modifications or extensions of the MBO ICT policy monitor can be proposed for further study?
 - 3.1. In with way are the results consistent with the theoretical assumptions?
 - 3.2. How is the MBO ICT policy monitor evaluated by management?

Problem owner

The main problem owner is the management of a MBO organisation. Management indicates to have insufficient insight knowledge about what is really happening with the use of ICT in education. This observation is done by Koerst (2014) during his carrier of fifteen years by tree major MBO organisations. The determining actors in the deployment of ICT in the learning process are the teachers themselves.

Preconditions

For the validation of the MBO ICT policy monitor, it should be necessary to test and evaluate the monitor by a representative MBO organization.

1.2.2. Reason and relevance

The reason and relevance of this research can be answered by asking the *why* question in respect to the main objective of this research:

Why is a policy monitor ICT developed to understand the perception of the teaching staff in the use of ICT in the educational process?

Knowing that teachers see the way they teach as an important part of their own professional identity and this conviction is strong and not easy to change, the approach of this study is based on the perception of the teacher. Looking in the mind and through the glasses of the teacher when he or she uses ICT to support the educational process. Knowing this kind of information management must be able to adapt an effective strategy to achieve the prescribed ICT goals for education and enrich the professional identity of the teachers rather than harm it.

The most important results of this approach are:

- To understand what the main drivers are of the teaching staff in the use of ICT.
- To develop a more effective policy. What particular actions are needed?
- To be quickly aware of problems in the implementation of ICT in the educational process.
- Providing sufficient management information to support the decision making process. The policy monitor has the role of a thermometer. What are the main problem topics by the use of ICT?
- The results of the MBO ICT policy monitor can also be used for an open dialogue with the teachers and staff.

Social relevance

Social developments ensure that ICT is place an increasingly prominent role in our daily lives. The education sector recognizes this development and wants to benefit from it to keep up with the changing demand for education. The process of change within the organization to benefit the most of the use of ICT is often difficult and time consuming. The biggest problem is lack of adequate management information to support decision-making. This study will focus on the development of a policy monitor ICT for management to fill this gab. The policy monitor ICT makes clear with bottlenecks there really are in achieving the ICT objectives for the use of ICT in education and management can act based on this information.

To make the MBO ICT policy monitor available to all vocational education organizations in the Netherlands, it should be possible to make a national overview. Research centres, branch associations and possibly publishers of digital teaching materials for vocational education can benefit from this.

The nature of the MBO ICT policy monitor is different than commonly used instruments that are used to review the use of ICT in education. The perception of the teacher on the use of ICT is key. Knowing and understanding his or her's views on the actual use of ICT should be eye opener for management and provide clear management information over the actual use of ICT. Based on this information management can act more effectively in realising their own goals for the use of ICT.

1.2.3. Theoretical frame

For the development of the MBO ICT policy monitor is used a number of important knowledge areas. Education, Organization and Management Theory, Policy Science, Argumentation Theory, Instrument Development, System Engineering and Statistics. Table 1 gives an overview of the mean subjects

Research question	Knowledge area
1.1	Quantitatively and qualitatively research
1.2	Organization and Management Theory, Policy Science, System Engineering, Statistics, Instrument Development
2.1	Education, Organization and Management Theory
2.2	Policy Science, Organization and Management Theory
2.3	Policy Science, Organization and Management Theory
2.4	Policy Science, Organization and Management Theory
2.5	Policy Science, Organization and Management Theory
3.1	Statistics Organization and Management Theory
3.2	Instrument Development, System Engineering

Table 1: Overview of knowledge areas

1.2.4. Answer and Scope

The scope of the research is to develop, test, validate and evaluate the policy monitor ICT for management MBO organizations based on the actual experience and perception of the teacher in the use of ICT in primary education process and results in practical information for management. The MBO ICT policy monitor will be able to indicate which key aspects of the organization that falls short by the use of ICT in education. The term policy indicates that the monitor takes into account all relevant parts of the organization. The MBO ICT policy monitor makes a snapshot of the organization and can be periodical used to determine whether the actions that management has taken also had a positive effect.

1.2.5. Strategy and Methods

To development the MBO ICT policy monitor conform scientific roles it is necessary meticulous approach from the beginning. In order to guarantee the validity of the MBO ICT policy monitor each decision in the development process has to be substantiated. The development must also follow concrete development and implementation roadmap. Other considerations in the development and deployment of the MBO ICT policy monitor lies in the area of presentation and communication concerning the use of the monitor. How is the ICT policy monitor ICT presented within the organization and what are the expectations?

Table 2 gives an overview of the basic steps for the development of MBO ICT policy monitor with the decisions to be taken.

Part 1: Realisation		Part 2: Implementation	
1	Literture research	11	The preparation of the short survey. The Quick Scan
2	Set up first draft of the survey	12	Recruiting a MBO educational organization to try out the Quick Scan
3	Review expert sessions	13	The recruitment of a sufficient number teachers that will answer the Quick Scan
4	Make the survey digital available	14	The process of data collection
5	Recruiting a MBO organization to try out the survey	15	The analysis of the data and validation of the data
6	The recruitment of a sufficient number teachers that will answer the survey	16	Developing the MBO ICT policy monitor
7	The process of data collection	17	Drafting an improvement plan for the application of ICT in education.
8	The analysis of the data and validation of the data		
9	Validation of the number of components. To use for a data reduction.		
10	Set up a validation plan		

Table 2: Staps for development of the MBO ICT policy monitor

1.2.6. Reading Guide

Framework for development

This section describes how the report is structured and how this relates to a rational approach for problem solving as described by Bots, (2001). The design and verification phase were added to this approach to develop the policy monitor. These phases are coming from the Waterfall model of Winston, (1970) for the development of software. In doing this the rational approach to solve complex issues and technical the aspects for the development of the policy monitor are combined. The section below shows the breakdown into the separate phases.

Image building

In the image building phase the complex nature of the problem is identified and the problem owners are described. Chapter 2: Image building: *The use of ICT in education*.

Focus

In the focus phase the possible solutions based on the research question are listed. Activities are appointed to work out the addressed problem. Chapter 3: Focusing: *Educational innovations*.

Search for solutions

In the search for solutions phase research studies and management tools that are relevant for the development of MBO ICT policy monitor are examined. Chapter 4: Search for solutions: *literature research measuring instruments*. Chapter 5: Search for solutions: *Literature research organization and management theories*.

Choice

In the choice phase, the decisions are made over the design and methodology for the development of MBO ICT policy monitor. Chapter 6: Making choices: *principles of MBO ICT policy monitor*

Specification

In the specification phase is according to the design and user requirements of MBO ICT policy monitor the specification layout. Chapter 7: Specification: *MBO ICT policy monitor*.

Design

In the design phase, the MBO ICT policy monitor is developed on the basis of the criteria and set requirements. Chapter 8: Design: *MBO ICT policy monitor*.

Implementation

In the implementation phase, the MBO ICT policy monitor was tested and used. Chapter 9: Realisation and implementation: *MBO ICT policy monitor*.

Verification

In the verification phase, the MBO ICT policy monitor was verified on component level and functionality was tested. Chapter 10: Verification: *MBO ICT policy monitor*

Evaluation

As a final phase, the evaluation phase, the entire development process and the results from the MBO ICT policy monitor by ROC Uitolland and Gilde Veste are judged. Chapter 11: Evaluation: *MBO ICT policy monitor*.

Conclusion and recommendations (Chapter 12)

2. Image building: *The use of ICT in education*

Image building

Focus

Search for
solutions

Choice

Specification

Design

Implementation

Verification

Evaluation

In society, there has been an accelerated growth of IT applications in various fields such as the economy, the government and the social sector. Youth growing up in a world that consists of all kinds of mobile and interactive communication, something which they are often found in very few of the traditional education. If schools want students to retain, the use of interactive ICT applications in the educational process is an attractive way to connect with the experiences of youth.

Carnegie Corporation of New York gives its 2011 edition: Next Generation Learning-Defining the Opportunity (2011) a structured overview of challenges and opportunities that the use ICTs in the organization and provision of education. Educational institutions that Next Generation Learning (NGL) have embraced, can offer a highly differentiated curriculum. The student is central to his or her learning needs. As a result, IT can make it possible to connect to; the learning style of the student's desired pace and depth of study. Carnegie also provides a number of criteria to determine whether the application of ICT offers added value in the care and organization of education. The criteria are:

1. Does it facilitate sustained breakthrough learning gains by all students, and particularly those who chronically underperform?
2. Does it create efficiencies that make them at least cost neutral to deliver compared to traditional models?

The criteria of Carnegie are useful as an overall check for the development of the MBO ICT policy monitor. Does the use of ICT results in a sustainable improvement?

The application of the new ICT opportunities in vocational education has been slow. The curriculum and the chosen methods of training are often for a longer period. This certainly applies to the vocational education where the regulation of education is high. (www.onderwijsinspectie.nl)

The management of an organization MBO is often reluctant because it is not immediately clear what added value the use of ICT for the provision of the educational process. Consider the use of Wikis, Twitter and blogs as a work form. Yet the application of ICT in education has become an important issue and it is seen as an important tool for learning the specific skills that we need as a modern citizen of the world in the coming years. (Find information on value estimate and use collaboration and knowledge sharing)

Added value of ICT

Socio-economic reasons

Kozma (2008) provides a number of important socio-economic reasons to invest in the use of ICT in education.

1. To support economic growth through the development of human capital, which will lead to increased productivity of the workforce.
2. To promote social development through knowledge sharing, promoting cultural creativity, increasing democratic participation, improving access to public services and improving social cohesion.
3. To promote education reform, i.e. major curriculum revisions, changes in pedagogy or change in examination and assessment.
4. To support the management and accountability, with an emphasis on computer-based examinations and the use of management information.

Social relevance

These aspects relate to a broad social relevance. It is obvious to also look at the role of ICT in education and the specific need to investigate. Then correctly a number of important arguments given by the ICT cluster Education and Training 2010 program as part of the Lisbon objectives set for 2010 European commission. (ET 2020, Official Journal C 119 of 28.5.2009)

1. Developing robust learning strategies for students.
2. ICT can be a good tool for the development of individual learning plans. There may also be an extensive visualization of the training materials and variation in teaching methods.
3. Through the use of ICT more learning can be done at home. In this way children develop and learn at the same time ICT skills based on pedagogical principles.

Seen from a European perspective, educational organizations will have to ensure that the use of ICT is an integral part of the educational process. This also allows students from lower social classes are

learning the necessary digital skills in order to function. Later as a full citizen of the world



Europe 2020 is the European strategy to achieve smart, sustainable economic growth the coming years. The Digital Agenda for Europe (DAE) is an important part of the target and that European citizens and businesses make the most of digital technologies. The digital economy is here to spearhead and grow seven times faster than the conventional economy. A special part of DAE's Pillar VI: Enhancing digital literacy, skills and usage. (Progress Report Digital Agenda Targets 2014) Action 86 Pillar VI promotes the embedding of eLearning in national policies. Here there is modernization of education in the broad sense. It covers all aspects of education; the training itself, the curricula, learning, assessment of learning outcomes and the professional development of teachers.

The addressed problem is that e-learning is not sufficiently present in the teaching of the Member States and is not an active part of the education. The benefits are correspondingly, time and place to learn. Independently at your own pace In addition, it also provides opportunities for self-regulation and informal learning, supporting different learning styles, new ways of working together and can use e-learning to ensure that workers in a more efficient way to gain knowledge and skills. Responsibility for education policy lies with the Member States. However, the EU has a mandate to support them in their efforts to modernize by promoting the exchange of best practices and by supporting research into the added value of ICT use in education.

2.1. Conclusion

The use of ICT in education has many different facets and even social economic value. Carnegie provides a clear basis in which the student is provided with his or her learning issues centrally. The use of ICT can connect to it as possible; the learning style of the student's desired pace and depth of study. Europe 2020 here gives a boost to the European Digital Agenda for Europe (DAE) Action 86 of Pillar VI promoting and embedding eLearning in national policies. In the next chapter, the direction phase described on the basis of educational developments in the HBO and MBO in which ICT plays an important role.

Next chapter will focus on educational innovations with ICT

3. Focusing: *Educational innovations*



Is it worth spending so much time and energy to implement ICT in the learning process? What is the added value of all this effort and can it be justified? The added value in terms of performance improvement (efficiency and effectiveness) is methodologically very difficult to prove. But just conclude that the use ICT in the learning process have little added value, is the other extreme. There are research projects done that endorse the added value of ICT in the learning process.

The large-scale BECTA research (2002) made a clear correlation between the performance of educational organizations and whether they have enough ICT facilities. Organizations that have good ICT facilities perform better than organizations with lesser ICT facilities. The researchers have worked with reference groups and also looked at other factors that may have influence on this hypothesis. The other factors had no significant influences. BECTA was the government agency of the UK leading the national drive to ensure the effective and innovative use of technology throughout learning. It was established in 1997. BECTA provided rigorous research and evaluation to evaluate the impact of technology on the education and skills system. It provided expert and independent advice.

Upon further investigation also revealed that the use of ICT in higher education (HO) has a positive influence on the academic performance of the students. (Ten Bommelhuis 2006) The use of ICT ensures that students learn more, learn faster, have more pleasure in learning and feel themselves more successful. An important success factor is the increase in specific skills. Other key factors are the improved quality of the used computer programs, better education, improved computer facilities and teachers have more ICT expertise. Teachers are better able to integrate ICT in their own teaching approach that leads to better performance by students. (Ten Bommelhuis 2006)

Practical applications in MBO

On the effects of the use of ICT in MBO education is still little research done. However, several promising practical applications are showing that there are qualitative improvements made in the educational process. Obron (2011) described a number of successful applications of ICT within the MBO education. The successful applications are:

Insight knowledge and see correlations

Students perform better by gaining insight knowledge and are able to see correlations between problems en subjects. Increase understanding, ties in the field of knowledge transfer makes IT possible to offer the material in different ways and the course material to exercise frequently. In the field of professional ICT skills supports both the specific skills, for example by the use of simulators as the General support of, for example, the digital skills by working together.

Motivation

Students are more motivated by connecting to their world of experience. Students are often enthusiastic when they are allowed to work with ICT. It is not only a nice change, but they appreciate that they can work on their own pace.

Work and learn independently

It provides opportunities to work independently. ICT creates all sorts of opportunities to work independently: (1) making assignments; (2) learning by simulation (simulating real situations) and (3) individual digital learning arrangements (in which the students decide which subjects they study and what exercises they make).

Differentiation

It helps to differentiate in the educational program. Differentiating with the use of ICT is possible on learning pace, content and learning style.

Organize more efficiently

Teaching time is more efficiently used. The teachers can efficiently organize their program and flip back if necessary. And teachers can mentor students at home. This saves teaching time, but the question is whether this outweighs the time the teacher has invested in it beforehand?

Review and feedback

It offers opportunities for review and feedback. Feedback can take place on different moments: it can, for example during and after the end of a learning process. Reviewing during the learning process is a way of formative review. At the end of the learning process, the student will often make a summative exam to determine whether he or she can continue or complete the study. ICT can be used efficiently by formative

and summative assessments

3.1. New role of ICT in the vocational learning process

Great appeal on ICT

The vocational MBO education in the Netherlands has 525,000 participants and is an important driver for the Dutch labour market. The vocational MBO education has over 600 qualified programs spread over 69 educational organizations. (<http://www.ib-groep.nl/organisatie/open Onderwijsdata/databestanden/mbo>) It is therefore of national importance that the quality of those programs are maintained or even improved. To insure a great appeal is done on the use of ICT, to support both the organizational and learning process.

New role of ICT

Large MBO organisations such as; ROC Zadkine, ROC Mondriaan and Albeda College have a positive view of the potential use of ICT in the educational process. The expectations are high; more effective ways of learning, organise more efficiently and increasing the range of educational organization. The MBO Council (MBO Raad, 2011) also endorses the Dutch ambition to be among the top five in the world in the field of knowledge development and valorisation. The MBO Council set out three P's to underline this ambition; Performance (higher academic success), Professionalization (of staff and teachers) and personalizing education. Personalize it by being able to differentiate on study content, study pace and where possible even on the students learning style. The assumption is that to be more able to differentiate more attention is paid to the specific needs of the student and that this effort leads to a better academic success. This wider use of ICT will result also in higher expectations. An increase in the use of ICT in primary education process requires, however, that management needs to have more information on the actual impact and use of ICT. This is necessary to assess whether the right policies are followed and the investments in ICT are justified. Specific management information instruments for this purpose are missing. The new role that ICT gets is complex and contains many aspects of the learning process itself and the organization of it. With role has ICT in the educational process and can we speak of new ways of learning or even new didactics?

Digital didactics

Simons (2002) gives some important arguments for the underexposure of the use of ICT in education as a tool for enriching the learning process. Simons also gives a description on what he means by digital didactics. He appoints out seven main elements: the focus on competencies in knowledge and skills, being able to establish relationships, creating material, publish material, the transparency of learning and collaboration and gaining flexibility in the educational process. Simons also gives seven key focus areas:

1. Successful implementation of ICT in education includes more than just technical issues.
2. When ICT is properly deployed in education and training it can dramatically improve and renew teaching programs, think of the possibilities for flexibility in training and the development of a rich learning environment using new communication technologies.
3. There's been a lot of new digital-didactical knowledge gathered, it is a pity not to use it;
4. Certainly a transitional period, in which ICT in education has not yet been established, requires a separate accent on digital-didactic issues.
5. Another vision on learning does not come to new behaviours, for this a change is needed.
6. It is important to be able to use digital learning in such a way that it is integrated into education and training activities.
7. ICT can increase the efficiency of learning, for example, the students can learn more in their own time and pace so the differentness in previous knowledge and learning needs are better served. It is this individual approach that requires a different didactics.

3.1.1. New role of the teacher in the use of ICT in vocational education

Context

The different roles of the teacher could be broken down by three professional contexts of education giving by the Onderwijscoöperatie 2012. These professional contexts are; the pedagogical-didactic acting, working within the school context and the own professional development of the teacher.

Pedagogical-didactic acting

By pedagogical-didactic acting the teacher gives content and direction to his way of teaching. The teacher can use ICT as a *designer* ICT to achieve the learning goals. The teacher constructs the learning process by using different teaching methods. This can be done by, for example, interactive content to ensure that the necessary specific knowledge is transferred. The teacher also has the role of content *expert* who can choose between online learning activities and classroom discussions. The teacher then gives shape to a blended learning strategy. In addition, the existing role of *examiner*, *study career mentor*, *coach* and be enriched by the use of ICT.

Working within the school

The work of the teacher shall be carried out within the context of the school. By doing this the teacher takes into account the educational philosophy of the educational organization. This also applies to the use of ICT in education. In addition, the school uses also its own student administration system that teachers must use. Often there is the possibility to use a Learning Management System (LMS) to support the learning activities for the student. It is clear that the teachers should be able to use those systems in the right way.

Personal growth

The teacher is primarily responsible for his own professional growth. This includes not only his own professional vocational development but also the pedagogical-didactic development. The teacher can also use ICT to follow the latest developments in those specific areas. In addition, the teacher must also keep his own ICT skills up to date for the use of new application and (internet) applications.

3.2. Social media in vocational education

Social media

The use of social media by young people has expanded enormously. Through the use of smart-phones, the medium is always at hand and the user can quickly react on what is happening. Twitter, Facebook and Whats app are extensively used to communicate within a social group. The most striking thing here is that your opinion (Twitter) and your profile (Facebook) is important for the group of your followers and potential followers.



Why wouldn't we use these new possibilities a teaching medium? It would serve the experiential world of the student, making regular learning possible in the social network of the student. In the vocational MBO education there are some experiments carried out, which often comes to the organisation of education (notify course cancellations, exam results ed.) and to a lesser extent facilitating the learning process. How is this possible? Jane Hart gives in her Social Learning Handbook (2011) an important explanation for this. The implementation of social media often happens in the existing structures of classroom lessons, the common use of e-learning and the establishment of the Learning Management System. The maximum achievable result within such existing structure is according to Hart, that a form of social training will take place. To make the step to social learning demand a different way of thinking and organizing outside the existing regular educational structures. This means other roles for teachers and students within a new social structure to get students to learn. Learning becomes a part of your social live and not only within the structure of the school.

New ways of thinking

By thinking outside of the existing structures and highlight the existing forms of informal learning, the use of social media it at its best. In addition, it is important to utilise the strength of the right social learning tools rather than specific training tools because social learning is a part of the total development of the student and goes beyond teaching a specific skill.

The future of social media in MBO

This new way of thinking about the use of social media is not yet visible in the vocational MBO education. On the other hand applying social media looks promising for the individual development of the student. A number of possibilities are here; to create a powerful and diverse learning environment, in order to enable students to create knowledge, to enable students to publish to a wide audience, making collaboration processes transparent for teachers and students. (How? So! Social media in the MBO, Kennisnet 2012) It should be taken into account that the Dutch vocational MBO education is the most regulated form of education in the Netherlands. Therefore existing programs and methods are not quickly changed. Promising experiments may even be stopped because the effort that needs to be done to get regulated clearance is too high.

3.3. Problems in the implementation of ICT in the learning process

Implementing ICT

The use of the new ICT possibilities in the vocational MBO education is generally slow as described in the introduction. Yet there is great attention for it, and there are a number of foundations set up to promote the use of ICT in education (Surf foundation to the HBO and WO, Kennisnet for VO and MBO). Despite the many projects and studies they carry out there is little attention to the knowledge and skills related to the use of ICT in facilitating the learning process or as discussed earlier *digital didactics* at vocational MBO organizations. (Voogt, 2014 didactic ICT skills of teachers)

Two worlds

The term "digital didactics", such as Simons (2002) has appointed as a permanent element of the

teaching process is not often named. Many teachers and managers see the application of ICT in education as a technical instrument rather than a learning tool to enrich the learning process itself. One of the obstacles in education is that the mental world of an ICT developer and that of an educational developer can lie far apart from each other. Where the ICT developer wants to work on the basis of a functional design with a concrete list of functional requirements and the education developer first still wants to experiment with new functional possibilities. For the success of the use of ICT in vocational education, it is very important that these two worlds are brought together. A proven solution is to appoint an information manager who can make a translation of the new functional wishes to a concrete functional design for the ICT developer. Also, there are many stakeholders in education that don't see the added value of using ICT in education yet. Listed below are the most important arguments in reply to the often hurt statements made by management on the use of ICT (Simons, 2002).

Technology-push

The implementation of ICT in education is mainly a technical issue and learning computer skills? This one-sided view is often found in ICT policy plans of large vocational MBO organizations. Especially if the IT department has a high level of control on the final design of the ICT infrastructure. This technology-push overruled often the specific education needs to improve the learning process of the student.

Blended learning

It does not have a strong lift off, the use of ICT in education. The expectations the past 15 years were high and are tempered. The use of ICT in education was seen as a replacement for the human factor. This seems as unlikely as "face to face" education without the use of ICT. Distance learning shows quite difficult to sustain without contact with fellow students and tutors. More and more combinations of distance learning with meetings are organized in order not to lose sight of the human factor. Conversely, the use of ICT in the traditional education is also becoming increasingly popular. Methods of blended learning where ICT is used to support face to face education are now by a large group of teachers known. In the vocational MBO education the term flip the classroom was launched, Kennisnet (2014) in which knowledge transfer often takes place online and face to face education is spent on applying this knowledge. The image is getting stronger that the use of ICT will not replace the teacher, but serve the teacher. It is also clear that the use of ICT in education is unstoppable and will only increase. It is of great importance to seek opportunities for improvement and innovation of the learning process and control this, so that the implementation of ICT in vocational MBO organization is not bogged down in dozens of experiments but is professional anchored in the organization itself.

General didactics versus digital didactics

Digital didactics don't exist at all. (Simons) General didactics versus digital didactics the premise here is that digital learning and teaching follow the same rules as general teaching. In other words, there are no specific digital-didactical principles. There is no deferens whether an instruction is done with or without the use of ICT. But it is generally known that the use of ICT in education requires new approaches and new competencies. Collison, Elbaum, Haavind and Tinker (2000) for example, let see that supervising an online discussion needs a different approach than supervising a "face to face" discussion. In an online discussion, people must be invited and stimulated to contribute in a different way than in a face to face discussion. Because teachers can't see or hear how students respond so they must be more cautious and more comprehensive than in a live discussion. It is also important that the teacher stimulate the students react to each other, it is important that the teacher chooses his right moment to react. Digital didactics would therefore have to exist, especially if you wish to renewal and improvement the learning process and not only go for automation of existing processes.

ICT glorification

Thinking in terms of digital didactics is laying too much emphasis on computer technical aspects, while the key questions must be answered from a general didactic perspective. (Simons) According to this statement ICT is too much set apart and questions regarding the use of ICT in education should be answered in a general educational framework. Developing and explicate a specific digital didactics contributes to the glorification of the technology. The 'glorification' argument of the use of ICT is valid to a certain extent, it is nevertheless useful to pay attention to the digital aspects of learning, instructing and to organize specific training on digital didactics. Digital didactics is still relatively new for most teachers and can, if placed in a clear educational framework, a meaningful specific complement to general didactics. For a vocational education organisation, it is important to have a realistic view on the potential use of ICT in the educational process and within an educational framework. The use of ICT should be realistic.

Vision on learning

It's not about ICT use, but to the vision on learning: that is the main focus

This view emphasizes the relationship between beliefs about learning and the use of ICT in education. The vision on learning is the most impotent driver. It is clear that there are professional qualifications in vocational MBO, with emphasis on specific technical skills such as training to become a Maritime officer. The learning process in this case will be to a large extent learning to operate a seagoing vessel. The role of ICT will be different than for example the training to become a Logistics planner.

Vision on learning leading

The vision on the learning and the vision on the use of ICT can be separated.

Digital didactics explains the links between the vision on learning and the use of ICT. Different views can cause that many different types of ICT applications are being used. The question should be what kind of ICT we need that serve our educational philosophy best. Jörg and Admiraal, (2002). A concrete example of this is the choice for a Learning Management System (LMS) for a vocational education organization which must serve the educational philosophy. One of the selection criteria could be does the organization work with an individual student approach or does it have a group approach with classroom instruction.

Students and ICT skills

Students learn the necessary ICT skills at home, in secondary education or elsewhere: digital didactics is therefore completely unnecessary.

The use of the internet, according to the figures of CBS-Netherlands (2014) increased considerably the past 8 years. Where 96% of the group of young people aged 15-25 years use daily internet. The MBO group scores lower than the HBO and WO group with is a higher level of education.

Internet use	Year	Male %	Female %	12-15 %	15-25 %	25-35 %	35-45 %	45-55 %	55-65 %	65-75 %
Daily	2005	73	62	71	77	75	66	67	54	43
Daily	2013	91	86	84	96	95	92	87	81	73
1 x week	2005	22	29	25	18	22	28	25	35	41
1 x week	2013	8	12	15	3	5	7	11	16	23
1 x month	2005	4	7	3	3	2	5	7	8	15
1 x month	2013	1	2	1	0	0	0	2	3	3
Less than 1 x week	2005	1	2	0	1	1	1	2	3	1
Less than 1 x week	2013	0	0	0	0	0	0	0	0	1

Table 4: Internet use age and gender (CBS-2014)

Internet use highest education	Year	BO %	VMBO %	MAVO %	HAVO/VWO %	MBO %	HBO %	WO %
Daily	2005	62	52	70	81	63	76	81
Daily	2013	78	77	88	93	87	95	96
1 x week	2005	28	36	23	17	30	21	17
1 x week	2013	17	19	10	5	13	4	4
1 x month	2005	8	8	6	1	6	3	2
1 x month	2013	4	4	1	1	1	1	0
Less than 1 x week	2005	3	4	1	1	2	0	0
Less than 1 x week	2013	1	1	0	0	0	0	0

Table 5: Internet use level of education (CBS-2014)

De Haan, Huijsmans and Steyaert(2002) indicate that young people will learn to work with ICT by themselves. This seems to be the case looking at the CBS figures in which 96% of young people (15 to 25 years) daily uses the internet. The question is, however, what kind of skills do the young people learn exactly? Are the skills only of technical and social nature or is their also a form of active learning taken place. Often the learning context is missing. Vocational MBO education should therefore pay particular attention to the independent digital learning of the student in a vocational context.

ICT use delivers no added value for learning.

Now is the added value in terms of performance improvement (efficiency and effectiveness) hard to prove. There are many other factors that are of influence on performance. Ten Brummelhuis (2006) indicates that the learning performance of students will improve if ICT is used in a proper way. Now the question is what is the proper way? The framework of this study assumes that right actions of teachers are in line with the policy of organization itself. The use of ICT in education is then anchored in vision and policy documents and relates the vision on education. So the added value of use of ICT in education therefore depends on what the organization want to achieve with it.

3.4. Conclusion

Closer examination shows that the use of ICT in higher education (HO) has a positive influence on the academic performance of the students. (Ten Brummelhuis 2006). A number of good practices in vocational MBO education are appointed. The assumption here is that by being more able to differentiate there is more attention paid to the specific needs of the student and this extra effort leads increased academic performance.

To make the step to go from a traditional program to a more blended program with the use of ICT requires often a different way of thinking and organizing. Thinking more out of existing structures and setting up new ones to get the optimal benefits of ICT. Setting up new structures and giving teachers new roles, affects the entire education organization. (Teachers, management, education, educational structure, educational infrastructure and method of control). The management of a vocational education organization often has little grip on the implementation of such a complex change.

In the next phase of this research *Searching for solutions* describes the main methodologies and instruments for quantifying or qualifying the ICT use in the primary education process of an educational organization.



4. Search for solutions: *literature research measuring instruments ICT*

The focus phase already shows that the use of ICT in education can increase academic success by differentiating the study program to respond better to the individual needs of the student. To realise this effects the whole organization and can be qualified as a complex issue. The management of a vocational education organisation has often little grip on this issue. Managers are often too busy with operational issues and have little time to oversee such a complex problem. The MBO ICT policy monitor will give management clear insight information to understand this complex problem better.

In the search for solutions phase literature research has been done to find out with methods and instruments are applied to qualify and quantify the use of ICT in the primary educational process of an educational organization. This is done by looking at international methodologies and instruments for this purpose. Existing tools used within the Dutch vocational education are also studied. The methodologies and instruments are researched based on the research questions of this study. Are they usable for the development of the MBO ICT policy monitor?

In the second part of this literature research existing management and organizational theories are studied to determinents which of these theories are the most relevant for the development of the MBO ICT policy monitor. In this research all important elements of an organization that are relevant for the use of ICT in the primary educational process are examined.

4.1. Instruments to qualify ICT in the learning process

Methodologies and instruments

This section describes the main methodologies and instruments for quantifying or qualifying the use of ICT in the primary educational process of an educational organization. By this literature research no distinction has been made between educational types, level or country. An important aspect here is the purpose of the instrument, what is exactly measured and why. Another important characteristic of an applied measuring instrument is the construction, the assumptions and choices that have been made in the development of the instrument. Based on these principles a wide literature search was done on the use of ICT in education. (Key words: ICT in education, e-learning, benchmarking, Educational management)

4.2. Benchmarking

Benchmarking is a comparison process of performance. The performance of a specific organization or Institute can be compared with the performance of other organizations that operate within the same sector or have equivalent activities. A well-known example is the benchmark of MBO organisations. (Financial benchmark MBO 2013 and benchmark academic success MBO 2011) This benchmark compares MBO organisations based on fixed items coming from the Dutch Ministry of Education (OC&W). This benchmark leads to a ranking of MBO organisations. This type of benchmarking says little about the way this performance is achieved. Each organisation is free to organise its own educational learning process according to its own philosophy, also called the *how*. The Government determines in consultation with the vocational field for which profession is trained and under with terms the schools can graduate students, also called the *what*. The use of ICT in the primary education process is to support and enrich the teaching process, this use falls entirely under the *how* and each MBO organisation is free to give meaning to the use of ICT. For a valid benchmark you must compare specific items that are common. The use of ICT can be completely different so using a common benchmark wouldn't work.

Definition of benchmarking

Fielden (1997) gives a simple definition for benchmarking: "a means of comparing one's performance with one's peers".

The goal of benchmarking

The goal of benchmarking is often performance improvement by understanding its own deficits compared to equivalent organisations and improve your own deficits. Two very important underlying assumptions are made here. Firstly, this assumes that the topics examined are equally relevant for all organizations and, secondly, that the performance indicators are of equal importance. The outcome of such a benchmark consists of a ranking of organizations by topic and an overall ranking based on all examined subjects. Benchmarking with mutually comparison of MBO organization on the narrow field of ICT in education has therefore no added value for the development of the MBO ICT policy monitor.

Internal benchmarking

A second definition of benchmarking aims to understand the own specific internal business processes

and to improve them. Benc (2003) gives a broad definition with a relevant link to the mission, vision and values of the organization:

“A business excellence tool for finding, adapting and implementing outstanding practices in order to achieve superior performance. Benchmarking comprises measurement (the what) and practices (the how). And it tells us how well we are performing, defines how good we need to be (a practical vision), how to get there (a roadmap) and it needs to link to our mission, vision and values”

To sum up, this type of benchmarking refers to the systematic collection of information about specific performances of the organization over a fixed period of time. Baseline data is compared with actual data. Also there might be a form of self-assessment on internal and external reference points, often in collaboration with selected parties from the same sector. This form of benchmarking is relevant to the development of the MBO ICT policy monitor. The policy monitor can be used over fixed period of time to track the progress of the use of ICT in the organization and based on this information, management can act to improve the use of ICT. This idea is the first requirement for the MBO ICT policy monitor.

4.2.1. Benchmarking of e-learning

E-learning

There is a lot of international research done in the field of e-learning benchmarking on use of ICT in educational organisations. The most known are: (ACODE, 2006), (BECTA, 2004) and (IHEP, 2000). Those benchmark studies make it possible to compare educational organization on the basis of an established standard. The Australasian Counsel of Open, Distance and E-learning (ACODE) has drawn up eight benchmark categories for universities to monitor the progress on the use of ICT technology in the educational process. The chosen benchmark categories are:

- Policy on the use of ICT in education, planning and anchoring with the education policy
- Quality, planning and setting up processes of continuous quality improvement in the use of ICT
- ICT infrastructure, quality and suitability with respect to the policy principles
- Pedagogical and didactic knowhow on the use of ICT in education
- Staff development, teachers and support staff, competence development, knowledge and skills development
- Student training, computer skills and learning with ICT in a learning context
- Student support, support of the students in the use and deployment of ICT

For the development of the MBO ICT policy monitor, this type of external benchmarking is not suitable but the chosen categories are relevant for an internal benchmarking and the development of the MBO ICT policy monitor. External benchmarking is based on standardised items and indicators, the MBO ICT policy monitor is focussed on internal reference points based on own policies.

4.3. Capability Maturity Model (CMM)

Maturity models

The idea of a Maturity model is that the organisation is mature or competent enough to control its own (production) processes and do this in an effectively and efficiently way. Quality assurances is the main topic, are the main processes reproducible and is the quality of those processes high enough. A matured organisation is able to adjust in time when main processes falls below the quality standard. A matured organization has also sufficient learning capability to optimize its main processes on a continuous base. The models that are relevant for this research have their origin in the process optimization in the field of software engineering. The CMM (Capability Maturity Model) framework is based on work by Paulk (1993) and the Software Process Improvement and Capability Etermination (SPICE) model (ISO/IEC 1998) of El Eman (1998) and the SPICE upgrade in 2002.

Capability Maturity Model (CMM)

The Capability Maturity Model (CMM) was originally developed in the 1980s by the Department of Defence Software Engineering (SEI) of the Carnegie Mellon University, commissioned by the US Department of Defence. With this model the Ministry could assess software companies in an objective manner. The developing process of software could be evaluated using predetermined indicators. Here was great need for because there was not enough control capabilities at the Ministry in that time. The result was that many projects went out on budget. The assumption of this CMM model is that if the development process is done in a controlled and documented way the client has grip on the duration of the project and the finished has the wanted requirements. The CMM model provides objective criteria to guarantee the quality of the development process. The client will then get insight information to what extent these core processes are secured by those different suppliers. The processes are still immature or

mature enough for the development of a high quality product. The CMM model has five levels of maturity; *Initial, repeatable, managed and optimising*. Each maturity level defines the ability of the Organization to a particular main process (key process areas, KPA's) in the development of software. A software company can grow to a specific maturity level until the status of optimising is achieved.

Capability Maturity
Model Integration (CMMI)

An important step in the development of the CMM model came in 1997 when processes relating to the entire organization were added. This model was the Capability Maturity Model Integration (CMMI) (Chrissis et al. 2003) the disciplines of this model are: Systems Engineering, Software Engineering, Production, Process Development, and supplier selection. This model of integration has also found its way into education.

4.3.1. Maturity models for educational use

Maturity models for education

To be able to make statements about the use of e-learning at educational organizations there is simply lack of qualitative standards and measuring instruments. (Jalote, 2003) Jalote indicates the need for a qualitative model, but doesn't make a step in that direction. Based on the maturity principle there were some models developed for education.

4.3.2. Computing Education Maturity Model (CEMM)

Capability Education Maturity
Model (CEMM)

Christof Lutteroth, 2007 has used the CMMI model for educational organizations. He developed the Computing Education Maturity Model (CEMM) based on CMMI that works with the same levels of maturity, *Initial, repeatable, managed and optimising*.

The main processes of an educational organization are arranged around a subject or course. This is possible because a subject or course is commonly used elements within an educational organization. A set of courses makes a study program that is offered by the organization. The assessment of the core processes around a course is possible because a course is a stable element of the organization. By the CMMI model the whole organization is seen as a basic element because on a lower level in the organization there are no stable elements to define. By the CEMM model the course can be taken as a stable element. All processes that have to do with the organisation of a course are included in the CEMM model. At a higher organizational level related processes of the basic element courses are combined and rated the maturity of the organization. In particular, the consistency of the processes and to what extent they are standardized and integrated within the organization are important. With the CEMM model the idea was born to qualify the maturity of the organisation in the educational use of ICT.

4.3.3. E-learning Maturity Model (eMM)

E-learning Maturity Model (eMM)

For educational organizations in higher education particular in New Zealand and Australia research has been done in qualifying the Maturity of the use of e-learning by (Marshall Mitchell & 2006, 2004, 2003, 2002) and in the UK (Bacsich, 2006) that resulted in the E-learning Maturity Model. The emphasis was on establishing the maturity of an organization in providing distance learning. The aim of the eMM model is to give management of educational organization adequate information about the maturity of the organization to provide e-learning in a sustainable manner. Three important questions can be answered on the basis of this model:

1. Does the organization learn from past experiences?
2. Are the available resources been used in an effective manner?
3. Has the organization a clear picture of what it needs to do in order to be able to improve the e-learning processes

Main processes e-learning
Maturity Model (eMM)

The extent to which the organization is capable to develop e-learning in a professional manner and on a large scale is the essence of the eMM model. The organization is sufficiently able to control all business processes needed in the provision of e-learning and do this on a professional level. The business processes are divided into a number of specific main processes focused on the use of e-learning. These main processes are:

- Learning processes, which directly have an impact on the educational aspects of e-learning
- Developing processes for creating and maintaining e-learning resources
- Support processes in the implementation and management of e-learning activities
- Processes for evaluation and quality control during the life cycle of an e-learning product or service
- Organizational processes for the planning of e-learning products and services.

Each main process is divided into aspects, for example the main process *learning processes* is divided into three aspects; L1. *Learning objectives*, are the clearly set?, L2. *Communication* is here a possibility

so that students and teachers can communicate with each other (ways of interaction) and L3. *Students* can they follow training for the use of e-learning?

For each aspect there is a set of questions, each question is assessed on a scale of; *fully adequate, largely adequate, partly adequate, not adequate* or not determined.

All the questions of a specific aspect are combined and forms scale of this aspect. Eventually the scores of all aspects of a specific main process form the scale of this process. This method gives a very detailed picture distributed throughout the five main processes on the use of ICT in the primary educational process.

4.3.4. Evaluation Maturity models for educational use

Evaluation of the Maturity Models

A stumbling block of a Maturity model for education is that it is based on an abstract ideal image formulated for the use of ICT. This makes it possible to compare organizations on the same aspects. The Maturity model functions here as a benchmark tool to establish the maturity of the different organizations and compare them. This benchmark still gives no picture of the results regarding to the own ambition level of the organization. In other words, to what extent has the organization its own ambition level achieved, as described in their vision and strategy? An organization must then translate the results and benchmark it with their own indicators to know how they are doing according to their own strategy on the use of ICT. Another important issue is that the examined models are based on a very technical sector namely the software industry. As a result, the CEMM and eMM model are technical and very detailed in their design. A number of critical comments can be made concerning the use of those models:

1. There is no valid basis found in the literature research why a tool that comes from the software industry is suitable as measuring instrument in the context of an educational organization. The difference between both sectors is significant. Both in the management of the business processes and corporate culture.
2. Both eMM and CEMM didn't become a standard for educational organisations to quality the use of ICT in education.
3. The use and the processing the results of the eMM and CEMM model is very labour intensive. This can be a reason for many organizations with small staff departments why they don't use the models.
4. The application of the models can lead to bureaucratic perverse behaviour. If it's good on paper this will have to lead to the desired result.
5. There is no proven link between the use of these models and the improvement of the core processes.
6. By using the models in which all the main processes are fully described is procedures can result in inflexibility. The organization is no longer able to react quickly to a changed market demand or new ICT opportunities.

4.4. Measurement instruments from the software industry

Microsoft

Microsoft is the world's leading supplier of operating systems (Windows, SharePoint ed.) and has a large assortment of office packages (Word, Excel, PowerPoint, Projects etc.). Products that are very widely used in education and often serve as the platform for specific e-learning products. The education market is very important for Microsoft because young people quickly become accustomed to Microsoft applications and will continue to use it both for business and privately.

Innovative Teaching and Learning

Microsoft is actively involved in the international research programme *Innovative Teaching and Learning* (ITL, 2010). For this research programme an instrument is developed for organization. This instrument works on the basis of the education method used and gives new possibilities for the use of ICT to enrich it. The components are:

- Student population
- Used education methods
- Differentiation opportunities within groups and classes
- Support for the teachers in the use of ICT in education
- Management leadership
- The available ICT infrastructure

The instrument indicates possible Microsoft products that can be used in reference to the method of education. Microsoft uses a market product orientation and no orientation that goes out of renewal of the educational process. This instrument is product driven and Microsoft doesn't really asks what the teacher needs to use ICT in his lessons.

4.5. Measurement instruments used in vocational education MBO

The Four in Balance Monitor (Bouwstenen van Vier in Balans Ten Brummelhuis, 2011) is the main instrument used in the field of vocational MBO education. The Four in Balanced Monitor is based on the Four in Balance model. The Four in Balance model assumes that there must be a balance in four aspects of the organization for optimal use of ICT in education. These aspects are called building blocks. The building blocks are: vision, expertise, digital learning materials and ICT infrastructure. These building blocks are complementary and mutually dependent. The four building blocks are described in the following paragraph. See figure 4.

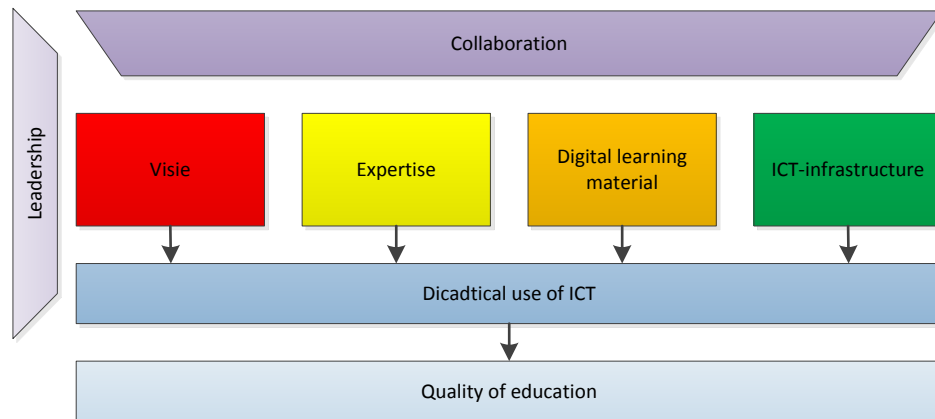


Figure 4: Four in Balance model

Vision of the organization	Vision: the view of the educational organization on what they believe is good education and how the organization wants to realize this. The vision includes the objectives they want to achieve, the role of the organization, the position of the teachers, students and management, the subjects of teaching and the type of material that is used.
Expertise	Expertise: the knowledge and skills of teachers in the use ICT in relation to the educational objectives. This contains technical skills, knowledge about didactics, specific vocational knowledge and the ability to give meaning to those three aspects.
Digital materials	Digital learning materials: all formal and informal digital educational content. Formal learning material is material that is made specifically for educational use. Also the use of specific computer programs and e-learning is seen as digital learning material.
ICT infrastructure	ICT infrastructure: the availability and quality of computers, networks and internet connections. Also the use of a Learning Management System (LMS) and the maintenance of ICT facilities is part of the ICT infrastructure.
Leadership	Organizations must carefully align these four building blocks to achieve the optimal use of ICT. Teachers play a crucial role, but in addition to this leadership and commitment of management are necessary to control the process and create conditions for collaboration with other professionals.
The nature of the model	The starting point in the development of the Four in Balance Model is the teaching methods that the teacher is using to give meaning to his education. The model wants to build a bridge between the currently used traditional teaching methods and the new ones with the use of ICT.

4.6. Examined models overview

This section provides a presentation of the examined models with their corresponding main components or aspects. In addition to the main components, it is also important to know what the objective and principles were for developing the model in order to assess the extent to which these models are useful for the development of the MBO ICT policy monitor. The following table lists the main components of the examined models.

	Component	ACODE	CEMM	eMM	ITL	Four in Balance	MBO ICT policy monitor
1	Vision and strategy	X				X	X
2	ICT Policy	X				X	X
3	Teachers expertise					X	X
4	Team collaboration					X	X
5	Leadership of management				X	X	X
6	Pedagogical and didactic meaning by the use of ICT	X	X	X	X	X	X
7	Process orientation for product development software (e-learning)		X	X	X		
8	Digital material (making)	X	X	X		X	X
9	Expertise of staff to support the teacher	X	X	X	X		X
10	Quality Assurance	X	X	X		X	X
11	Organisational planning, control and evaluation			X			X
12	Student training	X	X	X			
13	Student support		X	X			
14	ICT- infrastructure	X	X	X	X	X	X

Table 6: Overview of models and components

The table above gives an overview of components that are used in the researched models. There are three components (Red) that are not suitable for the development of the MBO ICT policy monitor. The other ones are further investigated.

Components for the ICT policy monitor

Component 7; *Process orientation for product development*. This component comes from the eMM model and describes fixed processes for the development of ICT applications and products. This product and process approach goes too far for a teacher who makes digital teaching material. Most teachers will not develop full ICT applications. What is important is whether the organization supports the teachers sufficient in the development of digital materials and made them available.

Component 12 and 13 relates to training and support students. It is clear that these issues are important for the use of ICT in education but the MBO ICT policy monitor focuses on the teacher and his or hers perception on the use of ICT.

One factors and environmental factors

The main question that can be asked is: with factors are important for the use of ICT by teachers and how is it possible to qualify this correctly. The diagram below gives a view of the most important factors that came from the models described in this chapter and listed in table 5. Note that the organization itself has also an important task to support the teachers in the use of ICT in education. The organization can offer for example training on technical and educational use. The figure below gives an overview of the factors that are important for the use of ICT by the teacher.

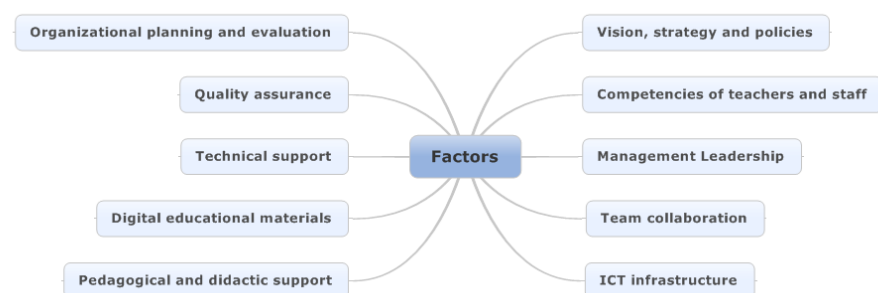


Figure 5: Important factors for the use of ICT

Another important aspect besides the main factors for the use of ICT in education is the applied methodology or assumptions used to develop the instrument. Based on this information it is possible to determine the usefulness for the development of the MBO ICT policy monitor. The following table gives an overview of the objectives and methodologies used.

Instrument	Objective	Methodology
ACODE	To measure and rank educational organizations in the field of e-learning	National benchmarking based on standardised items
CEMM	Give insight information about the key processes to deploy ICT in education focussed on a course	To qualify the maturity of an educational organization in the use of ICT, based on standardised levels of maturity: <i>Initial, repeatable, managed and optimising</i> . External benchmarking
eMM	Give insight information about the key processes to deploy e-learning in education: learning processes, developing processes, support processes processes for evaluation and organizational processes	To qualify the maturity of an educational organization in the use of e-learning, based on standardised levels of maturity: <i>Initial, repeatable, managed and optimising</i> External benchmarking
ITL Microsoft	To inform management of an education organization about the possibilities for the use of ICT in education based on the new teaching method and teaching methods of the Organization itself	Baseline study on current teaching methods and possible future methods with the use of ICT
Four in Balance	To give information about four building blocks of the organisation: vision, expertise, digital learning materials and ICT infrastructure. Based on current teaching methods and possible future methods with the use of ICT	Balance in four aspects of the organization for optimal use of ICT in education. These building blocks are complementary and mutually dependent.

Table 7: Overview of instruments with objectives and methodologies

Internal benchmarking

The most appropriate method for the development of the MBO ICT policy monitor is that of internal benchmarking. The ICT policy monitor can be used as a baseline measurement to analyse the current bottlenecks by the use of ICT by the teacher. On the basis of this information the management can focus on improvements. By deploying the ICT policy monitor periodically makes it possible to set up an internal benchmarking. Specific management actions can be part of the management cycle; *plan, do, check, act* to achieve the necessary improvements.

Maturity models

Another important consideration is the excusal use of the instrument. By the use of a Maturity model, there is an extensive field study necessary based on questionnaires and interviews. The outcome of this study determents the maturity of the organization. This form of time consuming research is not in line with the objectives of the MBO ICT policy monitor. The use should be simple en quick, so it could be done periodically. The construction of the scale in degrees of maturity is also not obvious because the standard of maturity must be known in advance. The MBO ICT policy monitor does not assume a standard in advance, but measures the opinion of the teachers without a judgment.

Four in Balance model

The Four in Balance model wants to build a bridge between the currently used traditional teaching methods and the new ones with the use of ICT. The focus of this model are the teaching methods and not the teacher self with his or here's perception of options. The wide approach based on the vision, expertise, digital learning materials, and ICT infrastructure is an approach that is useful for the development of the MBO policy monitor. However, the Four in Balance model doesn't indicates how the scales of the different organizational building blocks are constructed and when there is a valid balance situation.

4.6.1. Teacher's own factors and environmental factors for the use ICT

Impact on the organisation

For the development of the MBO ICT policy monitor can be concluded based on the examined instruments that the following factors are important by the use of ICT in education namely: vision, strategy and ICT policy, management leadership, team collaboration, pedagogical didactic support, IT support, ICT infrastructure, professional development, making digital materials, quality assurance by evaluating pilots, organization planning and control in large-scale use of ICT. These factors have a large impact on the educational organization. This includes the vision on the education, the didactic profile and policies, the organization of education, supporting the teachers both technical and educational, the management of the organization and way of collaboration.

Management and organizational theories

The use of ICT in education therefore has a profound effect on a large part of the organization. In the second part of this searching for solutions phase existing management and organizational theories are researched to see with of these theories are the most relevant to the development of the MBO ICT policy monitor.

4.7. Conclusion

The process orientation factor for product development derived from the software industry is not included in the MBO ICT policy monitor because it assumes a fully written-out method for developing software. This is for the MBO ICT policy monitor not relevant because teachers don't develop complete e-learning programs. Another important factor that is not included in the MBO ICT policy monitor is student support in the use of ICT this is because the MBO ICT policy monitor focuses on the key actor the teachers and his or her's perception and how management can make use of this information to improve the use of ICT. The result of this literature research is the list of factors that are important by the use of ICT in educational organisations and will be used in the development of the MBO ICT policy monitor. The factors are: *Vision and strategy, ICT Policy, Teachers expertise, Team collaboration, Leadership of management, Pedagogical and didactic meaning by the use of ICT, Digital material (making), Expertise of staff to support the teacher, Quality Assurance, Organisational planning, control and evaluation, ICT-infrastructure and Technical support.*

Next chapter describes the literature research of existing management and organizational theories to determine which of these theories are the most relevant for the development of the MBO ICT policy monitor. In this research all important elements of an organization that are relevant for the use of ICT in the primary educational process are examined.



Management models

Building blocks

7S-model of McKinsey

5. Search for solutions: *literature research management and organizational theories*

In the previous chapters it has already become clear that the use of ICT in the primary education process is a complex issue. In this chapter literature research based on existing management and organizational theories was done to determine which of these theories are the most relevant for the development of the MBO ICT policy monitor. The outcome of this literature research must result in a theoretical framework for the development and use of MBO ICT policy monitor in the MBO.

The primary educational process of an MBO educational organization includes all activities that are directly linked to the organization of education. The organization of the primary educational process touches almost every facet of the educational organization itself. The use and the role of ICT are closely interwoven with this educational process. The challenge for the management is to control the use based on an own vision. This form of control is complex and requires adequate management formation on the use of ICT. This information is often not or insufficiently available for the management. The MBO ICT policy monitor should provide this information based on a recognizable theoretical framework. The framework has to support the nature of this study that focuses on the perception of the teacher in the use of ICT in his or her's education. This also assumes that the management has a clear vision in what to expect from the teachers in the use of ICT in the educational process. The management must then facilitate and support the teachers to a sufficient extent

5.1. Management theories

The management of MBO educational organizations often uses a management quality model that is based on the principle of Total Quality Management (TQM). This is partly because these educational organizations must comply with legal requirements and supervision frameworks of the Ministry of Education (OC&W). The monitoring framework of the inspectors assumes that educational organizations are working with a quality model that is based on a process of continuous improvement and are in control of all the business processes. This also applies for the personal growth of managers and teachers. The most common management models used are: INK, EFQM and ISO 9002. The management of MBO educational organizations is accustomed to this way of working and it is clear that the MBO ICT policy monitor must be used in the same way to increase the acceptance of this instrument. This approach means that the MBO ICT policy monitor must take all aspects of the organization that are of influence by the use of ICT, into account and give the management a clear picture of the bottlenecks. One of the problems may be that it is not known what the organization wants to achieve with ICT in education or that the requested expertise of the teachers is insufficient. This integral approach requires a comprehensive overview of organization building blocks and operating levels of the educational organization.

5.2. Search for building blocks of an organization

This section describes the literature research that is done on the building blocks of an organization and the relevance they have for the development of the MBO ICT policy monitor. It also should take into account the integral approach described in the previous section. Van Nieuwenhuis (2006) points out on his website 123management.nl, the art of Management, simplicity and cohesion, a useful explanation of different organizational and control models within their context. Van Nieuwenhuis has constructed a common framework based on well-known management models. To achieve this he has appointed six common management blocks (*vision & strategy, people, resources, structure, culture and chain* (cooperation), that are important for managing any organization. To determine usability of this framework for the development of the MBO ICT monitor research has been done of the underlying models. The most important question is based on what principles these models are developed and are they in line with the objectives of this study? One of the main management models van Nieuwenhuis used it is the 7S model of McKinsey. In the following section a brief explanation of this model is described and the relevance for the development of MBO ICT policy monitor is given.

The 7S model is a system designed by former McKinsey employees Richard Pascale, Tom Peters and Robert Waterman. The main objective is to measure the quality of the performance that a company achieves. The seven "s" factors are divided into three 'hard' factors (strategy, structure and systems) and four 'soft' factors (shared values, style, skills and staff). Richard Pascale used this model in "The Art of Japanese Management" (1981) in which American and Japanese companies were compared with each other. Tom Peters and Robert Waterman used it in their book "In Search of Excellence" (1982). Also Nick

van Dam and Jos Marcus used this model in 2005: "A practical approach to organization and Management". McKinsey recommends that the inter-relationships between the organization factors are well cared for. A successful organization has, according to McKinsey, an eye for all key factors of the 7S model. The figure below gives the key factors of the 7S model.

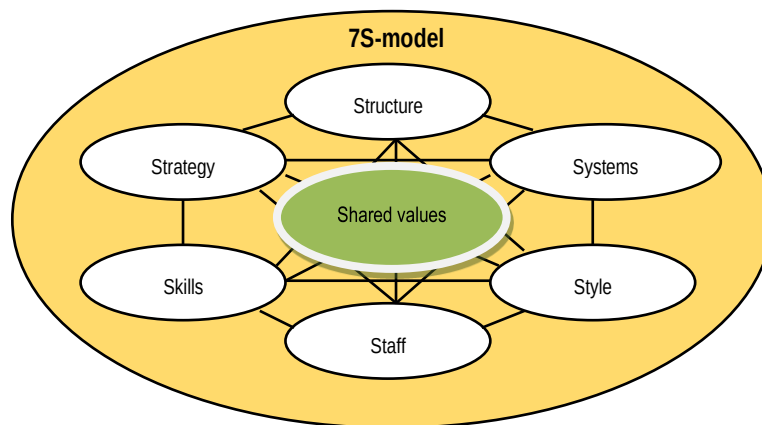


Figure 6: 7S model of McKinsey

The 7S model has the following key factors:

1. *Shared values*: placed in the centre by McKinsey. It is about the business concept, the corporate culture, and the identity: thus, vision. The reason for the central placement is that this factor has control over all the other factors.
2. *Strategy*: indicates the intended actions of the organization. What are the explicit goals and how are they reached? The strategy must be the bridge between the mission statement, that is, the 'raison d'être' of the company, and the hard reality that dictates that with limited resources not all goals can be realized at the same time. A strategic plan makes choices and ensures that all parts of the organization know what is expected from them, in order to contribute to the success of the whole organization.
3. *Structure*: refers to the framework of the company itself: levels, allocation of tasks, coordination, line, staff and the functional organization.
4. *Systems*: includes all formal and informal practices, procedures and communication flows, both internally and externally. This includes all formal and informal procedures, arrangements and agreements.
5. *Style*: refers to the management style. In what way does the manager treat his employees and how manager and employees communicate with each other. Good leadership usually produces good results.
6. *Staff*: focuses on profiles of the manager and the employees, now and in the future. How they recruit them, reward, motivate, and retain them.
7. *Skills*: explore what the organization does best.

An eighth "S"

The factors; *strategy*, *structure* and *systems* are also called the hard factors and the factors; *shared values*, *Style*, *Staff* and *Skills* are called the soft factors as earlier mentioned. There is even an eighth "S" mentioned that of Solidarity. This factor focuses on staff loyalty within the company. Wagner (1997) particularizes the 7S model to the HSE. In the next section the ESH model is further described.

ESH model

The Dutch organizational expert Mathieu Waggeman has developed an integral business model based on the 7S McKinsey model. The new business model main principles are balance, coherency and heterogeneity of the components. The model (ESH) Waggeman (1997) works with six main components of an organization: strategy, systems, staff, culture, management style and structure. All these components, according to Waggeman, are evenly important for any organization when implementing a major change in an organization.

Balance

The balance in the ESH-model indicates the required consistent coordination between the components, where each component gets the same amount 'weight'. Each component is namely equally important.

Consistency Coherence and interdependence imply that any change in one of the components always results in a change in the other five components. The components must therefore be coordinated.

Heterogeneity The ESH-model is heterogeneous. This means that each component carries both predefined formal aspects as informal aspects that arise in practice. This applies to measurable and non-measurable phenomena in the organization, as well as explicit knowledge and implicit knowledge. Waggeman uses both differences between formal and informal aspects, between internal and external operationalization and distinguishes place and time.

Design variables The components used by Waggeman are also known as design variables mentioned in the context of change management. In order to implement a successful change, the design variables must be "turned" and understand what impact they have on each other.

In addition, the formulation, organizing and realizing areas are the most important parts of the ESH-model. Formulating the goals, mission, vision, and strategy and management style. Realisation consists also of the management style, systems, quality through planning and research to service. The components of the model are presented and visualized in the figure below.

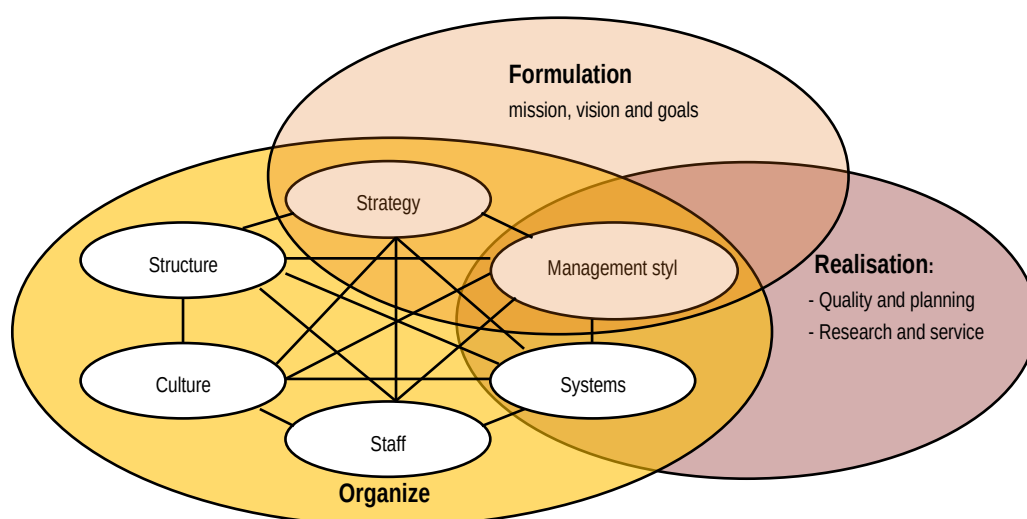


Figure 7: The ESH model Weggeman

Waggeman defines the six design variables of organizing as follows:

1. *Strategy*: the way (how) and the whole of resources by which predetermined goals can be realized.
2. *Structure*: How is the distribution of tasks, responsibilities and authority within an organization established?
3. *Systems*: which rules and procedures are needed in order to function within an organization on a daily basis?
4. *Management style*: which styles of leadership are predominant within the organization?
5. *Staff*: How skilled, driven, independent and loyal are employees? What areas of expertise are there within an organization? Are the appointed employees placed in the right positions?
6. *Culture*: what common standards and values prevail within the organization and how do they stand out?

Use of the ESH model

When an MBO education organization has elaborated plans to give ICT a prominent role during the execution of the primary education process, the application of the ESH model should be manifested in such a way that all the components of the organization get equal attention, while balance must be found over and over again between these components. It is the duty of the management to take this into account in advance.

5.3. Quality models used in MBO education

EFQM & INK model

In section 5.1 already described that MBO organizations often make use of quality models based on a process of continuous improvement. The quality model used for this purpose is the INK (Dutch Institute for quality) model. The INK model is a particularization of the European EFQM (European Foundation for Quality Management) model. Both models are based on an integral approach of organizations. This principle is useful in the development of the MBO ICT policy monitor. In the following paragraphs the framework of both models is reviewed on their relevance for the development of MBO ICT policy monitor.

5.3.1. The EFQM Excellence Model and INK model

The EFQM Excellence model is the most widely used organizational quality framework in Europe. The model serves as an evaluation tool and gives specific information of the organization strengths and weaknesses. The model is also used as a benchmark tool to compare their own performance with that of equivalent (educational) organizations.

Relevance of the EFQM model

The relevance of the EFQM model, for the development of MBO ICT policy is that the model, works with a framework where the organizational goals are described on the level of all the elements of the organization. The EFQM model doesn't judge the organization on their results, but gives insight information on the relationships between actions and realized results of the Organization. The model has nine organizational elements, divided in too five organization elements and four result elements. The main objective is to improve the performance by improving the organization; so it will deliver the wanted results. The principal is based on goal setting and learning from past experiences by looking at the results and improve the organization accordantly to it. Both the EFQM/INK-management models, like the previous researched models, all components of each model are equally important.

INK versus EFQM

Since the INK model is directly derived from the EFQM model, further comments will be solely based on the INK model. The organization elements of the INK model describe how the organization is structured and information is given over the direction in which the organization could improve. In the area of results the strategically relevant indicators are measured and the actually results are determined.

Feedback loop

The 'tenth focus area', the feedback loop, connects the operation area with the result area. Experience and achievements are here being translated in to new actions or even a new strategy. This feedback loop can be seen as the learning and change capacity of the organization. Figure 8 gives the INK model with the organization and result area.

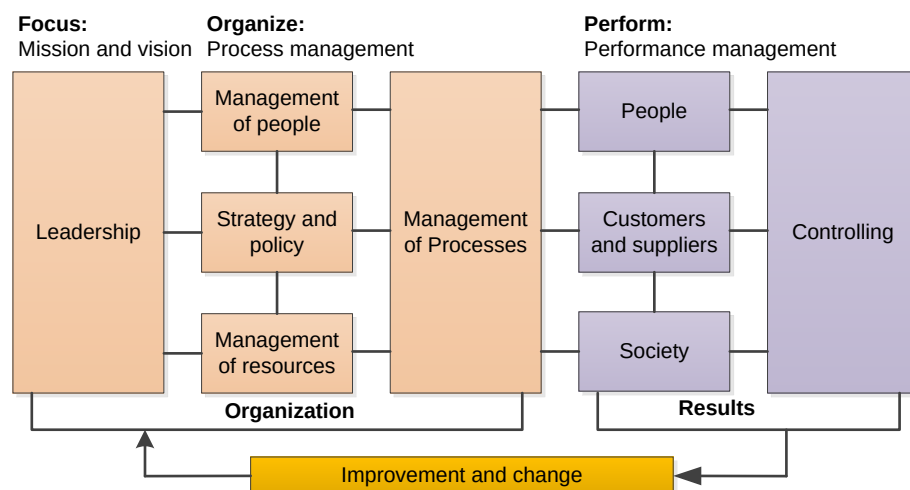


Figure 8: The INK model

The INK model consists of the following elements:

1. **Leadership:** the way management keeps the organization on track and inspires continuous improvement. By defining the legitimacy and the uniqueness of the organization. With a vision on the future developments formed in dialogue with the stakeholders. The internal organization

and executives are visible involved. Leadership is not only a matter for the top, but concerns every managerial level.

2. *Strategy and policy*: the way in which the organization's mission and vision are translated to the results that have to be achieved for each stakeholder. The making policies, plans and budgets tangible. The strategy is based on internal and external factors. The way of communicating in and outside the organization.
3. *Management of employees*: the way the organization, in the light of the selected vision and mission, makes maximum use of their employees, inspire them and give them the opportunity to develop and exploit their competences. The way employees get recognition, respect and appreciation for their efforts, the results obtained and their contributions to improvement and innovation.
4. *Management of resources*: the way in which the organization ensures that the resources for the realization of the strategy are sustainable and available. The way resources are used in order to carry out the activities efficiently and effectively. This involves money, knowledge and technology, materials and services. Also important is the cooperation with suppliers and partners in order to increase the added value in the supply chain.
5. *Management of processes*: the way in which the organization governs its processes from strategy and policy, to production and services. The effectiveness of operation for internal and external clients is an important indicator for success. Management of processes requires the right balance between standardization and regulation and freedom for the professional employee to be able to function adequately.
6. *Customers and partners*: the appreciation by partners, customers, and vendors is very important for a successful organization. It is necessary to know how they appreciate the cooperation, services and products. What is their opinion about the products, services or cooperation? And why did they choose this organization?
7. *Employees*: this focus area reflects on the extent to which the organization provides added value for its employees.
8. *Society*: any organization not only delivers services to members of the society, but is also part of it. It is therefore necessary that the organization is aware of its responsibility for the environment and the efforts it makes in the field of corporate social responsibility (CSR)
9. *Directors and funders*: the continuity of the organization is ultimately determined by those who control the organization. These are directors and funders. Board and funders assess the overall performance of the organization. The emphasis is on achieving the strategic objectives, market position and the return on invested capital.
10. *Improve and change*: improvement is a continuous process. By changes in the environment the organization must constantly adapt in time.

From phases too dimensions

To be able to distinguish between different types of organizations, INK uses five stages of development. These phases are related to the complexity of the organization. How complex is the product or service that is delivered? The stages rank from simple to more complex forms of business operations. The subdivisions are activity oriented, transform oriented, system oriented, chain-oriented and process oriented. It was emphatically not intended that each organization itself had to go through all phases of the INK model, but the Organization had its own orientation level. In practice, this was often not taken into account and plans were made to go to the next phase of orientation. INK has therefore replaced the phases for dimensions. The four dimensions are given on micro to macro level and each time the system borders are broadened. The characteristics of these dimensions are expressed in four aspects:

- *Content*: what is it about, where are the system limits?
- *Basic idea*: what are the basic ideas and what is intended?
- *People*: what is the role of an employee, an assistant or manager and is there chemistry between them perceptible?
- *Control*: how are the activities and results monitored and controlled?

Relevance for the development of the MBO ICT policy monitor

By the ESH model it is known that the counterparts of individual elements are important. This means that management must spend equal attention to those elements. By the INK model the learning ability of the Organization is the most important. Those two approaches are relevant for the development of the MBO ICT policy monitor. In the next section the models are compared in detail.

5.4. Comparison of the reference models

In this paragraph the examined models are compared and it is determined which elements are useful for the development of the MBO ICT policy monitor. The weak sides of these models are also taken into account. The ESH model is a particularization of the 7S model and in a general sense it can be said that the international criticism on the 7S model also applies to the ESH model. A number of points of criticism are:

- The 7S model is seen as a common sense model with low theoretical foundation. (J.C. Wood & M.C. Wood, 2004)
- The 7S model is good at highlighting the importance of the relationship between the different elements. The framework, however, says little about the nature of these correlations. (Lynch, 2005)
- The 7S model stresses no other areas that are important in a business strategy such as: innovation, knowledge, service and quality. (Lynch, 2005)

General remarks

In literature a number of important remarks were made over the EFQM and INK models. The first criticisms are generally that apply for most management models and the way they are used. Managers may lose their creativity by following a technocratic model like EFQM. Furthermore, management models may narrow the perspectives. Management models also can suggest a form of assurance, while in practice this is often not the case. A common phenomenon is that the management model becomes an objective on its own instead of the instrument that will deliver the necessary management information to come to sustainable improvements.

Specific remarks

In Sigma (No. 1/2003) focus Kerklaan and Hogendijk their criticism mainly on the use of the INK model in practice. The criticism focuses on the following frequently used expressions:

- "We are controlling according to the INK management model". This means that managers derive their objectives from the model and may lose sight of their own practice. The criticism focuses on the developmental stages that the model has. Thereby the model went from a descriptive model to a normative model. Which is a fundamental change.
- "We are structured according to the INK management model". This means that organizations and their planning and control are based on the layout of the model.
- "We are working according to the INK management model". With this point Kerklaan and Hoogendijk point out the use of INK for PR purposes.

Complexity

Another important remark concerns the complexity of the model. Educational organizations are often assisted by external consultants to implement a chosen model. The danger here is that the management model is seen too much as an external framework, while the model must be at the heart of the Organization. An important requirement of the MBO ICT policy monitor is that it is easy to use and give quick solid results. The reviewed quality models are too labour intensive for this purpose. The elements or components of the models are relevant and give an overview how they control total quality. This includes the principle of equilibrium of the individual components from the ESH/7S model and learning capacity of the Organization from the INK/EFQM model. Those principles are useful for the development of the MBO ICT policy monitor. The following table shows an overview of the main elements and components.

	Nieuwenhuis 2006	ESH	7S McKinsey	INK	EFQM
Method used	Balance	Balance, coherency and heterogeneity of the components	Equal important	Learning cycle	Learning cycle
Elements or components					
Vision and strategy	Strategy	Strategy	Strategy	Policy and strategy	Policy and strategy
People	People	People	Staff Skills	People	People
All Resources	Resources	Systems	Systems	Resources	Resources
Structure and organization	Structure	Structure	Structure	Processes	Processes
Culture and innovation	Culture	Culture Management style	Shared Values Solidarity Style	Leadership	Leadership
Collaboration with other organisations	Chain	-	-	Partnerships	Partnerships
Society Results	-	-	-	Society Results	Society Results
Results	Results	-	-	Key Performance Results	Key Performance Results

Table 8: Overview elements/components management and quality models

The models can be divided on the basis of the individual elements or components in six management blocks (Nieuwenhuis, 2006); vision and strategy, people, resources, structure, culture and chain. What should be noticed is that the element *society* is not listed by Nieuwenhuis. For the development of MBO ICT policy monitor this social accountability element is not relevant. The MBO ICT policy monitor is namely based on the perception of the teacher.

Conclusion researched models

From the researched management models ESH, 7S, EFQM and INK can be concluded that the basic framework of EFQM; *vision & strategy, people, resources, structure, culture* and *chain* (partnerships) is one that contains all relevant elements of all models. The principle of ESH/7S model that is based on the balance between the components and the need for equal management effort is useful in the development of MBO ICT policy monitor. The policy monitor can be used periodically. This means that the effect of management interaction must be measurable. This way the MBO ICT policy monitor will be part of Deming's management cycle (plan, do, check, and act). The INK model works this way and has a feedback loop between the organization area and the result area.

The integrated approach also does justice to the complexity of the matter. In the following paragraph an MBO educational organization is, on the basis of the general management building blocks and the starting points of the 7S/ESH and the INK/EFQM model a diagram is set up. See figure 9.

Management building blocks

In the previous chapters have described that for optimal use of ICT in education a clear educational vision is needed in which the role of ICT is defined in such a way that teachers will understand it. This vision will be formulated at the strategic level. On both a tactical and operational level it must be clear what the consequences are for managing the organization.

On a strategic level an integral plan to achieve the desired result, will be formulated. The three levels of control, (strategic, tactical and operational of the educational organization, could be broken down in the management building blocks given by Nieuwenhuis.

- **Results** of the organization, what is to be achieved?
- **Vision and Strategy** of the organization, what we want to achieve, how and when?
- **People** of the organization, with whom?
- **Resources** of the organization, which and what?
- **Structure** of the organization, how to organize it?
- **Culture** of the organization, the way we do think together?
- **Chain** of the organization, what partnerships are needed?

Nieuwenhuis makes a distinction between the different levels of control. This makes it clear what kind of actions must be done on the control level. Table 9 gives an overview of the specific actions and processes for each level of control.

Control level	Results	People	Resources	Structure	Culture	Chain
Strategic	Strategy and Policy					
Tactical	Control of results and resources			Control of change		Control of partnerships
Operational	Primary process	Secondary process		Improvement process		Relation process

Table 9: Overview of control levels and processes

Figure 9 provides the full diagram of an MBO educational organization with its control levels and management building blocks. Each level of control has its own management cycle (plan, do, check, and act) in the form of making plans, executing the plans, evaluating the outcomes and make new plans. The red blocks are placed in the feedback loop in order to make a process of continues improvement possible.

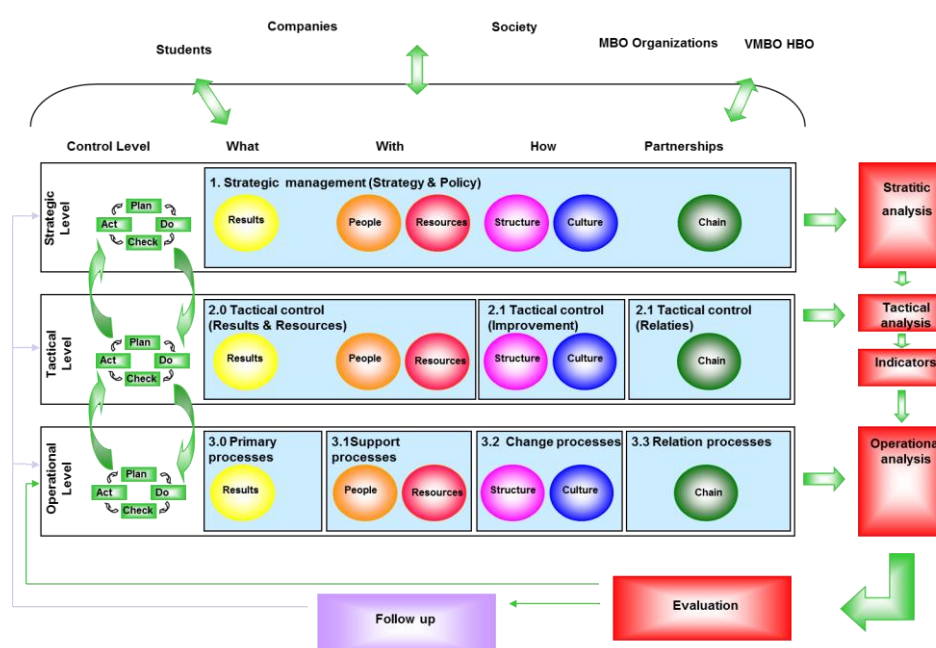


Figure 9: Control levels based on Nieuwenhuis and Koerts for MBO organizations

In the following sections the management building blocks will be described in detail. This description is done by focussing on the factors that are important for the use of ICT in primary education process.

5.4.1. The strategy of an educational organisation

Strategy

The strategy is about the goals of the organization formulated in a mission statement and a vision and the way the organization wants to achieve this by formulating the strategy and policies. In essence, it is a question of balance between the intended external results and the existing internal capabilities. A good strategy is therefore both external en internal orientated. External to formulate what the organization wants to accomplish and internal to formulate their needs, which people, resources, structure and culture is necessary to achieve the desired results. (Nieuwenhuis, 2006)

The strategy of the organization

The strategy includes the strategic control of an organization. This is long term plan worked out for a period of 3 to 5 years. The identity, the *raison d'être* and the vision of the organization are described in the mission and vision of the Organization and all employees must grasp and understand it. The mission and vision of the Organization is the foundation of the strategy. A strategy makes the vision tangible in terms of objectives that must be achieved. Scenarios or roadmaps are often used to control the implementation of the strategy. For the development of the MBO policy monitor ICT strategy is an

important management building block.

Is it necessary for an educational organization to have a vision and a strategy on the use of ICT in education?

Why you need a strategy

This question depends mainly on what the organization wants to achieve with the use of ICT in education. If the use of ICT plays an important role in the way education is organized then it has a significant impact on the business operations of the educational organization. It would be recommended to have one. The vision has a significant impact on the use of ICT, according to Takahashie, (2008). Having a clear vision in the field ICT in education is therefore of great importance.

What elements are important to formulate an adequate vision?

Elements of an ICT strategy

Mishra and Koehler (2006) indicate that all aspects of the use of ICT should be taken into account: technology, didactic use and content. A vision must also inspire and motivate people and provide common goals. These aspects are then reflected in the corporate culture, the way teachers and manager interact with each other. A number of studies suggest that teachers often think that the way they organize their education is part of their own professional identity, this conviction is strong and is not easily changed. (Ertmer 2005; Ertmer 2009). If the vision of the organization is not in line with the ideas or beliefs of the teacher, the vision will not be easily embraced. This must be taken into consideration when presenting a new vision and strategy. If the expertise of the teachers is sufficient but they are reluctant to carry out this vision, the management must use an intensive method of change management.

5.4.2. The results of the organisation

Results

In essence the result of an organization is the outcome of all efforts that the organization has made. The starting point is always looking from the outside in. The results of an MBO educational organization shall be judged by the four main stakeholder groups namely: students and parents, profession foundations and companies, other educational organizations and the Ministry of Education (OC&W). The reputation of the educational organization itself and the financial opportunities plays also an important role. The most important criteria Ministry of Education (OC&W) uses is that of good governance. Is the educational organization governed in a professional manner which secured the continuity and quality of education?

The use of ICT in education has to do with the way the education is organized. Each organization is free to give meaning to their form of education. ICT is part of this. The differences can vary greatly. For example, the important role that ICT plays on a Steve Jobs elementary school and the minor role it plays at the European College Rotterdam. TU Delft for example has chosen for e-learning modules in addition to the existing colleges.

Steve Jobs elementary school

"We believe that the invention of the iPad marks a new phase in education as this is used for individual teaching programmes. It realizes many customization and interaction. Very young children can even intuitively handle the device. In doing so, they learn skills, which are important for their future in the 21st century" <http://stevejobsschoolbreda.nl>.

EuroCollege Rotterdam

"We prefer to invest in qualified people for the classroom than in computers. Computers provide too many distractions whereby students perform less well. That is why we have banished all our computers. The best decision so far. We are responsible for the success of the student. Our approach and performance driven culture ensures that in economically poorer times our students find a job almost immediately after their study" (drs P.V.C.E. van de Walle). <http://www.eurocollege.nl/>

TU-Delft

"TU Delft offers: ' Massive Open Online Courses ' (MOOC's) on the edX-platform. A MOOC is an online course aimed at broad interactive participation of large groups of students, professors and teachers within the open platform edX which is accessible by the internet. A MOOC is a valuable addition to the traditional course material, such as videos, lectures, and cases" <http://www.tbm.tudelft.nl/en/study/online-education/massive-open-online-course-mooc/>

Educational philosophy

All three examples make clear that the organizations have ideas about the role of ICT in education and do come from a clear educational philosophy. MBO organizations can therefore, also largely differ in the position ICT gets. However, MBO organizations are accountable to the supervisory framework BVE 2012. The management should be able to make clear how they organize education and what elements they think are important. This means that they have to explain their educational philosophy and how this is embraced in practise. The result of an MBO organization, in the use of ICT in education, therefore

depends on the extent to which the organization makes its own objectives in this area.

5.4.3. The people of the organization

People

Management building block *people* is mainly about managing the competences (knowledge, skills and attitude) of the staff. This is the development and assurance of knowledge and skills of the organization and the individual (career) development of the employees themselves. In an educational organization the teachers take care of education based on their expertise and direct interaction with the students. The organization must ensure that it has sufficient expertise to run the organization according to its own quality standards. For the use of ICT, teachers must learn new skills; not only technical but also didactical skills are needed. A comprehensive approach is desirable.

ICT Competences

One of the most important findings is that the ICT competences should be in line with the views on learning and instruction (Drent & Meelissen, 2007). To use ICT in the learning process special knowledge, skills and attitudes are needed. However, there are different approaches. Mishra and Koehler (2006) focus on technological and didactical expertise. In practice, the technological aspect, the knowledge of ICT and related skills are often approached without the pedagogical and didactical aspects. Technical skills are necessary for an integrative use of ICT, but are not in themselves sufficient enough (Delos Santos, 2005). The competence development of teachers must be in line with the educational objectives of the education organization and the role that ICT plays to achieve those objectives.

5.4.4. The resources of the organisation

Resources

The management building block resources contains a wide range different resources that are important for the use of ICT, they are: financial (money), infrastructure (ICT), facility management (Housing). Even the availability of time and support (ICT, didactical, training) is part of this management building block. For the development of the MBO ICT policy monitor are the following resources defined:

- Housing and interior of the organization
- Financial resources of the organization
- Time to use ICT in education
- Training for the use of ICT in education
- Digital materials
- Software for developing digital materials
- ICT infrastructure (Pcs, beamers, internet)

ICT infrastructure

If an educational organization has an inadequate ICT infrastructure then this remains a major obstacle to a proficient use of ICT in education (Barton & Haydn, 2006). But when the ICT infrastructure is adequate this doesn't mean that the use of ICT in education will flourish. This was the outcome of a number of studies (Kangro & Kangro, 2004). The problem according to Drent and Meelissen (2007) is that the available ICT infrastructure is mainly used for administrative purposes. Tearle (2003) notes that the flexible use of the ICT infrastructure is a thorny issue in education. For the development of the MBO ICT policy monitor ICT can be assumed that the ICT infrastructure with the supporting services must be able to endorse the educational goals.

5.4.5. Structure of the organization

Structure

Management building block *structure* is about the organization and the process structure. In essence, it involves the question of how the business activities are organized and what tasks, competences and responsibilities the employees have. The structure describes the shape and functioning of an organization. This is only for the hard formal rules. All other 'soft' unwritten rules, customs, norms and values that the form and functioning of the organization at least as much determination, fall under the management building block *culture*. In the literature there seem to be two schools of thought when talking about structure: those who structure equal to organizational structure and those who see processes as the main means to describe the structure. In such an examination, both schools of thought are taken into account and attack the formal processes and procedures under the structure of the organization and the social processes under the management building block *culture*.

The division of tasks and competencies in the Dutch vocational (MBO) education are to a large extent laid down in the collective labour agreement (CAO). The CAO BVE (Extended CAO BVE 2007-2009 to 31-3-2012) for the MBO education assumes that the work of an educational team, distributed among the team members, on the basis of one man one vote. The team is so central when it comes to education management displays the frames in which the job must be done. Yet, there is a distinction between large

and small urban regional training centres, ROC's, specialized vocational school or educational organizations with a strong Christian belief. The differences lie mainly in the chosen management model, where in general the ROC's 'clubbing' of self-managing education teams and the responsibility is low. Christian educational organizations on the other hand have a more hierarchical way of directing with a centralized planning. The role of management differs in two ways. The MBO ICT policy monitor will take this into account in the interpretation of results in the area of management control and team responsibilities.

5.4.6. Culture of the organization

Culture

The culture of the organization, also called corporate culture, is about the procedures within the organization often in informal sense. In essence, it is about the basic value of the organization, the way in which managers and employees interact with each other. The corporate culture is growing because managers and staff, from personal experience, get to better how they must act within the organization in order to get certain results. Managers and employees, with their own social tools closest, to the standards of the organization itself, will need to adjust little. For example, in a strong top-down organized organization professionals, who are used to more individual responsibility and freedom of action, must adapt themselves more to this corporate culture.

It is difficult to give a clear picture of the corporate culture of a MBO education organization. In a general sense it can be assumed that a large ROC functions as a professional bureaucracy with decentralized responsibilities, whether or not on a team level. Where the team members often have to come to decisions on the basis of convergence. At smaller MBO educational organizations often more substantive education teams are busy and do less to promote the organization of education.

Leadership

Most MBO educational organizations use a quality management system based on EFQM, ISO or INK. All these systems have a focus on *Leadership* and are concerned with the behavioural side of the managers. For this research, it is categorized also under the management building block *culture*. The way in which control is given to the educational organization is expressed in the predominant management style. The predominant management style is a strong cultural aspect of the educational organization.

Management of change

The culture of the education organization can determine the success or failure of an ICT implementation for education. To what extent is this change carried out by the management and the teachers are motivated by an inspiring form leadership. What is the positive and enthusiastic education team when facing change, or stand firm and block the renewal. The management building block culture can consequently also be seen as one of the most important building blocks for the development of the MBO ICT policy monitor.

Corporate culture

The terms culture, corporate culture and organizational culture are often used interchangeably in research literature and is here regarded as having the same meaning. Namely, the way employees of an organization interact with each other in order to implement the business processes. For this research the term culture will be used.

5.4.7. Chain of the organization

Chain

Management building block *chain* of the organization may be of interest to share knowledge with other organizations on the use of ICT in education. For the MBO *Kennisnet* provides MBO educational organizations of opinions, research and good practices to show the added value of use of ICT in educational organizations. Besides they can form user groups that are focused on a specific application. For example, user groups, Magister, Blackboard, Microsoft SharePoint and PeopleSoft. Setup a Shared Service Centre is a further form of cooperation in which the ICT services of several educational organizations are offered centrally. In the development of the MBO ICT policy monitor, the possible added value of cooperation is taken into account.

5.5. The service quality of support departments

Supporting departments

For the development of the MBO ICT policy monitor we look through the glasses of the teacher to the organization. Therefore is important to know what the teacher's perception is of the service quality of staff departments. A particular *resource* of an educational organization consists of staff departments that support teachers in the organization and design of education. For the application of ICT in education are

two different staff departments important. The first relates to the technical use of ICT in education. This service is often provided by an ICT Department. The ICT department manages the IT infrastructure and supports the teachers in technical questions. The second staff department is concerned with the educational support of the teacher in setting up of the learning process. A third service, that the organization can provide, is the execution of training sessions in the field of ICT and education for the teachers. This inventory suggests that an MBO educational organization can offer three services in the use of ICT in education.

1. Technical ICT support in the use of ICT in education
2. Educational support in the use of ICT in education.
3. Offering training sessions in ICT use in education.

It should also be taken into account that these services can be provided by an external party. The question involved in the development of ICT policy monitor, the MBO can be asked whether the delivered service is adequate for what the MBO educational organization itself want to achieve with ICT in education. To be able to determine this, the service must be measurable. The following paragraphs look for ways to quantify the quality of this service.

5.5.1. Measuring service quality

In the use of ICT in education, the teachers should be guided and supported by an educational organization. In addition to the technical, educational and training support, it may also be the case that the service offered is highly automated; such as the provision of a digital library as a service, where the entire educational organization can make use of. Having the right personal support in the use of ICT in education is very important to achieve the goals the educational organization has set for them.

Perception of the service

In this research we are interested in the perception of the teacher at the decrease of a service provided internally or externally. This includes the perception of the teacher of the specific service. To be able to determine this, it must be clear in the first place which aspects of a service or service play an important role. In other words how the quality of a service or service in general can be measured. The main question then becomes: How can the service quality of an internal or external service be measured and what aspects are of crucial importance?

5.5.2. Het SERVQUAL model

In 1988 Parasuraman, Zeithaml and Berry developed the SERVQUAL instrument on the basis of a number of supposed essential indicators they had validated through a number of focus groups. At first the list of indicators in the field of marketing was considered. The table below gives an overview of this first list.

Indicator	Description
Reliability	The organization delivers what is promised. Consistency in performance and reliability of the service provided
Responsiveness	The willingness or readiness of the staff to deliver the service
Competence	The competence of the staff in knowledge, skills and attitude (Professional)
Access	Access of the service, location and hours of operation
Courtesy	courtesy of the employees, customer-friendliness, benevolent
Communication	The <i>language</i> corresponds with the nature of the target group
Credibility	Honesty, reputation of staff
Security	Physical and social security by the service provided
Empathy	Familiarisation of the employees
Tangibles	Physical products

Table 10: Overview first indicators Servqual model (Parasuraman, Zeithaml and Berry)

Final list of Servqual

Although this model was initially developed for the marketing industry, it is also frequently used in other branches. This includes the medical and internet sector. It is given a specific meaning to the model for each sector, and is often validated separately. For example, there is for measuring the service quality research done on the service quality of libraries. (Kettinger & Lee, 1994; Nitecki, 1996). The SERVQUAL model is based on the assumption that service quality can be measured as a difference in perception what the customer expects of the service and the actual experience of the diminished service. The service quality is then measured with two scores for the expected service quality and experienced service quality. The service quality is at its best when there is no difference between the expected service quality and experienced service quality. Landrum, Prybutok, Kappelman, & Zhang, 2008 have made a gap analysis. The SERVQUAL basic model consists finally of seven dimensions. See table 11.

SERVQUAL and SERPERF additions		
1	Reliability	The organization delivers what is promised. Consistency in performance and reliability of the service provided
2	Responsiveness	The willingness or readiness of the staff to deliver the service
3	Assurance	Assurance of the service provided
4	Empathy	Familiarisation of the employees
5	Tangibles	Physical products
6	Usefulness	Usefulness service provided
7	Satisfaction	The satisfaction of the customer

Table 11: Servqual and Serperf additions (Parasuraman)

The SERVPERF (performance) model uses the first five dimensions of the SERVQUAL model and calculates the performance delivered by the service department. Striking here is that the customer *usability* and *satisfaction* for dimensions is no longer used.

5.5.3. SERVQUAL versus SERPERF

Over the years there have been many alterations made to the SERVQUAL model. The most notable was the division of SERVQUAL in which the *expectation* score was set apart and had the focus put more on the *perceived* score. In addition, there are many researchers who question the principle of the gap analysis. Can the service quality be measured based on the difference between *expected* and *perceived* service? (Brown, Churchill, Peter, 1992) came up with the proposal that the service quality can be measured by taking the average of all the items. Another proposal by Cronin, Taylor (1992), and Teas (1993) leaves the principle of a gap-analysis by deleting or ignoring the expected items. Parasuraman however, stands behind his gap-model.

Usefulness and satisfaction

The SERPERF model consists of the first five categories of the SERVQUAL model. *Usefulness* and *Satisfaction* became redundant. Cronin and Taylor (1992) call this subset of SERQUAL, SERVPERF. Liljander (1994) indicates that the hard performance categories work better than the soft items *Usefulness* and *Satisfaction* to determine the quality of service. Bolton and Drew (1991) back up this premise, when reaching the conclusion that the service quality of an organization is only affected by the perception of the perceived items: *Reliability*, *Responsiveness*, *Assurance*, *Empathy* and *Tangibles*. Boulding, Kalra, Staelin, and Zeithaml (1993) also indicate that the perception of the performance categories mostly influence the overall service quality of an organization. Cronin and Taylor (1992) have done extensive research into the reliability of the SERQUAL and SERVPERF by comparing these models with each other. Their conclusion was clear: the variance of the service quality is better explained by only the perceived score than the *perceived* score minus the *expected* score of the categories. The perceived score only so gives a better predictive validity than the SERVQUAL model based on the gap analysis principle. (Brady, Cronin, & fire, 2002) Other research studies substantiate this premise (Boller & Babakus 1992; Brady et al., 2002; Landrum, Prybutok & 2004; Landrum, Prybutok, Strutton, & Zhang, 2008).

Number of dimensions

Another focus of the SERVQUAL model are the dimensions, Zeithaml, Parasuraman, and Berry suggest in 1990 to work with five dimensions, but in practice, also operated with three or four dimensions (Nitecki 1996) (Jiang, small, and Carr, 2002). For the development of the MBO ICT policy monitor, it is specifically looked at the support that the educational organization organizes themselves. Normally, the service quality of a particular organization, in an open market situation, with multiple providers the customer has freedom of choice. The service quality can then determine the competitiveness of the organization. On an internal service, the teachers of the organization have no choice. This means that company loyalty is not that important for the MBO ICT policy monitor.

5.5.4. The Customer Satisfaction Index (CSI)

Satisfaction Index of Nations

The great importance of customer satisfaction is increasingly recognized more. Where many companies used to be still strongly product oriented for some time, there is a shift to a more customer-focused orientation. Big companies are going to produce only a product as the client's wishes and orders are known, where previously the choice of the customer was at the rear end of the production process is now shifted ever more to the front. (Daf) Customer satisfaction is very important to measure the product or service for the customer and if he or she is satisfied. Get the support that teachers in the use of ICT in education can be seen as a service, that offers the educational organization itself. The satisfaction of the teacher about this service rendered properly is important for the deployment of ICT in education. There are different models and indices for measuring customer satisfaction at different branches. In the 1990s the CSI model is also seen as a reliable tool for the application at multinational companies and Governments. In 1989, Fornells Cove of the Michigan University set up a customer satisfaction model for

Sweden. This led to the Swedish Customer Satisfaction Barometer (SCSB) (Fornells Cove, 1992). Later followed the American Customer Satisfaction Index (ACSI, Fornells Cove, 1996). In the meantime, here more than 14 rural variants are drawn up. The models differ in design and for that reason cannot statistically be compared. The main categories are the same in the most models. They are presented in table 12.

Category	Comments
Customer loyalty	Customer Loyalty is important if there is a freedom of choice. At an internal service employees have no freedom of choice there is just one option
Perceived quality	The Perceived quality is of great importance when it comes to the reliability of the service
Customer expectation	Customer expectations of the service
Perceived value	The perceived value of the service
Customer satisfaction	The satisfaction of the customer
Customer Complaints	The satisfaction of the customer

Table 12: Categories of the Customer Satisfaction Index (Fornell)

The CSI model counts on a difference between the expectation of the customer who has experience of the service and the added value the service has provided.

5.5.5. Customer Experience Index (CxPi)

The experience of consumers in the use of a product or service is becoming increasingly important. Companies want to stand out themselves in the market in which they operate. The products and services that Apple offers to individuals and professional in ICT provide a good example. The customer is even willing to pay extra for sheer experience.

To measure the perception of the customer at a product of service, Forrester did research in 2007. According to Forrester, the customer experience can be assessed by means of three central questions that widely can be applied. The interpretation of the questions can be easily adjusted to the context of the company. See table 13 for the categories used.

Category	Description	Scale
Usefulness	How effective were the interactions with the organization and to what extent are customer's needs met?	1-5 1: not met 5: fully met
Ease of Use	How easy was it to work with the organization?	1-5 1: Very difficult 5: very easy
Enjoyability	How nice were the interactions with the organization?	1-5 1: Not at all a nice 5: Very nice

Table 13: Categories of the Forrester CxPi index (Forrester)

The Forrester index CxPi is based on a five point scale. The index is calculated by subtracting the percentage of respondents per category with a good experience (score 4 and 5) to reduce the percentage of respondents with a bad experience (score 1 and 2). The index can then be built up as follows, see table 14.

Category	1 %	2 %	3 %	4 %	5 %	4-5 %	1-2 %	Score %	Average
Usefulness	3	6	14	60	17	77	9	68	68
Ease of Use	3	7	15	54	22	76	10	66	
Enjoyability	3	5	14	56	22	78	8	70	

Table 14: The scale of the CxPi model

To calculate the total CxPi calculates the average of the net score of the three categories. Forrester also determined a rating scale.

- Excellent: 85%+
- Good: 75% to 84%
- Normal: 65% to 74%
- Bad: 55% to 64%
- Very bad: < 55%

The Forrester index is statistically a strong indicator and also says much about customer behaviour. The site index CxPi correlates strongly with customer loyalty (willingness to make sequel arrive) and at a high index customers will also recommend the company or organization more frequently to potential customers. One point of criticism is the inconsistency of the scales. The Ease of Use category is bipolar and unipolar is the scale for usefulness and enjoyability. The index CxPi has since its introduction in 2007 becomes a valuable tool that is used worldwide to measure the customer experience of a product or service.

5.5.1. Practical examples for measuring service quality

AMP Logistics provides package services for T-Mobile. Via the internet, consumers can figure out their mobile phone and subscription level, order and pay. AMP delivers daily hundreds of mobile phones on house addresses. The customer must legitimize himself upon delivery, by making a digital scan of the debit card and his ID. In order to measure the service quality of this service now, customers are asked by e-mail to fill out a short questionnaire. Table 15 provides an overview of these questions in recognizable categories of service quality.

Items	Category	Model
It was easy to order using the website.	<i>Ease of Use,</i>	CxPi
The information I received by sms, email and mijnorderstatus.nl met my expectations	<i>Customer expectation</i>	CSI
I found it easy to make a delivery appointment and/or change it	<i>Ease of Use</i>	CxPi
The general impression I got from the courier was positive	<i>Perceived value</i>	CSI
My order was delivered within the agreed period	<i>Reliability</i>	SERVQUAL, SERVPERF
It was simple to arrange the payment	<i>Ease of Use,</i>	CxPi
The AMP logistics employee on the phone was friendly	<i>Empathy</i>	SERVQUAL, SERVPERF
The T-Mobile employee on the phone was friendly	<i>Empathy</i>	SERVQUAL, SERVPERF

Table 15: Items of AMP Logistics to qualify service quality of T-Mobile

5.6. Compare items of service quality

By comparing the items of the discussed service models, a clear picture of consistency and differences between different service models is created. By the revelation of the items this broad insight can be determined for the application in an educational context. These are the items to determine the service quality of support services of an educational organization. Since there is very little research available in this area, data initially provide a wide selection created by the number of categories.

Using a wide range of components

Table 16 gives an overview of the items that initially were chosen to support the service, in order to determine the quality of a service. The items *Customer loyalty* and *Customer Complaints* are items that correspond to a situation in which the customer has sufficient freedom of choice in the diminishing of the service. When service is offered internally this is not the situation. Both the idea of the service quality, to determine a support service if your chosen items are submitted to expert teams in the field of ICT use in education.

Category	SERVQUAL	SERVPERF	CSI	CxPi	MBO ICT policy monitor	Items MBO ICT policy monitor
<i>Reliability</i>	√	√			√	Support delivers what is promised on time
<i>Responsiveness</i>	√	√			√	Support has pleasant hours of operation
<i>Assurance</i>	√	√			√	Support helps me out
<i>Empathy</i>	√	√			√	Support gives me enough attention
<i>Tangibles</i>	√	√			√	The ICT products and materials helps to use ICT more effectively
<i>Usefulness</i>	√			√	√	The support helps me to use ICT in education more effectively
<i>Satisfaction / Enjoyability</i>	√		√	√	√	The staff employees are customer friendly
<i>Customer loyalty</i>			√			X
<i>Perceived quality</i>			√		√	The service is of a high quality
<i>Customer expectation</i>			√		√	Support helps me to use ICT more effectively when I need support
<i>Perceived value</i>			√		√	Due to the support I'm able to use ICT more effectively
<i>Customer Complaints</i>			√			X
<i>Ease of Use,</i>				√	√	The support helps me to use ICT in education more effectively
<i>Competence</i>					√	Support has good ideas
<i>Access to service</i>					√	The support is easily accessible

Table 16: Overview of categories of service quality

5.7. Conclusion

The starting points of the most investigated models are of importance with management and organizational theories. The principle of equilibrium of the organization blocks where the ESH and 7S model go from, in the creation of the MBO ICT policy monitor are applied in order to determine whether the educational organization, with the use of ICT, is in balance. For the quality models INK and EFQM it is important that the organization enters into a process of continuous improvement. This learning from experience, allowing the organization to grow to a higher maturity level. Also, this aspect is included in the development of the MBO ICT policy monitor. So far the management building blocks are: strategy, people, resources, vision & structure, culture, and social added value chain appointed. These building blocks should be in balance at a mature organization. By using the MBO policy monitor periodically, lessons can be learnt from the management improvement actions that have been made to promote the use of ICT in education. For the determination of the service quality of the support services that help the teachers in the use of ICT in education the quality models have been examined. The strategy is to choose a wide range of items (table 15) from the models described in this chapter and do research on the base of real data to reduce the number of items.

The wide set quality service items are used and later reduced on the base of real data. The items are: reliability; *Support delivers what is promised on time*, responsiveness; *Support has pleasant hours of operation*, Assurance; *Support helps me out*, Empathy; *Support gives me enough attention*, Tangibles; *The ICT products and materials*, Usefulness; *The support helps me to use ICT in education more effectively*, Satisfaction / Enjoyability; *The staff employees are customer friendly*, Perceived quality; *The service is of a high quality*, Customer expectation; *Support helps me to use ICT more effectively when I need support*, Perceived value; *Due to the support I'm able to use ICT more effectively*, Ease of Use; *The support helps me to use ICT in education more effectively*, Competence; *Support has good ideas*, Access to service; *The support is easily accessible*.

Next Chapter describes the choices that were made for the development of the MBO ICT policy monitor.

6. Making choices: *principles of MBO ICT policy monitor*

The literature research was executed by selecting a number of research studies that in one way or the other focused on methods and instruments that were applied to qualify and quantify the use of ICT in the primary process of any educational organization. The second part of the literature research focussed on the field of management and organizational theories where the integral Total Quality Management approach stood central. Extra attention has been given to the service quality of a support service. The solution of the teacher's perspective at the application of ICT in his or her education is a central issue. In this chapter, a choice is made for the framework and methodology of the MBO ICT policy monitor.

6.1. Important factors of the use of ICT

The most important issues of the MBO ICT policy monitor are the factors that play a role in the use of ICT in education by the teacher. The main factors from the literature research with the various methods and instruments which are used were identified. The figure below shows the main factors in the form of a mind map.

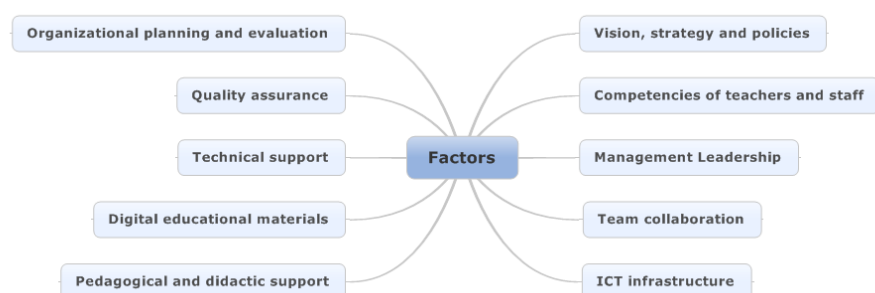


Figure 10: Main factors of the use of ICT

The mind map above shows clearly that the use of ICT touches many aspects of any educational organization. In order to get a better understanding of the complexity of this issue, the following paragraphs have a subdivision of the factors based on the management building blocks: *strategy, people, resources, structure, and culture*. Nieuwenhuis, M.A. (2006). All consequences on the management building blocks that could become unbalanced are considered here.

6.2. Management building blocks

The operating scheme of the MBO education organization describes the management building blocks that are important for the application of ICT in education. Also, the positioning of the MBO ICT policy monitor can be seen here. The starting point of the policy monitor is to figure out what really happens on the workplace through the perception of the teacher at the application of ICT in education. The measuring level of the policy monitor is therefore on an operational level implementing and connecting to the primary educational process 3.0, the supporting processes 3.1, the improvement processes 3.2, as well as the relationship processes. On the basis of the outcome of the policy monitor, it should be possible to be able to be successful on the tactical management level when it comes to rearranging resources, managing improvement processes and, when necessary, adjust the ambition and objectives on the strategic level. See figure 11.

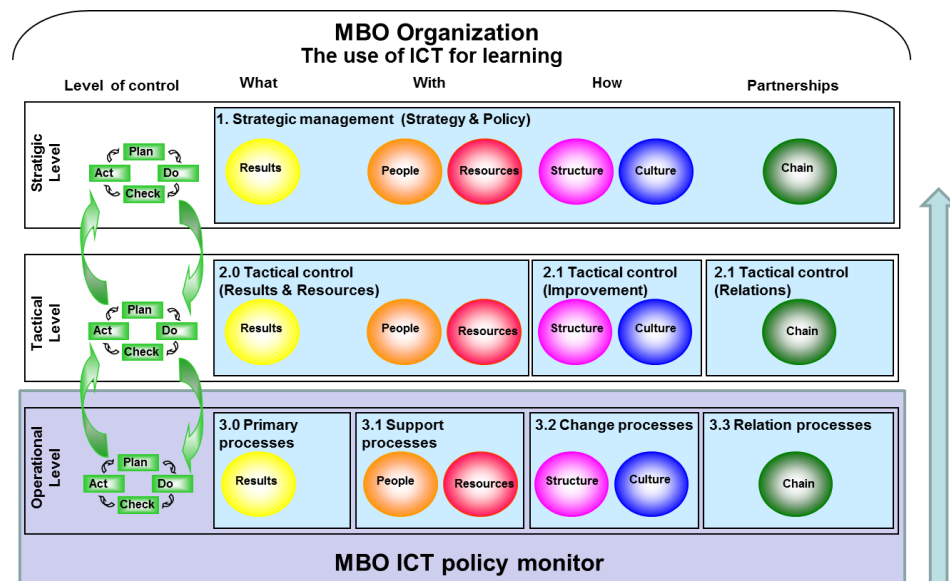


Figure 11: MBO ICT policy monitor used on the operational level

It is up to the management of MBO educational organizations how they want implement certain improvements. A common method is the PCDA-cycle (Plan, Do, Check, Act) by Deming. The outcome of MBO ICT policy monitor provides concrete information to the management about the application of ICT in education. From here, an improvement program can be set up by making plans, executing the plans and evaluating the outcomes. The quality cycle of continuous improvement could start by executing the MBO ICT policy monitor periodically.

6.2.1. Management building block: *vision & strategy*

The mission and vision of the organization are based on the forming of a strategy. A strategy makes the expected outcomes clear in terms of SMART formulated objectives that should be achieved in the desired situation. It is very important to have a consistent vision on education that clearly reflects and exposes the role of ICT. See figure 12.

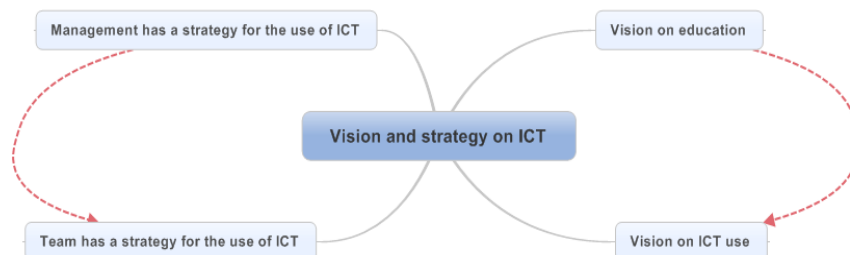


Figure 12: Management building block *Vision & strategy*

6.2.2. Management building block: *people*

The educational organization must ensure that they have sufficient in-house expertise in order to be able to continue to run its own quality standards and to improve when necessary. At the introduction of new ICT possibilities it does not only demand ICT skills, but also educational and didactic competences. Lecturing ICT competences to teachers needs therefore a wide approach. The expertise of the support staff also falls under the management building block *people*. See figure 13.

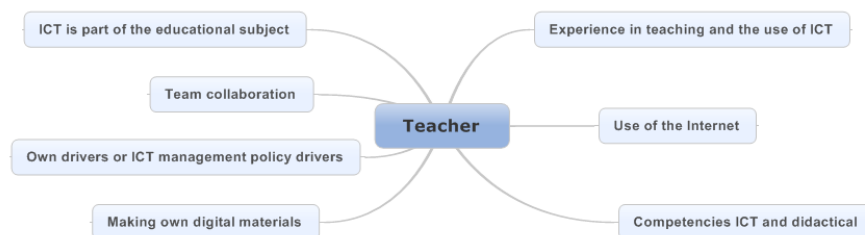


Figure 13: Characteristics of the teacher

Special attention is paid to the characteristics of the teachers, because he or she is the main determinant actor for the use of ICT in education.

6.2.3. Management building block: resources

Management building block *resources* cover a wide range of all "other" resources namely: financial (money), infrastructure (ICT), facility management (housing and furniture), having time, and presence of support services and to be able to follow training. See figure 14.



Figure 14: Management building block resources

6.2.4. Management building block: structure

Management building block *structure* is about the organization and the process *structure*. In essence, it involves the question of how the business activities are organized and what tasks, competences and responsibilities the teachers have. The structure describes the shape and functions of an organization. This only involves the hard formal procedures and rules. See figure 15.

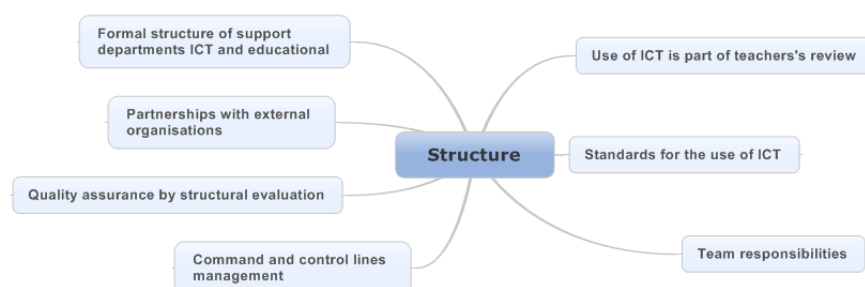


Figure 15: Management building block structure

6.2.5. Management building block: culture

The management building block *culture* of the organization is about the procedures within the organization which are also often present in an informal sense. In essence, it is about the basic values of the organization, the way in which managers and employees interact with each other. In the diagram below the main elements of the management building block culture are described.

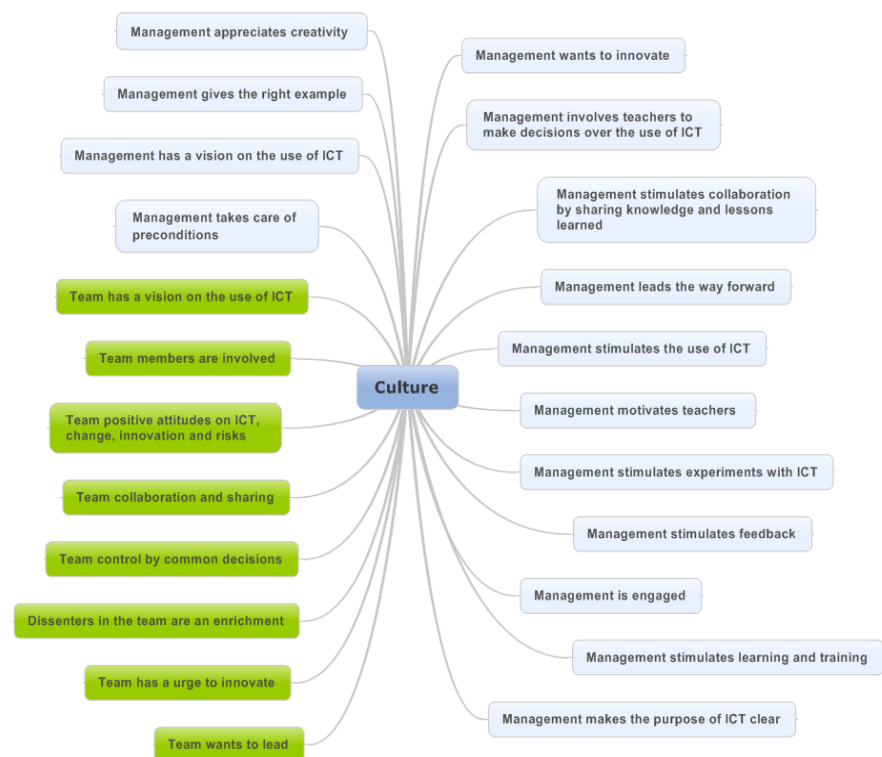


Figure 16: Management building block *culture*

6.3. A balanced organization

Total Quality Management (TQM) emphasizes that there must be a balance in development or maturity of all management building blocks of the organization. For example, it makes no sense to have an ambitious strategy, while the resources are not sufficient to achieve this strategy. The implementation of the strategy will fail because the internal organization is not able to follow. A large imbalance of the management building blocks can lead to a form of sub optimization that may result in unwanted effects.

variant	Strategy	People	Resources	Structure	Culture	Results	Effect
1							grows
2							confusion
3							anxiety
4							frustration
5							chaos
6							resistance
7							useless

Table 2: Unwanted effects and results

The information above in table 16 explains that in case a management building block fails, it has an unwanted effect on the results. In practice, these extremes are expected not to occur so unambiguously and the effects are not so easily identified. The most difficult aspect of this division is the interdependence between the management building blocks. A change in one management building block affects all the other management building blocks. For example, it almost has no effect when only the structure is improved. In order to achieve improvements, changes must also be made within the management building blocks: *Culture*, *People* and *Resources*. The strong and sometimes diffused relationships make any change difficult to understand. The policy monitor aims to specify which management blocks underachieve and which are on a sufficient level to implement ICT in the educational process.

This research study will take a closer look based on the Principal Component Analysis: in case the amount of items and also the number of questions per management building block are too large and

must be reduced to make the MBO ICT policy monitor more user friendly.

6.4. The Service quality of support departments

For measuring the service quality of a support department within an educational organization it is possible to choose an existing service quality model or testing a broader range of items. Since there is no specific research on the service quality of a support department within an educational organization, the choice for the development of the ICT policy monitor is wise as it has a wide set of items to handle. The approach here is the first draft by Parasuraman, Zeithaml and Berry used for the construction of the SERVQUAL model. Table 17 shows the overview of the service quality items used for the MBO ICT policy monitor.

Category	SERVQUAL	SERVPERF	CSI	CxPi	MBO ICT policy monitor	Items MBO ICT policy monitor
<i>Reliability</i>	√	√			√	Support delivers what is promised on time
<i>Responsiveness</i>	√	√			√	Support has pleasant hours of operation
<i>Assurance</i>	√	√			√	The service is of high quality
<i>Empathy</i>	√	√			√	Support gives me enough attention
<i>Tangibles</i>	√	√			√	The ICT products and materials helps to use ICT more effectively
<i>Usefulness</i>	√			√	√	The support helps me to use ICT in education more effectively
<i>Satisfaction / Enjoyability</i>	√		√	√	√	The staff employees are customer friendly
<i>Customer loyalty (1)</i>			√			X
<i>Perceived quality</i>			√		√	The service is of high quality
<i>Customer expectation</i>			√		√	Support helps me to use ICT more effectively when I need support
<i>Perceived value</i>			√		√	Due to the support I'm able to use ICT more effectively
<i>Customer Complaints (2)</i>			√			X
<i>Ease of Use (3)</i>				√		ICT equipment is easy to use
<i>Competence</i>					√	Trainers are competent Support has good ideas
<i>Access to service</i>					√	The support is easily accessible

Table 17: Items selection service quality MBO ICT policy monitor

By taking all these items into account, when developing the MBO ICT policy monitor, the analysis of the response data can result in a reduction of items by using the Principal Component Analysis.

6.5. Conclusion

The choice of the management building blocks are:

- **Results** of the organization, what is to be achieved?
- **Vision and Strategy** of the organization, what we want to achieve, how and when?
- **People** of the organization, with whom?
- **Resources** of the organization, which and what?
- **Structure** of the organization, how to organize it?
- **Culture** of the organization, the way we do think together?

The management building block *chain* of the organization implies the importance of having an eye for external parties and partnerships is not implemented as a management building block, because the MBO ICT policy monitor focuses on the internal organisation. The statement: *through cooperation with other institutions I learn how I can use ICT in my teaching* is included under management building block

structure of the organization. The management building block *Society Results* (value) is also not implemented as a separate management building block. The Image building phase of this research study has already shown that the topic ICT use in education as a whole is already looked upon as socially relevant topic. The wide set quality service items are used and later reduced on the base of real data. The items are: reliability; *Support delivers what is promised on time, responsiveness; Support has pleasant hours of operation, Assurance; Support helps me out, Empathy; Support gives me enough attention, Tangibles; The ICT products and materials, Usefulness; The support helps me to use ICT in education more effectively, Satisfaction / Enjoyability; The staff employees are customer friendly, Perceived quality; The service is of a high quality, Customer expectation; Support helps me to use ICT more effectively when I need support, Perceived value; Due to the support I'm able to use ICT more effectively, Ease of Use; The support helps me to use ICT in education more effectively, Competence; Support has good ideas, Access to service; The support is easily accessible.*

Next chapter describes the specification of the MBO ICT policy monitor.

Image building

Focus

Search for
solutions

Choice

Specification

Design

Implementation

Verification

Evaluation

7. Specification: *MBO ICT policy monitor*

Now the substantive choices are made for the framework and methodology use to develop the MBO ICT monitor, the specification of the policy monitor can be described. The main specification of the MBO ICT policy monitor is an operationalization of the problem statement of this research study and can be formulated as follows: The MBO ICT policy monitor must provide the management of an MBO educational organization with concrete information. With this information it must be possible to achieve their own objectives for the use of ICT in the primary education process, based on the actual experience and perception of the teachers themselves.

The MBO ICT policy monitor has a content specification and a specification for the use itself. The way the choices were made was elaborated on in chapter 6. In this chapter the specifics are pointed out in the use of ICT in education. Also, the management building blocks *people*, *resources*, *structure*, and *culture* are pointed out as a framework for the MBO ICT policy monitor. In addition, items were pointed out to determine the service quality of a support department. Following the described features focus on the content, use and presentation form of the MBO ICT policy monitor.

Specifications on content:

1. The MBO ICT policy monitor provides insight of the actual use of ICT in education by the teachers. This insight should result in raising the **self-esteem** of the management in making decisions to realize the objectives in this area.
2. The MBO ICT policy monitor is based on the actual use of ICT in education by the teacher. The MBO ICT policy monitor **stands out** at this point in comparison of other used instruments applied in the Dutch vocational education (MBO).
3. The framework of the MBO ICT policy monitor, based on the management blocks people, resources, structure and culture, must contain recognizable management information to subsequently make up an improvement program in order to be able to give appropriate guidance to the application of ICT in education.
4. MBO education organizations operate often from their own strengths. The MBO ICT policy monitor should also provide insight into **those sub-disciplines that are less performing**.
5. On the basis of the outcome of the MBO ICT policy monitor a specific plan of action can be drawn up to implement the necessary improvements. It should be possible to come to an **informed improvement strategy** in the field of ICT use in education.
6. On the basis of the outcome, the improvement actions can be prioritized. What areas have the biggest bottlenecks for the applications of ICT and where quick wins can be realized?
7. The MBO policy monitor displays for both the technical and educational support departments a grade for the delivered service quality.
8. The questions of the survey must be asked as statements. The opinion of the teacher is requested and the nature of a statement provides in this.
9. The scale used is a five point Likert scale: (1) *strongly disagree*, (2) *neither agree nor disagree*, (3) *neutral*, (4) *agree*, (5) *strongly agree*.
10. The option *don't know/not applicable* will be added to each statement in case the responding teacher has no knowledge about it or when the statement actually is not applicable at all.

Specifications on use:

1. The MBO ICT policy monitor can be used as an actual baseline approach. The management could be satisfied beforehand on the use of ICT in education, but it could conclude from the outcomes that there are a number of bottlenecks that were not known at the start. The management is then able to take specific actions.
2. The MBO ICT policy monitor can be used for preventive measures. The future plans of the management can be compared to the current situation. Future risks can be indicated and the right measures could be taken on basis of these comparisons.
3. The MBO ICT policy monitor could be used periodically to determine whether the measures taken actually led to improvements in the classroom. The process of continuous improvement takes shape simultaneously.

Specifications on presentation:

1. The results of the MBO ICT policy monitor will be presented in the form of a dashboard. It should be clear what the results are of the management building block *people*, *resources*, *structure* and *culture* of the organization. In order to see the results of the underlying items, it should be possible to get easily access thereto and to get a clear overview.

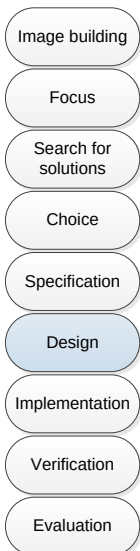
-
2. The MBO ICT policy monitor must indicate whether the management building blocks are in or out of balance.
 3. The MBO ICT policy monitor should give an overview on the level of the organization, but also at the level of an individual department.
 4. The MBO ICT policy monitor should also be able to present relevant cross relations between data. For example those of: internet use vs. gender, ICT skills vs. gender, ICT skills vs. gender, ICT skills vs. Age, ICT resources vs. Location/department, ICT supports vs. Location/department, educational support vs. Location/department, ICT part of the course vs. Gender, ICT skills vs. ICT part of the course.

The presentation of the results of the MBO ICT policy monitor gives the overall pictures. (1) The achieved score per management building block, showing whether these building blocks may or may not be in balance. (2) An overview of the underlying data or components per management building block. (3) An overview of the service quality of the support departments. (4) An overall picture of a number of important issues, such as described in point 5 specifications on content.

7.1. Conclusion

Conclusion specification phase

The MBO ICT policy monitor can be used as a *baseline instrument*, but also for *preventive* measures to gain insight in *future risks* in the use of ICT in education. In order to come to a process of *continuous improvement*, the MBO policy monitor could be used *periodically* to track the progress and to make adjustments when necessary.



8. Design: MBO ICT policy monitor

Now that the specifications are pointed out, the development of the MBO ICT policy monitor can take place. The chosen solution contains many items that are relevant to the use of ICT in education. However, it is not possible to carry out an easy and quick reduction of these items. The items are the result of literature research and existing (international) tools used in the field of ICT use in education. The emphasis of the development of the MBO ICT policy monitor will therefore lie on the reduction of the number of items and the validation thereof. In order to achieve the required reduction, the items and the framework of management building blocks: *people*, *resources*, *structure* and *culture* are proposed to expert teams. The expert teams can indicate whether the items are relevant and if necessary, add new items. A validation process for the design of the MBO ICT policy monitor comes into motion when expert teams are used. An important second step in the development of the MBO ICT policy monitor is to achieve a limited number of items that are representative for the entire set of items. To achieve this, the entire set of items translated into statements and questions must be submitted to a representative group of MBO teachers by means of a survey. On the basis of the obtained data set, a statistical operation can take place in order to achieve a reduction of the number of items. To reduce the number of items, the Principal Component Analysis is used. The survey of the ICT policy monitor is now reduced to a Quick Scan. As a finished product, the Quick Scan should also be validated by testing it among a representative group of MBO teachers of another MBO organization than the organization of the first scan.

8.1. Expert sessions

Expert sessions

The ICT policy monitor is drawn up in this phase on the basis of the theoretical framework and principles that are described in the previous chapters. A structure consisting of the management building blocks: *people*, *resources*, *structure*, and *culture* with a starting point for optimum use of ICT that these building blocks should be in balance. This theoretical principle is submitted to experts in the field of ICT use in education. Where both the construct as the content of the ICT policy monitor were points of discussion. The former concerning the construct validation and the latter for the validation of content. Separate expert sessions were held for both forms with the use of Group Decision Software of the TBM faculty. The closing session was a try out session where the complete staff of five teachers of the TU-Delft participated. All sessions are valuable for the development of the ICT policy monitor. In the following paragraphs the sessions on main features are discussed. In annex 1, 2, 3, 4 and 5 the complete sessions are described.

Session 1: Construct validation

Experts in the field of ICT use in education participated in this session. The experts came from ROC Mondriaan, Hogeschool Zuyd, Hague University, Leiden University, and the Delft University of Technology.

Session 1: Objectives

The expert panel reviews, based on the view or the principles and choices, produced correspond to those of the panel (construct validity) and result in further deepening of the problem statement. The table below gives an overview of the most important and relevant comments.

Session 1: Results

	Session 1: Construct validation	Outcome of the session
	Objective of ICT in education	
	Is the objective of the instrument clear?	By using the policy monitor the objective must be will communicated to management and teachers
	Beware of leading questions. What does a teacher understand by the use of ICT?	At the beginning of the Quick scan there should be a clear explanation of the definition <i>ICT use in education</i> .
	Is the division of people, resources, structure and culture usable?	This is useful in the analysis, for the respondent it is better to rank the questions by subject.
	There is a big difference in the perception of the board and the teachers.	Precisely for this reason, the monitor is focussed on the perception of the teacher, so that it is clear for the board what really takes place in the classroom.
	Are teachers familiar with the ICT policy?	Often not so we ask for the perception of the teacher in the use of ICT.
	The questionnaire comes across as complex	Simplification on topic to take the statements together and not by management building block
	Definition of categories/building blocks are not clear	The respondent doesn't see the underlying framework but for the elaboration a uniform definition should be used.
	Flexibility of education	Time, place, pace and learning style
	Efficiency	More tutorial possibilities
	Collaboration	Collaboration environment within teams
	Examination	For training and formal exams
	People	
	Characteristics of the teacher still insufficiently appointed	Ask specifically to what the teacher is doing and want to do. Also ask for internet skills.
	Knowledge, skills	On technical and didactical level
	Resources	
	Sufficient space to be able to do experiments	Both time, money and the possibility to do experiments
	Some ICT applications are no longer seen as specific ICT use in education	If this is the case at an educational organization appoint in advance and make it clear that this application is also part of the definition
	Training technical and didactic for teachers	Ask specific to both technical en didactic training possibilities
	Learning content accessibly	Learning content accessibly internal and external
	Support	Technical, educational and training sessions
	Service on offer	By support departments ICT and education
	Structure	
	Aware of trends	Cooperation with other organization on the field of ICT
	Consultation possibility for the use of ICT	Formal and informal
	Evaluate projects	Is there learned from experience
	Clear responsibility structure	From teacher to the board
	Remuneration of the teachers who apply ICT	Is the use of ICT part of teacher's review?
	Culture	
	The building block culture is long	Simplify in the final version
	Create support by management	Explain what the value of support is and lead by example
	Want to innovate	Willingness to work with uncertainties
	Want to share knowledge	Mentality to do this
	Be open to new technologies	Conservative or open for change
	Reward creativity	yes
	Results	
	Teacher and students	Based on management building blocks
	Support staff	
	Management and board	

Table 3: Session 1: Overview construct validation

Session 1: Conclusion

It can be concluded that the purpose of the scan is difficult to explain. Extra attention is needed for this particular point. Also, the structure in management building blocks requires a clear explanation with a strict definition of the building blocks themselves. This approach must be clearly visible when the policy monitor ICT is used. This can be in the form of a dashboard where the results are displayed by building block. The underlying questions could be treated at the second expert session on the basis of well-defined management building blocks.

Session 2: Content validation

The starting point of this session was that the set of survey questions were still too far-fetched from the experiences of the teacher to be able to make use of a Quick scan. Reason for this is twofold: the teacher is often not or only partially aware of the (central) ICT policy referred to. The questions are still too abstract to be answered quickly and comprehensively.

Session 2: Objectives

Coming to an understandable and recognizable reference point for the teacher, when it comes to central formulated ICT policy for education. The thirty-three questions, that are not yet formed into a comprehensible statement, must be introduced in a blind GDR session during which the panel members separately can turn the questions into statements.

Session 2: Results

Question	Description	Design decision
1	Do you have sufficient knowledge, insight and skills to use ICT?	To achieve the objectives of the ICT policy, leave this out
2	Are you prepared enough and trained in use ICT?	Separate section for education and training is needed
3	Are you supported by the organization with technical advice?	Separate section for technical support is needed
4	Are supported by the organization with educational advice?	Separate section for educational support is needed
5	Are staff members that support you competent?	Item in staff support training and education
6	Do you have enough time, to achieve the objectives of the ICT policy	To achieve the objectives of the ICT policy, leave this out
7	Do you have enough digital learning materials?	Use both internally and externally materials
8	Do you have the software for making digital teaching material?	Separate section for software tools are needed
9	Do you have access to a digital library so you can download useful digital learning materials?	Do you have access to a digital library and ask something about the quality of the materials. Separate section for the digital library is needed
10	You have (applications) software that supported your education?	Is been seen as difficult, Separate section software tools are needed
11	Do you have clear manuals to use the ICT resources well	Separate section ICT resources is needed, and include this item
12	You have access to tools such as roadmaps, best practices, templates, results of pilot projects for the use of ICT?	Application sharing and practice examples of colleagues are important. Section quality
13	Have staff members of the supporting (education) departments enough time to help you out?	Include in the section education support
14	Have staff members of the ICT department enough knowledge and skills?	Include in the section technical support
15	Have staff members of the education support enough time and are they giving adequate advices?	Include in the section educational support
16	Have staff members of the education department enough knowledge and skills?	Include in the section educational support
17	The organization offers you access to internal and external expertise to achieve the ICT policy objectives?	In sections technical and educational support
18	To achieve the ICT policy objectives the layout of the housing is adequate?	Building and layout are important so keep those items in the list
19	To achieve the ICT policy objectives the processes and procedures for the use of ICT are clear	Ask if there are standards and guidelines
20	To achieve the ICT policy objectives tasks and competencies are adequate?	Include in the section quality assurance
21	To achieve the ICT policy objectives there is an adequate structure to manage the ICT resources?	In the section of ICT resources
22	To achieve the ICT policy objectives there is adequate management of the digital content?	Include in the section internal and external digital material
23	To achieve the ICT policy objectives the standards and guidelines are clear	Ask if this there are and whether they help
24	To achieve the ICT policy objectives to what extent ICT applications and projects are evaluated	Evaluation question is important to learn from experiences
25	To achieve the ICT policy objectives we share experiences in a equate way?	Include to the extent experiences are shared
26	To achieve the ICT policy objectives there are partnerships with other organisations that works well	Questions the use of partnerships
27	To achieve the ICT policy objectives to what extent are there formal meetings?	There are formal meetings organized, included in the list
28	To what extent is the ICT policy for the realisation of the following true: educational expertise?	Include in the section educational support
29	To achieve the ICT policy objectives to what extent is it possible to ask for specific ICT expertise	Include in the section technical support
30	To achieve the ICT policy objectives there is an adequate formal structure of to record knowledge over the use of ICT	Include in the section quality
31	To achieve the ICT policy objectives there is an adequate formal structure to share knowledge over the use of ICT	Ask for formal meetings and the way knowledge is shared
32	To achieve the ICT policy objectives to what extent reviewing and promotion policies are taken into account	Ask if this is part of the formal review of the teachers
33	To achieve the ICT policy objectives to what extent consistency between ICT-related projects and activities are realised?	This question is seen as a repeating questing

Table 4: Overview session 2 construct validation

Session 2: Conclusion

Please make use of a bottom-up approach of the scan, so what the teacher really wants. It is about a diagnostic instrument that should be able to quickly give a signal that one of the management building

blocks (*people, resources, structure, and culture*) is failing. The repeating term "according to the ICT policy" has been removed. The panel has a strong feeling that the questions have become a lot more accessible and comprehensible. The panellists thought it was a sensible and productive session.

Session 3: Try-out

The try out session is the last session that is held to submit the questionnaire to a final test. The following issues were addressed: the average decrease duration, whether the introduction is understandable, if there are any questions which are preferably not asked, if there are any questions missing, whether there is enough variation in the questions and in conclusion what stood out and are there any suggestions for improvement.

Session 3: Objectives

Evaluating the draft questionnaire by a group of TU Delft TBM teachers. The questionnaire will be evaluated on the basis of a try out form. The importance of this review is to achieve a conceptual validation of the questionnaire. The central question here is whether the asked questions are asked in such a way that the respondents have the same interpretation as the development team had in mind.

Session 3: Results

Question	Description	GRD outcome	Discussion	Design decision
1	How long did it take you to make the survey?	13.5 minutes (average)	Is experienced as viable	15 minutes for the finished product will be good
2	The introductory text clears enough?	Definition of ICT what is meant, primary education process? Not clear enough.	Invitation to the Quick scan must make this clear.	By introducing the Monitor by an organisation. This must be clearly communicated.
			What's in it for the respondent	The purpose of the scan must be clear to the teachers and must be part of the presentation of the results
			Are the questions well categorized on management building blocks?	For the teachers the questions are on the topic arranged. The dashboard will be on management building blocks
			Use of terms, e.g., Delft University of Technology – Department of	Use common terms of the organization it self
3	Are there reasons not to fill in the questionnaire?	Too long too much the same type of questions?	No comments	This is a problem for the long survey. The final product will be a Quick scan
4	Questions would rather not record?	The age I don't see any relevance		It is important whether specific groups should be supported otherwise
		Leading questions		The statements should be as neutral as possible
		Statements who started by management, were very aloof		Use common names of the organization
			Culture is long found	Reduction for the final product is necessary
			Statements always ending on: <i>the use of ICT</i>	However, teachers eager to interpret the question in general and not specific to the use of ICT
5	Statements that are not clear and must be read several times must be changed.	Digital Library unknown concept?	Difficulty with the name educational management	Must clarify the used terms
		Standards and guidelines are often unknown		First ask if they are present and then ask if they work well
6	Enough variety of statements?	Limited, often the same wording	Too formal, much repetition	This is a conscious choice for a long version the end product will be short.
		The list of section 7 is very long		The management building block culture will be considerably shorten in the final version
7	Are there enough answer possibilities?	No, need sometimes the option do not apply	Some statements you can also just not know. So like an option do not know	All statements and up will the option "don't know or do not apply"

Question	Description	GRD outcome	Discussion	Design decision
8	Are there statements missing?	Availability still says nothing about the actual use		First there is asked if the resource is present and then if this is the case statements over the use are following.
		Use regular ICT resources (also private)		Ask for internet use and how often it is used.
		Is the use of ICT to be worth all the extra effort		First asked if the organization want to do more with IT than the teacher and later or the teacher want to do more with IT than the Organization wants
			I regularly try out new	Is part of the management
			things in my education	building block culture
			Is there any educational support	First there is asked if the resource is present and then if this is the case statements over the use are following.
			Do we know how teachers can find the way to the supporting staff	There will be statements over the accessibility of staff support
9	Ware their elements that ware troubling in the survey?	The continuous repeating "the use of ICT in education"		However, teachers eager to interpret the statement in general and not specific to ICT use
		The age doesn't matter no relevance	You might also work with age categories	Age categories must be used
			Watch out for distant formulation, keep it close to the teacher	The survey must be focusing on the Organization itself and the terms they use
10	What speaks particularly to you?	The framework of management building blocks	The framework of management building blocks is new	The construct is understood and is maintained
		The questions about culture are clear and to the point		Data reduction (reduction of items will be done) for the final version
11	Do you have further suggestions?	Statements of real experience: what do you do with ICT in education		In the introduction is highly mentioned what the definition of ICT is and how wide we interpreted this.
			Don't use statements with a negative formulation	Statements must be in the positive affirmative form
				The purpose of the scan must be clear to the teachers
			Is support reliable? Example: Is there support??it helps you further? (adequate)Is there enough attention? Does it help to improve my education?	First there is asked if the resource is present and then if this is the case statements over the use are following. The items named are serves quality items
12	Do you have other comments?	Add space for all segments.		Spaces and comments are added
			Keep a positive approach.	Statements in the positive affirmative form
			The management helps me or encourages me to do so	Is part of the management building block culture

Table 5: Session 3: Try-out results

Session 3: Conclusion

The construct of the questionnaire in the management building blocks: *people, resources, structure* and culture is clear and is regarded as innovative. By deciding that the questions and objectives are divided by subject and not by category, the respondent takes logical steps when answering the questionnaire. The underlying construct of the management building blocks will be become clear in the processing and presentation of the results. It has also become imminent that at the introduction of the questionnaire, the purpose and definitions used are clear for the respondent, so that the questionnaire can be answered unambiguously. It is also better to directly connect to existing concepts of the organization that the ICT policy monitor uses. The expert panel also had trouble answering a number of questions and statements, because they did not know whether certain services or products existed or they felt that this did not apply. The answers of the questions and statements will be extended with the option: "*I don't know or doesn't apply*". There will also be a response to questions about a support service or product (resource) to first ask if this exists and then ask if it is used, followed by asking what the experiences are of the respondent about the use of the service, or use of the product. Also, the accessibility and availability is considered

important. The advice, with formulating the questions and statements, is to write them in the same form. In this case, the positive confirmative form. This enables the questions not to be converted into the same shape and it is also less confusing for the respondent. The number of questions remains an important point. To arrive at a valid data reduction, the questionnaire in its entirety was filled out at first at a representative education organization.

8.2. The design of the survey

In this section, the construction and the initial concepts of the survey described. The first initial concept is the knowledge that not every teacher uses all the facilities meant for the use of ICT that the organization makes available for them. By building up the survey modular in separate sections, those sections of resources can be skipped if the respondent is not aware of them or has not used them. By using *switch variables*, the correct questions are conditionally submitted to the respondent and statements that are relevant for him or her are also given. For example, if the respondent indicates that he or she is aware of the resource, but he or she is not using it, the *why-question* will be asked: *Why didn't you use this resource?* If the answer to that is: *There are reasons for it*, then statements will be given on why the resource was not used. When people are unaware of the existence of it, there is still a *control question* whether the respondent is sure of this. If the respondent knows for certain that the resource is not present, then there is still a *fact question*. *The fact that this resource is not present has a negative impact on my education*. Table 21 lists the variables that have a special feature in the construction of the conditional survey.

Variables	Description	Answer options
Switch question	Is the resource present? Did you use the resource?	Yes/No, conditional jump
Why question	Why didn't you use the resource?	1. Never needed 2. Was not necessary 3. I never came to it 4. There are reasons for conditional jump
Control question	Are you sure that the resource is not present?	Yes/No, conditional jump
Fact question	The fact that this resource is not present has an adverse impact on my education.	Likert + don't know/ doesn't apply

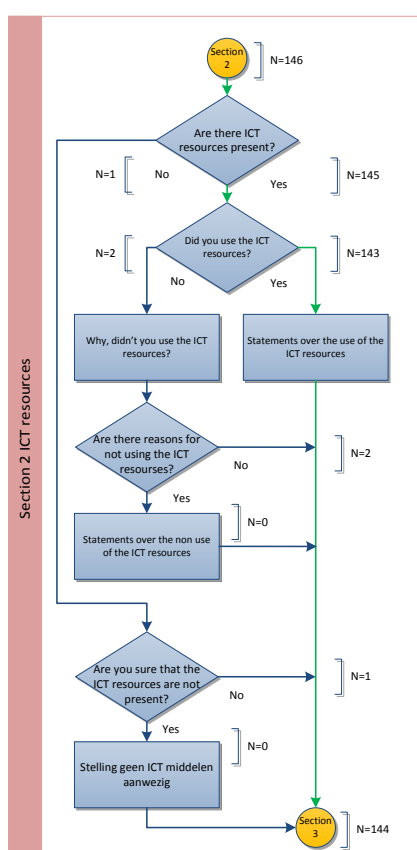


Table 6: Overview special variables

To overcome this, a conditional workflow is used, see Figure 19. The workflow is constructed in such a way that firstly is asked whether the respondent is aware of the resource. As an example the question; VAR017: *Are there ICT resources for supporting and giving your education at Uitholland (computers/software applications/internet etc.)?* Then the respondent will be asked if he or she uses it. Question; VAR018: *Have you ever used these ICT resources?* If experience was gained with this resource, statements are used to ask questions about this subject. (VAR019-VAR032) If the respondent doesn't know whether the resource is present and no use is made of it, there is still a question whether the respondent knows this for certain. (Control question) VAR048: *Are you sure that there are no ICT resources present for supporting and giving your education?* When it is made sure that the resource is not present, the question will be asked whether the lack of this resource has a negative effect on the educational process of the respondent. (Fact question) VAR049 *The fact that there are no ICT resources to assist with my education, has a negative effect on my education*.

Figure 19: Flowchart conditional structure section 2

When the resources are present but that the respondent has not made use of it, statements are presented as to why the respondent has not used any of the resources. (Why question) VAR033: *Why have not you used the available ICT resources?* These statements about the non-use of the resource have content and are the same as those when the resource is used, but then phrased as a negation. (VAR034-VAR047) Table 22 lists the variables in section 2.

Section 2	ICT resources
VAR017-Switch question	Are there ICT resources for supporting your education (computers/software applications/internet etc.)?
VAR018-Switch question	Did you use the ICT resources?
VAR019-Resource	In the classrooms are a sufficient number of PCs, printers, projectors etc.
VAR020- Resource	In the teachers room are a sufficient number of PCs, printers, projectors etc.
VAR021-Resource	The available ICT resources are in good order.
VAR022- Resource	The available ICT resources are new enough.
VAR023-Resource	The internet connection in the classrooms is good enough for my education.
VAR024-Resource	The internet connection in the teacher's room is good enough.
VAR025 -Resource	In the classroom I have a good access to the network of my department.
VAR026-Resource	In the teachers room I have a good access to the network of my department.
VAR027-Resource	At home I have a good access to the network of my department.
VAR028-Resource	The available ICT resources are helping me by my lessons.
VAR029- Resource	The available ICT resources are easy to use.
VAR030-Resource	The available ICT resources have sufficient documentation to help me out.
VAR031-Resource	Management of the ICT resources takes into account how I want to use ICT in education.
VAR032- Resource	Thanks to the ICT resources my lessons are better.
VAR033-Why question	Why didn't you use the available ICT resources?
VAR034-Resource	In the classrooms there aren't a sufficient number of PCs, printers, projectors etc.
VAR035-Resource	In the teachers room there aren't a sufficient PCs, printers, projectors etc.
VAR036-Resource	The available ICT resources are in bad shape.
VAR037- Resource	The available ICT resources are too old.
VAR038- Resource	The internet connection in the classrooms is too weak for my education.
VAR039-Resource	The internet connection in the teacher's room is too weak.
VAR040-Resource	In the classroom I have a bad access to the network of my department.
VAR041-Resource	In the teachers room I have a bad access to the network of my department.
VAR042-Resource	At home I have a bad access to the network of my department.
VAR043-Resource	The available ICT resources aren't helping me by my lessons.
VAR044-Resource	The available ICT resources are difficult to use.
VAR045-Resource	The available ICT resources haven't sufficient documentation to help me out.
VAR046-Resource	Management of the ICT resources doesn't take into account how I want to use ICT in education.
VAR047- Resource	Thanks to the ICT resources my lessons will not improve.
VAR048-Control question	Are you sure there is no ICT resources present for supporting your education?
VAR049- Fact question	The fact that there are no ICT resources present has a negative effect on my education.

Table 7: Section 2 Variables of ICT resources

The above described selection of a conditional workflow is also used in the sections 3, 4, 5, 6, 7, 8, 9, 10, and 11. Table 23 gives an overview of all sections of the survey.

Section	Description	Variables
1	Vision & strategy, Primary preconditions, Influence of the organization	VAR001-VAR016
2	ICT-resources	VAR017-VAR049
3	Education and training for the use of ICT	VAR050-VAR075
4	Internal technical ICT support	VAR076-VAR100
5	External technical ICT support	VAR101-VAR125
6	Internal educational support	VAR126-VAR150
7	External educational support	VAR151-VAR174
8	Internal digital teaching material	VAR175-VAR195
9	External digital teaching material	VAR196-VAR216
10	Software tools for creating digital learning materials	VAR217-VAR235
11	Digital library	VAR236-VAR252
12	Sharing knowledge capturing and evaluating	VAR253-VAR266
13	Management and team support	VAR267-VAR295
14	Characteristics of the respondent	VAR296-VAR303

Table 8 : Overview of sections

8.3. Conclusion

It can be determined that the purpose of the MBO ICT policy monitor in the design stage is difficult to explain. More attention should be paid during the realization process. Also, the subdivision in the management building blocks requires a clear explanation that the definitions of the management building blocks must be unambiguous.

Conclusion design phase

An important consideration is whether the questions in the design of the teachers should be related to the ICT policy of the educational organization itself. There was talk of a top-down approach or that the questions should be purely focused on the experience of the teachers themselves. There should be a bottom-up approach. The expert team believes that a bottom-up approach was more obvious. The consideration here is that the ICT policy is in many cases probably not known to the teacher and that the ICT policy monitor is a diagnostic tool that should be able to quickly send out a signal that one of the management building blocks (*results, people, resources, structure, and culture*) 'went wrong'.

The framework of the policy monitor in the management building blocks: *people, resources, structure and culture* is clear and is regarded as innovative. By sorting the questions and objectives by topic and not by management block, the respondent goes through a logical train of thought in answering the survey. The underlying framework of the management building blocks will be in the elaboration and presentation of the results of interest again. It has also become clear that the introduction, purpose and goal of the questionnaire should be understandable to the respondent in order to answer the questions unambiguously. It is also better to connect directly to existing concepts of the education organization which utilizes the policy monitor. The expert panel also had some trouble answering a number of questions and objectives, because they did not know whether certain services or products were present or felt that this did not apply. The answers of the questions and objectives are therefore extended with the option; "I don't know or not applicable". There is also found response to questions regarding a support service or product (brand) to ask first and then ask if there is here taken to point to the experience of the respondent the use of the service or product questions. Also the accessibility and availability is considered important. In the formulation of the questions and objectives, the advice is to put this in the same form. In this case the positive confirmative form.

Conclusion design use of the MBO ICT policy monitor

The assumption of the expert team that the ICT policy could be insufficiently known to teachers is confirmed at both ROC Uitholland and Gilde Veste. The bottom-up approach, chosen in the development of MBO ICT policy monitor, came to its full advantage.

Next chapter describes the realisation and implementation of the MBO ICT policy monitor.

9. Realisation and implementation: MBO ICT policy monitor

The design phase of the MBO ICT policy monitor is followed by the implementation and realization phases. An important part of this phase is the optimization and validation of the ICT policy monitor. For optimization the number of variables should be reduced and for validation the final product should be used one more time at a MBO education organization. For the optimization of the ICT policy monitor, the number of items in the survey is reduced on basis of statistical data reduction. This makes the survey, as part of the ICT policy monitor, becomes more manageable for the teachers. The short survey will, as a Quick Scan also be an important part of the ICT policy monitor. For a final validation of the ICT policy monitor it is this fully deployed with the MBO educational organization Gilde Veste. This chapter describes the implementation and realization of the ICT policy monitor in two sections. In part one, the development of Quick Scan stands central by searching a valid way to achieve a reduction of the number of questions and statements of the survey. The second section focusses on the application of the entire ICT policy monitor at the MBO educational organization Gilde Veste. Table 24 lists the activities per section.

	Part 1: Realisation		Part 2: Implementation	
Activity 1	Make the survey digital available	9.1	The preparation of the short survey. The Quick Scan	9.2.1
Activity 2	Recruiting a MBO organization to try out the survey	9.1	Recruiting a MBO educational organization to try out the Quick Scan	9.2.2
Activity 3	The recruitment of a sufficient number teachers that will answer the survey	9.1.1	The recruitment of a sufficient number teachers that will answer the Quick Scan	9.2.3
Activity 4	The process of data collection		The process of data collection	9.2.3
Activity 5	The analysis of the data and validation of the data	9.1.2	The analysis of the data and validation of the data	9.2.4
Activity 6	Validation of the number of components. To use for a data reduction.	9.1.11	Developing the MBO ICT policy monitor	9.2.5
Activity 7	Set up a validation plan to use Principle Component Analyse to reduce the number of item and review this with experts in this field	9.1.13	On the basis of the results of the ICT policy monitor drafting an improvement plan for the application of ICT in education.	Annex 14
Activity 8			The presentation of the improvement plan to the management and executing the improvement plan	Annex 14

Table 9: Overview of activities realisation and implementation

Quick Scan

One of the main requirements in the development of the ICT policy monitor is that it should be user-friendly for the management of a MBO education organization. Besides, it should be put to use periodically in order to assess whether the policies have led to an improvement in the workplace or not. An important part of the ICT policy monitor is possibility to make use of a Quick Scan that is presented to the teachers. The Quick Scan must not contain any ambiguities for the teacher and must be filled out within 20 minutes. By offering the Quick Scan digitally, the teacher can determine when and where he or she will answer the Quick Scan.

The ICT policy monitor is a survey that initially contained of 303 questions and statements. The survey has all the relevant items from the design phase of the ICT policy monitor that are relevant to the teacher in applying ICT in education. The items contain the private and environmental factors that play a role in the use of ICT in education. The items are broken down by management building blocks: *vision & strategy, people, resources, structure, and culture*. Then, the items related to the service of a support service are grouped together in order to determine the service quality of this particular department. The number of questions and statements of the survey is simply too high for a user-friendly use of the survey. The risk that teachers are not going to take or break off the survey is too big. Another important condition is that the ICT policy monitor should be able to be put to use periodically. As you can imagine survey of 303 questions and objectives is less suitable for this purpose. The reduction of the number of questions and objectives of the survey is therefore an important aspect of this research. This reduction will have to be done in a valid way. A point of interest here is the size of the dataset. This set of data contains 150 x 303 when 150 respondents answer all the questions and objectives, resulting eventually in 45.450 data points. In the following paragraphs the components of the realization and implementation phase will be described.

9.1. Part 1: Realisation of the MBO ICT policy monitor

Online survey

The survey of 303 questions and objectives is digitally executed at a representative MBO educational organization. Two frequently used packages for conducting the survey are: Parantion, NetQ. It is also possible that MBO education organizations want to use the survey tool as part of the Learning Management System (LMS). This has the advantage that the digital environment for the conduction of the survey is known to the teachers and it will be more accessible than an unknown environment.

The environment should in any case be easy to use and the package must have the ability to be able to jump to the matching sections of the survey based on the answers.

Recruitment

The recruitment of an MBO educational organization to do the extensive survey is no easy task. The main argument used in the recruitment was that detailed information is made accessible to the educational organization in the field of ICT use by the teachers. On the other hand, the time teachers invest taking the survey are approximately 45 minutes. After three meetings at a regional training centre (ROC), where the design of the ICT policy monitor and the expected revenues were discussed, it was permitted by the management to conduct the survey. During the time of the meetings, the ROC had the choice of two other instruments to evaluate the use of ICT. The instruments were *4 in Balkans* by Kennisnet and a tool of the supplier *N@tschool Tree Ships* in order to measure the intensity of the use of the LMS. The management of the ROC has chosen to participate in this particular research, because the MBO policy monitor ICT directly asks for the experiences of the teachers. It can be used periodically and conducting the survey is possible by using the own LMS. There are two conditions had to be met in order to conduct the research: in the public version of this study it was not permitted to show the name of the ROC and the survey had to be conducted by using their own LMS, N@tschool. The substitute name ROC Uitholland will be used for the rest of this research. To use the LMS, N@tschool, meets the minimum requirements in order to be certain that the survey will be conducted properly. It is user-friendly and has the ability jump to the matching sections based on the conditional answers.

ROC Uitholland

The ROC Uitholland is a representative educational organization within Dutch vocational education (the MBO). It is a great urban educational organization with a wide range of training courses. The management of ROC Uitholland was already some time looking for a way to investigate the use of ICT in education. By participating in this research, ROC Uitholland has gained detailed information that is obtained through the application of the prototype of the ICT policy monitor. This is conducted to the full extent of 303 questions and statements. In addition, the management stressed the importance of getting information directly from the classrooms. How is the implementation of ICT at the moment the survey is executed, what is still missing and what can we, as a management, do about it?

Portfolio of ROC Uitholland

ROC Uitholland employs 955 teachers and offers two roads to qualification, the full-time Vocational Training Programme (BOL) and the part-time Professional Accompanying Programme (BBL). The number of students is 20.000. ROC Uitholland offer a wide training courses in the following fields: Construction-Infra technology, Electro-Metal Mechanical-Mechatronics, Trade-Economics-Administration & Logistics, Catering-Bread & Banquet Facility Services, ICT, Installation-Refrigeration technology, Mobility, Fashion-Appearance & Care, Maintenance & Safety, Process engineering & Maintenance, Travel-Recreation-Culture & Sports, Care & Welfare.

ROC Uitholland is one of the largest training centres for MBO education in Netherlands. They educate practitioners and prepare students to an independent, active and prospective position in society. They strive for effective didactics and a lasting relationship with their student in the context of lifelong learning. Skilled, nearby and involved.

Mission statement

ROC Holland prepares their students for the labour market and for personal craftsmanship and identity. The guidance of the students ensures that there are no absentees and school dropouts. Ensure a smooth flow and warm transfer of the students. And maintaining inspiring contacts with trade and industry.

Organization ROC Uitholland

Using Mintzberg's organization structures (Mintzberg, 1992) by the corresponding five forms of control, ROC Uitholland can be typified as a professional, but also as a bureaucratic organization of which the scale is a very important aspect. In addition, the support services are highly centralized. Another important characteristic of ROC Uitholland is the decentralization of authorities. The educational team plays a pivotal role within the organization and implementation of education, it is self-motivating and

result-oriented. The role of the management is mainly focused on the facilitation of the necessary resources to sustain the education and guidance of students.

Number of respondents

A lot has been done in order to generate a sufficient number of respondents. The use and necessity were explained in the digital newsletter and the teachers were called upon to participate. In addition, leaflets were also distributed. Teachers who participated in this research had the chance to win an iPad. , This was done as an incentive.

9.1.1. Executing the survey

Sections of the survey

The complete survey, with all the conditional jumps was imported in the LMS of ROC Uitholland. In Appendix 6 you will find the conditional structure of the survey in the form of a flowchart. The complete questionnaire is found in Appendix 7. A direct link to the survey, by a digital announcement the teachers are invited to take the survey. The table below shows the number of respondents presented per section of the survey.

section	Description	Variables	Number of respondents	Effective number of respondents
1	Vision & strategy, own skills and motive	VAR001-VAR016	146	146
2	ICT-resources	VAR017-VAR049	146	143
3	Education and training for the use of ICT	VAR050-VAR075	144	64
4	Internal technical ICT support	VAR076-VAR100	144	112
5	External technical ICT support	VAR101-VAR125	140	4
6	Internal educational support	VAR126-VAR150	140	47
7	External educational support	VAR151-VAR174	140	21
8	Internal digital teaching material	VAR175-VAR195	138	60
9	External digital teaching material	VAR196-VAR216	138	85
10	Software tools for creating digital learning materials	VAR217-VAR235	137	39
11	Digital library	VAR236-VAR252	137	15
12	Sharing knowledge capturing and evaluating	VAR253-VAR266	137	46/103
13	Management and team support	VAR267-VAR295	137	136
14	Characteristics of the respondent	VAR296-VAR303	136	136

Table 10: Number of respondents, red means responds to low

Effective number of respondents

The column 'effective number respondents' mentions the number of respondents who have answered that section and have made use of the relevant service or resources in the application of ICT in education. The sections 5, 7 and 11 have a low effective response. Basically, the teachers of Uitholland are not allowed to directly use external expertise for neither the technical support (section 5) nor the educational support (section 7). On the availability of a digital library (section 11), most teachers assume that it is not present. (116 of the 137). The full survey is included in Appendix 1 with the number of respondents for each section. What is to be taken note of, is that the number that has answered that a particular service or medium is not present did not know this for sure. This was the outcome of the control question. These percentages are shown in table 26.

Section	Subject	Number of respondents resource is not present	Number of respondents don't know for sure	Number of respondents know for sure	Percentage of respondents don't know for sure
2	ICT-resources	7	3	2	60%
3	Education and training for the use of ICT	49	38	11	78%
4	Internal technical ICT support	7	3	4	34%
5	External technical ICT support	130	47	83	36%
6	Internal educational support	79	54	24	68%
7	External educational support	110	24	86	22%
8	Internal digital teaching material	72	44	28	61%
9	External digital teaching material	40	29	11	73%
10	Software tools for creating digital learning materials	90	63	27	70%
11	Digital library	116	56	60	48%

Table 11: Percentage of number of respondents don't know for sure that a resource is present

9.1.2. The analysis of the data

Steps

A number of steps have been taken while analysing the data that were obtained by the survey at ROC Uitholland. In the first place a close look was taken at the number of respondents, in order to determine if this group was representative of the entire population of teachers at ROC Uitholland. Then, criteria have been formulated to determine which respondents could be taken into account for further data analysis. Because the survey is conditional, not all items of the survey will be answered by all respondents. Extra attention has been paid to this in the section *Missing values*. The final step examines the distribution of the variables to determine if they are suitable for carrying out further statistical analysis. In order to achieve a reduction of the number of items, in these cases the Principal Component Analysis is used; whereby the variables should be distributed as normal as possible.

Sample size

While determining the sample size, it is important to establish beforehand what the permissible margin of error may be. The margin of error is the size of the error that would still be acceptable for realisation of the ICT policy monitor. The sample size must be representative of the entire population of teachers who apply ICT in their education at ROC Uitholland. From conversations with executives of Uitholland it was noted that teachers already face problems when using the ICT infrastructure; not even implementing the Learning Management System (LMS) enough in supporting their education. It is therefore expected that questions and objectives on these topics lead to unambiguous answers. Based on this information, a qualitative research at ROC Uitholland would exceed the margin of 5%, but for implementing the ICT policy monitor it is important to be able to work with data that are normally distributed as much as possible. This requires to keep the sample size as large as possible and the error margin small.

Margin of error

The margin of error used, depends on the distribution of the data; the greater the spread the smaller the margin of error may be. The expected distribution for many variables of data will be low, which permits the margin to be larger. The margin of error for the development of the ICT policy monitor is kept as low as possible; namely 6%.

Reliability level

The level of reliability is the degree of uncertainty that is permissible in the development of the ICT monitor. At a usual 95% level of confidence, 95% of all possible results when the first sample must also occur in a repeated sample. Also, a higher confidence level requires that the sample size should be bigger. The level of reliability that is used for the construction of the MBO ICT policy monitor is kept at 95%.

Scatter percentage

The distribution of the characteristic is important to calculate the sample size. The expected distribution

will not for all variables be the same size. When answers strongly tend into a certain direction, this is unfavourable for the construction of the policy monitor. With a wide spread it is common to use a distribution percentage of 50%. For the construction of the MBO ICT policy monitor this percentage is used, while it is probable that the distribution for a number of variables is low.

Population size

The population size will normally consist of the number of teachers that are on the payroll at ROC Uitholland. The total population size consists of 955 teachers. See table 27.

Margin Of Error	Reliability Level	Scatter percentage	Population Size	Minimum sample size
6%	95%	50%	955	209
6%	90%	50%	955	157

Table 12: Sample size of teachers ROC Uitholland

Sample size

The table above shows that the minimum sample size should be 209 teachers at a reliability of 95%. The feasibility that so many teachers would take a survey, consisting of 303 questions and statements, has a low estimation, was the outcome of the meetings with ROC Uitholland. The question is whether at the realization of MBO policy monitor ICT the population size must consist of all teachers or whether it is possible to look at a specific sub-group within the entire population of teachers. In consulting with ROC Uitholland, a subgroup of teachers is appointed. This group consists of teachers who use the Learning Management System (LMS) in the execution of their teachings. The ROC Uitholland is aware of the fact that the substantive outcome of the survey is based on this group and cannot be translated to the entire population of teachers. Upon closer examination it appears that approximately 300 teachers actively use Learning Management System (LMS). The population size of this sub-group is 300 teachers. The sample size is in table 28.

Margin Of Error	Reliability Level	Scatter percentage	Population Size	Minimum sample size
6%	95%	50%	300	142

Table 13: Minimum sample size of teachers

9.1.3. Respondents of the Survey

Not all respondents will complete the web survey in the LMS environment. Some respondents will close the questionnaire early. Another possible problem conducting the web survey, is skipping questions by not to answering them and continue with the next question. This problem is overcome by adding the option at each statement (6) *I don't know/not applicable* and at questions about the possibility to use a certain resource: *no* or *I don't know*. In addition, an extra control question must be answered by the people who answered *no* or *I don't know*. The question will ask if the respondent is certain about the answer. For example: *Are you sure that you are not allowed to use external technical expertise?*

Skipping questions

By thus structuring the content of the survey, questions should always be answered by the respondent and there is no substantive need for a respondent to skip a question. The option in the settings to leave a question unanswered can be deactivated. The problem of the unanswered questions in between is resolved this way.

Criteria have been drawn up to assess the respondent data for a valid dataset. Which minimal demands should this dataset meet, in order to be used for further statistical analysis?

Valid number of respondents

In total, 152 respondents started answering the questions by activating the web-survey. There were six respondents that quitted in the first section of the session and did not resume the survey. Looking at the further data analysis, where latent components are determined on section level. Also on the total survey, a section is defined as the smallest part on which the data analysis takes place. The minimum requirement for valid results of respondents is that they will need to have completed at least the first section. The criteria for a valid result of a respondent are listed below:

Used criteria

1. The respondent must use ICT in its teachings or to orient on this,
2. The respondent must at least complete the first section of the survey,

3. The responses of the respondent must be credible, not answering every item with option 1 for example.

By applying these criteria six respondents will be excluded resulting in a total number of 146 valid respondents.

9.1.4. Missing value

Type of missing values

The main question that should be asked is why there are missing values in the dataset. The survey creates three types of missing values that are important for further statistical analysis of the dataset. The following table lists the type missing values with the recode which is used in further analysis. See table 29.

	Missing value type	Recode dataset
1	Statement option 6, don't know / don't apply	06
2	Abort scan, value for unanswered questions	80
3	Missed statements by conditional jumps in the survey	90

Table 14: Missing value recoding

When filling out the personal characteristics there are no conflicting data found; for example, someone who used ICT in education longer than at work in the field of education. The missing values are structural and explainable. Further analysis of these missing values, to determine whether or not are random, is not necessary in this case.

9.1.5. Variables analyses

Distribution fit

For the realization of the policy monitor, there has been made use of the Principal Component Analysis (PCA) in order to reduce items (variables) in the survey. It is important that the data is as normally distributed as possible. Characteristic of a normal distribution is that the average is in the middle and on both sides the distribution is decreasing evenly. The mean, modus and median are evenly in correlation with each other in a theoretical normal distribution. In practice, such a normal distribution of data is rare. The question now is, which data is enough normally distributed to use in carrying out the ICT policy monitor. Three standard tests have been done in order to make correct conclusions about this. These tests are described in the following paragraphs.

1. The Skewness test, determines the degree of skewness of the distribution in correlation to the theoretical normal distribution.
2. The Kurtosis test, determines the degree of dimensional stability compared to the theoretical normal distribution.
3. A visual inspection of the distribution, using histogram, plots with a projection of the normal line in this.

9.1.6. The Skewness test

Skewness calculation

A Skewness test indicates the degree of skewness of the distribution compared to the ideal normal distribution. The distribution can be skewed to the left or right side. With a skew to the left there are few observations in the area left of the middle. The outcome of the Skewness test gives a negative value to a left leaning distribution and a positive value in skew to the right. A fully normally distributed graph would give an outcome of zero. There are two ways to test the skewness statistically, in order to determine if the found distribution deviates significantly from the normal distribution. The first method is the Skewness value divided by the Standard Error of Skewness. This calculates standardized value of Skewness. This value would then be under the 0.05 significance level with a 1.96.

Skewness range

A second method is based on the calculation of a range wherein Skewness value should be. The range is calculated by multiplying the Standard Error of Skewness with two. For VAR005, this means 2×0.217 Skewness = 0.434 the range for the value then becomes: $-0.434 < 0.434$. The value of Skewness of 0.427 lies within the range. For VAR005 applies that default value of Skewness is just above 1.96 and this test becomes negative. Table 30 gives an overview of a number of variables where the Skewness tests have been carried out.

Variables	description	Skewness	Std. Er.Skew	Range Skweness	Z-Value Skew < [1,96]
VAR005	There are regular meetings to discuss how we can use ICT the best way possible within our education.	0,427	0,217	-0,434<>0,434	1,973
VAR008	Our organization has a clear vision of the use of ICT in education.	0,342	0,203	-0,406<>0,406	1,680
VAR177	The available digital learning materials within our organization are easy to find.	-0,323	0,309	-0,618<>0,618	-1,045

Table 15: Skewness test

9.1.7. The Kurtosis test

Kurtosis calculation

The Kurtosis test determines the degree of dimensional stability compared to the theoretical normal distribution. When there is a pure normal distribution, then the Kurtosis has a value of 0. The Kurtosis has a negative outcome with a flat distribution and a positive outcome at too sharp distribution. (Howell, p. 29). A platykurtic distribution is flatter than the normal distribution and if this leptokurtic distribution is sharper than a pure normal distribution. The Kurtosis can also be calculated in two ways, like the Skewness, which indicates, if the found distribution is significantly different from a pure normal distribution. The first method is the Kurtosis value divided by the Standard Error of Kurtosis. The standardized Kurtosis value is calculated this way. This value would then be under the 1.96 at a 0.05 significance level.

Kurtosis range

A second method is based on the calculation of a range wherein the Kurtosis value should be. The range is calculated by multiplying the Standard Error of Kurtosis with two. For VAR005, this means $2 \times 0.430 = 0.860$ the range for the Kurtosis value then becomes: $-0.860 <> 0.860$. The Kurtosis value of -0,642 lies within the range. Table 31 provides an overview of a number of variables where the Kurtosis tests have been carried out.

Variables	Description	Kurtosis	Std. Er.Kurtosis	Range Kurtosis	Z-Value Kurtosis < [1,96]
VAR005	There are regular meetings to discuss how we can use ICT the best way possible within our education.	-0,642	0,430	-0,860<>0,860	-1,494
VAR008	Our organization has a clear vision of the use of ICT in education.	-,501	0,404	-0,808<>0,808	-1,240
VAR177	The available digital learning materials within our organization are easy to find.	-1,278	0,608	-1,216<>1,216	-2,102

Table 16: Kurtosis test

9.1.8. Visual inspection of the distribution

Histograms of variables

The visual inspection of the distribution is recorded in a histogram plot per variable from SPSS. The correct normal line is projected in the plot. See figure 20.

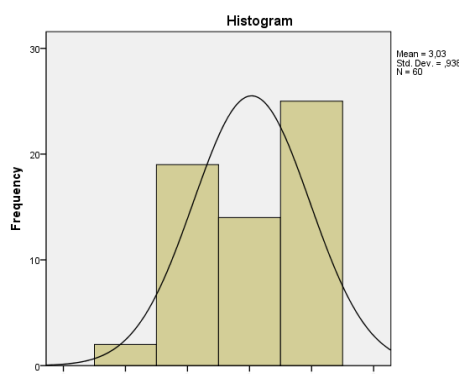


Figure 20: Histogram VAR177

The number of respondents should be sufficient to determine if a distribution is significant normally distributed. The lower the number of respondents, the less reliable the significance tests are. Thirty valid scores are used as a baseline.

As an example the following histogram of VAR177 "The available digital teaching materials within Uitholland is easy to find". The distribution of these variables has a negative Skewness value of -0.323 and negative Kurtosis value of -1.278.

The final qualification, whether or not a variable is taken into account in the further implementation of the

ICT policy monitor, depends on the outcome of the

Skewness and Kurtosis tests. The standard is that a variable is rejected if all four tests have a negative outcome. Table 32 shows the overview of the VAR177 variable with the final qualification testing at 'good'.

An overview of all histograms can be found on the enclosed disk in annex 14. In the next section is a list of all the variables and sections that are not eligible for further implementing the ICT policy monitor.

Section 2	Management building block resources	N	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Distribution	Test
VAR177	The available digital learning materials within our organization are easy to find.	60	-1,05	0,62	-2,10	1,22	dip 3=14, 2=19, 4=25	Good

Table 17: Variable 177

An overview of all histograms can be found on the enclosed disk in annex 14. In the next section is a list of all the variables and sections that are not eligible for further implementing the ICT policy monitor.

9.1.9. Result of variable tests

Minimum number of respondents

As described in the previous section, the number of respondents must be sufficient for further statistical operation. The lower limit is set on 30 respondents per variable or section of the survey. By applying this rule, the sections 5, 7 and 11 may not be taken into account in the further implementation of the ICT policy monitor. See table 33.

Section	Description	Variables	Number of respondents	Effective number respondents
1	Vision & strategy, own skills and motive	VAR001-VAR016	146	146
2	ICT-resources	VAR017-VAR049	146	143
3	Education and training for the use of ICT	VAR050-VAR075	144	64
4	Internal technical ICT support	VAR076-VAR100	144	112
5	External technical ICT support	VAR101-VAR125	140	4
6	Internal educational support	VAR126-VAR150	140	47
7	External educational support	VAR151-VAR174	140	21
8	Internal digital teaching material	VAR175-VAR195	138	60
9	External digital teaching material	VAR196-VAR216	138	85
10	Software tools for creating digital learning materials	VAR217-VAR235	137	39
11	Digital library	VAR236-VAR252	137	15
12	Sharing knowledge capturing and evaluating	VAR253-VAR266	137	46/103
13	Management and team support	VAR267-VAR295	137	136
14	Characteristics of the respondent	VAR296-VAR303	136	136

Table 18: Number of respondents

Rejected sections

The rejected sections do provide qualitative information. At section 3: External tech support, it is clear that at ROC Uitholland no use can be made of the service without the approval of the management, 130 out of 140 teachers stated this. At section 7: For external educational support it is basically the same, but it is experienced less stringently: 110 of the 140 say this. At section 11: availability of a digital library 116 out of the 137 teachers answer that it is not present.

Rejected sections non use

The subsections where the statements are presented about the *no use of the resource of support of the implementation of ICT in education* have too little respondents. This is because the vast majority of respondents uses the resource or support. This applies to the following subsections: section 2; *do not use ICT resources*, section 3; *do not use education and training*, section 4; *do not use internal ICT support*, section 6; *internal educational support*, section 8; *do not use internal digital teaching materials*, section 9; *do not use external digital teaching materials*, section 10; *do not use development tools*.

Rejected variables

In the previous paragraph, the data distribution of the variables were evaluated for their skewness (Skewness) and dimensional stability (Kurtosis). The range of both tests has also been looked at. If all four tests are negative, the variable is rejected for the further implementation of the ICT policy monitor. The tables below show the rejected variables per section of the survey.

Appendix 8 shows the full list of all the variables. The tables below are giving the failed variables.

Likert +1	Answer options
1	Strongly disagree
2	Disagree
3	Neither agree nor disagree
4	Agree
5	Strongly agree
6	I don't know/ doesn't apply

Section 2	ICT resources	N	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Distribution	Test
VAR024	In the teachers room are a sufficient number of PCs, printers, projectors etc.	141	-5,33	0,41	3,34	0,81	high peak 4=81, 3=36	Failed
VAR026	In the teachers room I have a good access to the network of my department.	140	-6,21	0,41	5,47	0,81	peak on 4=94	Failed

Table 19: Failed variables of Section 2 ICT resources

Section 3	Education and training	N	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Distribution	Test
VAR052	The training helps me to use ICT in my lessons.	63	-2,18	0,60	2,32	1,19	peak 4=41, 5=12	Failed
VAR060	The training makes me better.	63	-2,45	0,60	3,00	1,19	peak 4=44, 5=7	Failed
VAR061	The training is given by skilled teachers.	60	-3,11	0,62	2,80	1,22	peak 4=44, 5=2	Failed

Table 20: Failed variables of Section 3 education and training

Section 6	Internal educational and didactic support	N	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Distribution	Test
VAR137	Thanks to the educational support I can use ICT better in my lessons.	46	-3,64	0,70	6,23	1,38	peak 4=29, 5=3	Failed

Table 21: Failed variables of Section 6 internal educational and didactic support

Section 9	External digital learning materials	N	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Distribution	Test
VAR198	The organization allows me to use external digital teaching/learning materials sufficiently (buying and downloading).	81	-5,73	0,53	8,09	1,06	high peak 4=59	Failed
VAR201	The external digital material is of sufficient quality.	85	-5,58	0,52	7,19	1,03	high peak 4=69	Failed
VAR204	The external digital course material is useful for my lessons.	83	3,63	0,53	3,13	1,05	1=0, 2=0, 4=67	Failed

Table 22: Failed variables of Section 9 External digital materials

Section 13	Management and team	N	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Distribution	Test
VAR280	Management expects that employees continue develop.	136	-5,69	0,42	7,49	0,83	high peak 4=61	Failed
VAR288	Our team has a positive attitude on the use of ICT.	136	-3,00	0,42	2,07	0,83	high peak 4=76, 5=21	Failed
VAR294	Dissenters in the team are an enrichment	136	-3,58	0,42	2,15	0,83	4=66, 5=3	Failed

Table 23: Failed variables of Section 13 Management and team

What is striking in the variables VAR280-294 is that they all have a peak at 4: agree.

In addition to the statements presented to the teachers at each substantive section, there is also made use of another four special type variables. On the basis of these variables the conditions are determined to jump through to the matching parts of the survey. These variables are called links. At the other three variables the respondent will be asked for a substantive justification of the choice. The **Why** question: 'Why have you not used this resource?' the **Control** question: "Are you sure that this resource is not present?" and a **Factual** question: "The fact that this resource is not present has a negative effect my education".

Chapter 8 describes this conditional construction of the survey. The table below gives an overview of these particular variables.

Variable	Section	Variables	Description
Switch question	1	VAR001	Is the resource present? Did you use the resource?
	2	VAR017-VAR018	
	3	VAR050-VAR051	
	4	VAR076-VAR077	
	5	VAR101-VAR102	
	6	VAR126-VAR127	
	7	VAR151-VAR152	
	8	VAR175-VAR176	
	9	VAR196-VAR197	
	10	VAR217-VAR218	
	11	VAR236-VAR237	
	12	VAR253-VAR254 -VAR255-VAR260-VAR263	
Why question	2	VAR033	Why didn't you use the resource?
	3	VAR062	
	4	VAR088	
	5	VAR113	
	6	VAR138	
	7	VAR173	
	8	VAR185	
	9	VAR206	
	10	VAR226	
	11	VAR244	
Control question	2	VAR048	Are you sure that the resource is not present?
	3	VAR074	
	4	VAR099	
	5	VAR124	
	6	VAR149	
	7	VAR173	
	8	VAR194	
	9	VAR215	
	10	VAR234	
	11	VAR251	
Fact question	2	VAR049	The fact that this resource is not present has an adverse impact on my education.
	3	VAR075	
	4	VAR100	
	5	VAR125	
	6	VAR150	
	7	VAR174	
	8	VAR195	
	9	VAR216	
	10	VAR235	
	11	VAR252	
	12	VAR259-VAR262-VAR266	

Table 24: Overview special variables

A disadvantage of the conditional structure of the survey is that a respondent does not go through all questions, causing the number of respondents to differ per section. Because of this, some sections became obsolete in the further realization of the ICT policy monitor. This problem also occurs in the particular variables with the characteristic; why, control and facts questions. An important next step in the analysis is to determine the number of components. A component is formed by a group of variables added together. When determining whether a collection of variables also gives a valid component, initially, the valid data of the respondents will be examined. This means that only those respondents who have given a valid answer on all variables of the underlying component can be taken into the analysis. As a result, the number of respondents can be lower than 30 per component. For this reason, no why, control and fact questions are taken into account when determining the separate components.

9.1.10. Conclusion variable research

As first it is shown that there are three sections of the survey with an insufficient number of respondents. This was the case with section 3: External tech support, section 7: External educational support and with section 11: availability of a digital library. The investigation of the variables revealed that twelve variables had to be rejected because they were not distributed normally. These are variables where the respondents had a strong positive opinion. In further implementing the ICT policy monitor using the Principal Component Analysis (PCA), to reduce the number of items (variables) of the survey it must be taken into account that the distribution of the dataset layer can be low. It is also shows that the underlying components of content variables form the variables attribute groups; why, control and fact questions can be a big obstacle with forming the components with sufficient number of valid respondents. In the following paragraphs will be discussed the statistical actions to reduce the number of variables.

9.1.11. Item reduction of the survey

Quick Scan

The previous section has shown that the dataset of the survey can have a small distribution. The variables with a very small distribution on the basis of the Skewness and Kurtosis test are all disapproved for further implementation of the ICT policy monitor.

The purpose of the further realization is to achieve a reduction in the number of variables in the survey, turning the survey into a Quick Scan and thus the most important part is the ICT policy monitor. To be able to come to a reduction of the number of variables, research must be done firstly whether it is possible in a valid way to merge a large group of variables into a smaller group of underlying components. Then, each variable can be examined to what extent this contributes to the component. The variable that contributes the least to the component can then be removed. After this, components can be removed based again on analysis of the remaining variables of the underlying component, in order to determine whether a further reduction of number of variables is possible. The statistical technique, to come to this data reduction, is called Principal Component Analysis (PCA). The common variance of the variables is the only thing it looks at and not to the total variance as with a Common Factor Analysis (CFA).

Principal Component Analysis

Principal Component Analysis can be performed in many ways, it is therefore important to use the features of the variables and dataset to choose the techniques that fit best. An important characteristic for the content-related variables where statements are presented is that these are ordinal on a Likert scale. For the dataset it means that there are structural missing values by applying adaptive conditions in the survey. Because of this, not all respondents will have to answer each statement. Another important feature of the dataset is that the variance is low on a number of variables. This may be the case with objectives involving many respondents with an equal opinion.

Analysis route

On basis of these characteristics the analysis route is determined. Important considerations are the determination of the number of components, which extraction and rotation technique there should be used and according to what procedure the component scores are calculated.

Determining the number of components in a valid way is an important first step of data reduction. Further statistical calculations depend on this and the optimal choice of the number of components will lead to equal outcomes. (Zwick and Velicer, 1986). This does not alter the fact that there are different views and decision rules in the professional literature about the determination of the optimal number of components. (Covert & McNelis, 1988; Floyd & Widaman, 1995; Gorsuch, 1997; Merenda, 1997; Tinsley & Tinsley, 1987; Turner, 1998). The most widely used rules, that are also standard in the statistical package SPSS, are rules of thumb to come to the number of factors. The first rule of thumb is: only components with a value greater than 1 be retained for further analysis. By application of this rule, there may be an overestimation or underestimation of the number of components that occur. (Zwick and Velicer, 1986) Also, the reliability of this rule is a point of discussion. A second rule of thumb is that of the Screen test: on the basis of a plot with an own value (from the highest to the lowest) there is looked for an inflection point. Components before this inflection point are taken into further analysis. In practice however, such an inflection point does not have to exist or multiple points can be presented. The reliability of this rule of thumb is considered among experts (Crawford & merchant, 1979; Streiner, 1998) as low.

Having regard this characteristic of the dataset (sometimes low variance) and the low reliability of the above rules of thumb, it makes sense to use a static more reliable method for the determination the number of components. The solution here is a Parallel Analysis in which random data on the basis of

current datasets are generated to determine the number of significant components or factors.

9.1.12. Parallel analysis to determine the number of components

Monte Carlo analysis

On the basis of the parallel analysis, also called the Monte Carlo analysis within the field of behavioural science, is the number of components determined in a significant manner. The analysis based on the dataset generates random equivalent datasets with the corresponding own value of the components. This random own value compared with the property value of the original dataset. For example, for section 9 External digital material with 8 content variables on the use of these with 85 respondents generate series of random matrices of 85x8. At the first description of this procedure by Horn (1965), the average value of the random own value is used as a benchmark. Nowadays, the 95% percentile area of random own value distribution as lower limit. (Cota, Longman, Holden, Faal, & Xinaris, 1993; Glorfeld, 1995; Cota, Longman, Holden, Faal &, 1993, and Turner, 1998). Components are generated if the own value of the original dataset is larger than the random dataset.

Monte Carlo Syntax

For the determination of the number of components, the behavioural scientist Brian O'Connor, (O'Connor; 2000) made a syntax program available that can be used with SPSS. This syntax is used for the determination of the number of significant components. (See appendix 5: Syntax Monte Carlo analysis) In order to run the syntax programme, some parameters must be entered. The table below lists the used settings.

Input	Name	Value	Comment
Number of generated datasets	ndatsets	9000	Max, 2000 is normal
Percentile	percent	95	Signification 0.05
Principal components analyses or principal axis/common factor analyse	Kind = 1 of 2	1	Principal components analyses
Data has a normal distribution or random permutation of raw datasets	randtype = 1 of 2	2	Permutation of raw datasets

Table 25: Input: syntax parallel analyse

As an example for determining the number of components, here is a description of a parallel analysis of Section 1 Vision & Strategy, primary preconditions and influence of the organization. The results of this run can be interpreted as follows.

Section 1: Vision & strategy, own skills and motive		
Number of valid cases	Ncases	77
Number of variables	Nvars	15
Number of random datasets	Ndatsets	9000
Percentile	Percent	95

Table 26: Output Monte Carlo section 1

of the original dataset is slightly smaller than the percentile of the random own value. This suggests that there are at least two components that can be used for further analysis. The third component is also examined to determine if you can speak of an explainable component here. See table 42 for the results of the Monte Carlo analysis.

Root	Raw data	Mean	Percentile
1	4,428829	1,839522	2,030676
2	2,022649	1,632489	1,767785
3	1,558666	1,479722	1,588996
4	1,149606	1,349805	1,445913
5	1,059671	1,235942	1,320172

Table 27: Output Monte Carlo components section 1

9000)/100 = 8550]. This is important because the algorithm in the distribution of the own value (for a given root) looks for the own value which match the specified percentile (95) and is doing this for all (9000) datasets. In the above example, the algorithm looks for the 8550st largest own value in the series of 9000 datasets. If the chosen percentile and the number of random datasets lead to a non-integer, the algorithm will adjust the ranking order itself. Figure 20 gives a graphical representation of the raw data, the average and the percentile, where the components above the percentile line are definitely significant components.

Table 41 indicates that valid data has 77 scores for the examined 15 variables. In this case, this means that of the 146 respondents there where 77 with a valid result. Table 30 provide a list of the possible components. It is clear that the first two own values of the original dataset (raw data) are larger than the corresponding percentile of the random own values. However, the third own value

When performing a Parallel analysis with a fixed percentile, the chosen area of the distribution of random own values data should address the relationship between the chosen percentile value and the number of random datasets which can be generated. The multiplication of your chosen percentile (.95) with the number of datasets (9000) divided by 100 should lead to an integer [(95 * 9000)/100 = 8550].

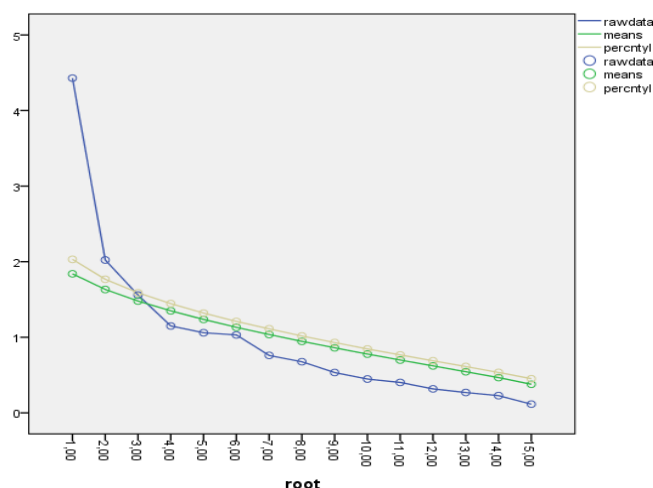


Figure 20: Output PCA, Eigenwaarde of components

When running the Monte Carlo analysis in order to determine the number of significant components, it is important to define the groups of variables on which this analysis can be done. As previously described sections 5, 7 and 11 stroked out because of an insufficient number of respondents.

The subsections in which statements are presented about not using resources or support of ICT in education come at a too low number of respondents. This is because the vast majority of respondents do make use of resources or support. The concern here is the part which has not been used and sections of the resource or support: section 2, 3, 4, 8, 9 and 10.

At the variables research twelve variables were rejected when running the Skewness and Kurtosis test. Also, those variables with a particular feature were excluded for the determination of the number of components. This is the **Why** question: 'Why did you not use this resource?', the **Control** question: 'Are you sure this resource is not present?' and the **Facts** question: 'The fact that this resource is not present has a negative effect on my education'. The conditional survey is based on these variables and varies strongly in the number of respondents.

Groups of variables

It is important to consider the most logical and feasible components to use in the Monte Carlo analysis during the first step in determining the significant components. The most logical groups are those of the content variables per section. With this layout, there remain plenty (at least 30) respondents to complete the analysis.

There are several combinations of sections made to determine the number of components in order to keep the group of variables as large as possible. The result was that only section 1: *Vision & strategy, primary precondition, influence of the organization* and section 13: *Management and team* could be merged to make a sufficient number of valid cases. This merging didn't lead to new components. Table 43, below, gives the overview of the number of significant components per section.

section	Description	Comp	Eigenwaarde	Mean	Percentile 95%
1	Vision & strategy, Primary preconditions, Influence of the organisation	1	4,428829	1,839522	2,030676
		2	2,022649	1,632489	1,767785
	*	3	1,558666	1,479722	1,588996
		4	1,149606	1,349805	1,445913
2	ICT-resources	1	4,380271	1,530550	1,664874
	*	2	1,467337	1,381355	1,475186
		3	1,060044	1,271515	1,349257
3	Education and training for the use of ICT	1	2,355949	1,695272	1,967365
		2	1,264918	1,377014	1,553593
4	Internal technical ICT support	1	6,916135	1,548602	1,707527
		2	0,788428	1,370022	1,481853
5	External technical ICT support	0			
6	Internal educational support	1	4,817373	1,831403	2,103380
		2	1,451214	1,518362	1,699343
7	External educational support	0			
8	Internal digital teaching material	1	3,313146	1,616580	1,832322
	*	2	1,536168	1,368991	1,514323
		3	0,832281	1,189381	1,302622
9	External digital teaching material	1	1,709581	1,321961	1,478469
		2	1,293648	1,131258	1,233280
		3	0,860280	0,990055	1,067760
10	Software tools for creating digital learning materials	1	2,724270	1,718312	2,001887
		2	1,400743	1,388508	1,569752
11	Digital library	0			
12	Sharing knowledge capturing and evaluating	0			
13	Management and team support	1	9,732033	1,907219	2,056713
		2	3,611790	1,757216	1,862406
		3	1,447517	1,645889	1,732503
14	Characteristics of the respondent	0			

Table 28: Overview components and Eigenwaarde, green = good, orange= doubtful, red=fault,

Valid components

There are three components marked with orange that are rejected on a few hundredths. At section 1: *Vision & strategy, precondition and influence of the organization* and the third component, section 2: *ICT resources* the second component and at section 8: *internal digital teaching materials* the second component. These components will in the second instance be taken into account in reducing the number of variables per component. Another look is taken at these components whether they are explainable on their content. In the next paragraph is the Principal Component Analysis described in order to achieve a reduction of the number of variables.

9.1.13. Principal Component Analyse

Item reduction PCA

On the basis of the parallel Monte Carlo simulation the number of components are determined in both a statistical and valid way. Now that these are known, the interdependence (correlation) of the variables within the component can be taken a closer look at. The intended result is to achieve a reduction of the number of variables within the component. The statistical technique to come to this data reduction has previously been described is called Principal Component Analysis (PCA); it only looks at the common variance of the variables. The Principal Component Analysis is performed with SPSS 20 where a fixed number of components is entered by the division of the Monte Carlo simulation. Table 44 below gives the choice of the number of settings with an explanation of the choice.

Options SPSS	Choice	Description
Type van analyse	Principal Component	Data reduction (item reduction)
Enter number of components or components Eigenwaarde >1	Enter number of components	Number of components are determined by Monte Carlo simulation
Orthogonal or rotation of components	Rotation Direct Oblimin	Components are able to correlate
Selection of variables	Based on sections of the survey	Content statements

Table 29: SPSS-PCA input

SPSS has the following output at the entered settings described in the previous paragraph. Table 45 shows the description and the minimum value of this output.

Output van de analyse	Information	Description
Descriptive table	Mean and the standard deviation of the variables.	Provides information about the distribution of the variables.
Correlation matrix	Standardized correlation matrix the diagonal correlation 1,000.	The correlations are above 0.30?
Bartlett's test of sphericity	There is at least 1 significant correlation within the set of variables.	This test doesn't give much information 1 significance correlation is not enough.
Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA)	Indicates whether the data is suitable for factor analysis. Index between 0 and 1.	0.7 is sufficient; this value is held in the analysis.
Communality matrix	All variables must share sufficient variance with other variables.	The variable with the lowest communality can be removed. In a subsequent analysis run this process is can be repeated.
Component matrix	Specifies the component loading without rotation of the components.	By 1 component, the Component matrix and the Pattern matrix are equal.
Pattern matrix	Specifies the component to load after rotation. This is the convergence validation.	This is the main matrix for assessing the correlation between the component and the variables. At a component load of 0.6 is 36% of the variance is explained. 0.6 minimum.
Structure matrix	Gives the correlation of variables with the component, these may contribute to the component but doesn't need to be unique as with the Pattern Matrix.	The variables may have a high correlation with the component but this doesn't mean it is unique.
Component correlation matrix	Correlation between the components after rotation this should not be too high. This is the discriminant validation.	The limit is 0.15.

Table 30: Output SPSS PCA analyse

This paragraph describes the results of the Principal Component Analysis that is executed per section with a number of iterations. Per iteration there is to be determined which variable contributes the least to a component. The variable with the lowest communality can then be removed. At the next iteration again it has to be determined which variable has the lowest communality, these variables can then be removed at the next iteration battle. At each iteration, again taking the communality value into account (Com), the component load (Cx) and the strength of the components scale; *Cronbach's Alpha*, *Cronbach's Alpha Based on Standardized Items* and *Alpha if item is Deleted* (α).

Cronbach's alpha

The Cronbach's alpha test is a reliability technique for a given group of variables based on a unique probability that indicates the degree of internal consistency of this group of variables. The Cronbach's alpha is the average value of the reliability coefficients obtained at all possible combinations of variables when performing a split in half-test. The Cronbach's alpha coefficient indicates by means of a scale of 0-1 how strongly the internal consistency of these selected variables is.

Cronbach's alpha on Standardized Items

Alpha Based on Standardized Items is the Cronbach's alpha coefficient in which all variables are standardized. This coefficient is used when the individual scale items (variables) are not of the same type. In this research all variables are of the same type.

Cronbach's alpha if item Deleted

Alpha if Item Deleted is an important value in the table. This value indicates the Cronbach's alpha reliability coefficient when the variable is removed from the scale. The question is at what value of George and Mallery (2003, p. 231) give the following rule of thumb: " $\alpha > 0.9$ is excellent, $\alpha > 0.8$ is good, $\alpha > 0.7$ is acceptable, $\alpha > 0.6$ is questionable, $\alpha > 0.5$ is bad, and $\alpha < 0.5$ is unacceptable".

Dimension of the scale

A high value of Cronbach's alpha coefficient indicates that the internal consistency of the variables is high, but does not display the dementia of the scaling. The component load (cx) of the individual variables do show whether they are negative or positive contributions to the component. The following tables list the results of the reduction of the variables on the basis of the Principal Component analysis.

Section 1. Three components: Vision & Strategy, Primary preconditions, Influence of the organization

Three components at section 1 were found whereby the content is explainable. This is the group variable related to *Vision and strategy*, *Primary precondition* knowledge, time and the possibility of consultation and the component *influence of the organization*. The minimum component load is 0.707 and the components have a Cronbach's Alpha value ranging from 0.89 to 0.661. With these values, it can be

concluded that the third component was questionable at the Monte Carlo Analysis for determining the number of components known as a substantive component that is explainable. The variables VAR013 and VAR016 are about the own contemplations of the teacher to apply ICT in education. These variables are secluded from the formed components. The expert sessions have shown that this information is of great importance. The teacher is the most important determining factor for the use of ICT in education. These variables will be included as independent variables under the management building block *People*. See table 46.

Vision & strategy
People
Resource
Structure
Culture

Section 1	Section 1S	Vision & strategy, Primary preconditions, Influence of the organization	Iteration end						
VAR	VARs	Description	Com	C1	C2	C3	α1	α2	α3
VAR002 People	VARs001 People	I get enough time to try out how I can use ICT in my teaching. I have sufficient knowledge and skills to use ICT in my teaching.	,655	,123	,707	-,389		,668	
VAR003 Resource	VARs002 Resource	I get enough time to try out how I can use ICT in my teaching.	,775	,140	,830	,001		,304	
VAR005 Structure	VARs003 Structure	There are regular meetings to discuss how we can use ICT in the best possible way within our education.	,680	-,134	,750	,376		,641	
VAR007 Vision & Strategy	VARs004 Vision & Strategy	Our organization has a clear vision on education.	,587	,743	,023	,058	,904		
VAR008 Vision & Strategy	VARs005 Vision & Strategy	Our organization has a clear vision on the use of ICT in education.	,864	,943	-,044	-,008	,822		
VAR009 Vision & Strategy	VARs006 Vision & Strategy	There is cohesion between the vision on education and the vision on the use of ICT.	,856	,938	-,088	,034	,818		
VAR010 Vision & strategy	VARs007 Vision & strategy	The vision on ICT in education is known to the teachers.	,672	,740	,171	,053	,875		
VAR011 Structure	VARs008 Structure	By the use of ICT in my teaching, I let guide me what management expects from me.	,768	,089	-,074	,855			
VAR013 Structure	VARs009 Structure	I decide myself how to use ICT in my education.							
VAR014 Structure	VARs010 Structure	I use ICT in my education in a way that corresponds to what the organization of me expects.	,706	,176	,119	,756			
VAR016 People	VARs011 People	I want more with ICT in education than the organization expects of me.							
Cronbach's Alpha							,890	,661	,661
Cronbach's Alpha Based on Standardized Items							,888	,655	,662
Component 1: Vision & strategy			C1						
Component 2: Primary preconditions,			C2						
Component 3: Influence of the organization			C3						
Extra variables VAR013, VAR015: determinant factor Teacher									

Table 31: Item reduction section 1

Section 2, One component;
ICT-resources

The component ICT resources is a powerful construct with a high component load of at least 0.622 and a Cronbach's Alpha value of 0.834. The use of adequate ICT resources is one of the most important preconditions to apply ICT in education. At a further reduction of the number of variables, the separate information about the ICT equipment of the classrooms and teachers rooms are annulled. To preserve this information the choice is made to no further reduce the number of variables. See table 47.

Section 2	Section 2S	ICT resources	Iteration end		
VAR	VARs	Description	Com	C1	$\alpha 1$
VAR019 Resource	VARs012 Resource	In the classrooms are a sufficient number of PCs, printers, projectors etc.	,520	,721	,807
VAR020 Resource	VARs013 Resource	In the teachers room are a sufficient number of PCs, printers, projectors etc.	,443	,665	,818
VAR021 Resource	VARs014 Resource	The available ICT resources are in good order.	,459	,678	,815
VAR022 Resource	VARs015 Resource	The available ICT resources are new enough.	,459	,677	,815
VAR023 Resource	VARs016 Resource	The internet connection in the classrooms is good enough for my education.	,387	,622	,822
VAR025 Resource	VARs017 Resource	In the classroom I have a good access to the network of my department.	,512	,715	,809
VAR028 Resource	VARs018 Resource	The available ICT resources are helping me by my lessons.	,474	,688	,813
VAR031 Resource	VARs019 Resource	Management of the ICT resources takes into account how I want to use ICT in education.	,462	,680	,814
Cronbach's Alpha					,834
Cronbach's Alpha Based on Standardized Items					,835
Component 1: ICT resources					

Table 32: Item reduction section 2

Section 3, One component;
Education and training

The *Education and training* component is a component with a minimum load of 0.641 and construct a Cronbach's Alpha value of 0.66 which is not strong, but suffices still. See table 48.

Section 3	Section 3S	Education and training	Iteration end		
VAR	VARs	Description	Com	C1	$\alpha 1$
VAR053 Resource	VARs020 Resource	To follow a training there is enough time available.	,602	,776	,546
VAR054 Resource	VARs021 Resource	To follow a training there is enough money available.	,411	,641	,635
VAR056 Culture	VARs022 Culture	My colleagues encourage me to follow training.	,516	,718	,595
VAR059 Resource	VARs023 Resource	The available training is in line with my lessons.	,471	,687	,610
Cronbach's Alpha					,666
Cronbach's Alpha Based on Standardized Items					,664
Component 1: Education and training					

Table 33: Item reduction section 3

Section 4, One component;
Technical support

The service quality of the internal ICT department is measured in section 4 *Technical support*. The number of variables is reduced to two with high and very high component load of 0.958 and a Cronbach's Alpha value of 0,899. The service quality of the ICT department can be determined on the basis of these two variables. This includes that the teacher gets enough attention and the support that actually helps. See table 49.

Section 4	Section 4S	Technical support	Iteration end		
VAR	VARs	Description	Com	C1	$\alpha 1$
VAR078 Resource Service	VARs024 Resource Service	ICT support gives me enough attention	,917	,958	x
VAR079 Resource Service	VARs025 Resource Service	The ICT support helps to use ICT more effectively	,917	,958	x
Cronbach's Alpha					,899
Cronbach's Alpha Based on Standardized Items					,909
Component 1: Technical support					

Table 34: Item reduction section 4

Section 6, One component;
Educational support

The service quality is also measured in section 6 *Educational support*, but in this case the quality of the educational support department. The number of variables is also reduced here to two with a high

component load of 0.940 and a Cronbach's Alpha value of 0.866. This is the quality of the service and whether the problems the teachers face are actually solved. See table 50.

Section 6	Section 5S	Educational support	Iteration end		
VAR	VARS	Description	Com	C1	α1
VAR132 Resource Service	VARS026 Resource Service	The educational support is of high quality	,884	,940	x
VAR135 Resource Service	VARS027 Resource Service	The educational support helps me to use ICT in education more effectively	,884	,940	x
Cronbach's Alpha					,866
Cronbach's Alpha Based on Standardized Items					,866
Component 1: Education and training					

Table 35: Item reduction section 6

Section 8, Two components;
Accessibility, Encouragement

Two components are found in section 8 *Internal digital material*: one which indicates the accessibility of digital content and the other is about encouraging the use by management and direct colleagues. Component 1 has a minimum component load of 0.859 and has a coefficient of Cronbach's Alpha 0.791 which is sufficient. Component 2 has a minimum component load of 0.699 but a Cronbach's Alpha coefficient of 0.547 that is too low. Component 2: *Encouragement of the use of internal digital material*, is rejected and will be included as independent variables under the management building block Culture. See table 51.

Section 8	Section 6S	Intern digital material	Iteration end				
VAR	VARS	Description	Com	C1	C2	α1	α2
VAR177 Resource	VARS028 Resource	The available internal digital material is easy to find.	,845	,859	-,329	x	
VAR178 Resource	VARS029 Resource	The available internal digital material is easy to get and use in my lessons.	,829	,897	-,156	x	
VAR181 Culture	VARS030 Culture	The management encourage me to use internal digital material	,700	,459	,699		xx
VAR182 Culture	VARS031 Culture	Colleagues encourage me to use internal digital material	,743	,118	,854		x
Cronbach's Alpha						,791	,547
Cronbach's Alpha Based on Standardized Items						,794	,548
Component 1: Accessibility of internal digital material							
Component 2: Encouragement the use of internal digital material							

Table 36: Item reduction section 8

Section 9, Two components;
Accessibility, Encouragement

Two similar components were found at section 9 *External digital material* as with the *Internal digital material*: the accessibility of material and the encouragement of the use by the training of management and colleagues. The component load is at least 0.781 and with a Cronbach's Alpha value for component 1 of 0.658 and component 2 of 0.415. The value for component 2 is too low. Component 2; *Encouragement of the use of internal digital material*, is rejected and the variables will be included as independent variables under the management building block Culture. See table 52.

Section 9	Section 7S	External digital material	Iteration end				
VAR	VARS	Description	Com	C1	C2	α1	α2
VAR199 Resource	VAR032 Resource	The available external digital material is easy to find.	,700	,836	-,008	x	
VAR200 Resource	VAR033 Resource	The available external digital material is easy to get and use in my lessons.	,737	,857	-,077	x	
VAR202 Culture	VAR034 Culture	The management encourage me to use external digital material.	,655	-,252	,781		x
VAR203 Culture	VAR035 Culture	Colleagues encourage me to use internal digital material.	,689	,153	,808		x
Cronbach's Alpha						,658	,415
Cronbach's Alpha Based on Standardized Items						,660	,416
Component 1: Accessibility of external digital material							
Component 2: Encouragement the use of external digital material							

Table 37: Item reduction section 9

Section 10, One component;
Tools

One component is found at section 10 development tools and this is reduced to three variables with minimal component load of 0,627 and a Cronbach's Alpha value of 0,759 that is acceptable. When using development tools for the teachers for being able to manufacture of digital teaching materials, it is important that the tool is easy to use and that the own ideas can be given in such a form that high quality educational materials can be developed with it. See table 53.

Section 10	Section 8S	Tools	Iteration end		
VAR	VARS	Description	Com	C1	α1
VAR221 Resource	VAR036 Resource	The software tool is easy to use	,670	,670	,683
VAR222 Resource	VAR037 Resource	With the tool I can realise my ideas	,627	,627	,724
VAR223 Resource	VAR038 Resource	With the software tool I'm able to make material of high quality	,730	,730	,616
Cronbach's Alpha					,759
Cronbach's Alpha Based on Standardized Items					,759
Component 1: Tools					

Table 38: Item reduction section 10

Section 12, No components

It was not possible to reduce the number of content variables through the Principal Component Analysis and the number of conditional steps in section 12. In this section, the variables with a particular feature (select question and facts question) are not included and the variables are assessed on the number of respondents (at least 30). This means that variable VAR265 "During the review of my work is often looked at my use of ICT in education" is not included in the final version. See table 54.

Section 12	Section 9S	Quality
VAR	VARS	Description
VAR256 Culture	VAR039 Culture	We make sufficiently use of each other's knowledge and experience in the use of ICT
VAR257 Resource	VAR040 Resource	Case studies of colleagues are important for my lessons
VAR258 Culture	VAR041 Culture	The way we share knowledge and experience, helps me for the use of ICT
VAR261 Structure	VAR042 Structure	The standards and guidelines for the use of ICT are helping me
VAR264 Structure	VAR043 Structure	The way we evaluate the use of ICT, helps me in using ICT in my lessons

Table 39: No item reduction in section 12

Section 13, Two components;
Management en Team

Two recognizable components were found in section 13: the first deals with the educational management and the second is about the team. Both components are brought back to two variables. Management is about being able to explain what the value of ICT in education is and the extent to which the management encourages the use of ICT. With the team it goes about the level of cooperation and to know what is possible with the use of ICT in education. Both components have a high component load

with a minimum 0.914 and a high Cronbach's Alpha value of at least 0.808, which is good. See table 55.

Section 13	Section 10S	Management and Team	Iteration end				
VAR	VARs	Description	Com	C1	C2	α1	α2
VAR272 Culture	VARs044 Culture	The management makes the purpose of the use of ICT clear	,875	,936	-,002		
VAR274 Culture	VARs045 Culture	The management encourage teachers in the use of ICT	,875	,935	,002		
VAR284 Culture	VARs046 Culture	The team knows what is possible with ICT in education	,840	-,006	,918		
VAR285 Culture	VARs047 Culture	The team members working together on the use of ICT	,838	,006	,914		
Cronbach's Alpha						,850	,808
Cronbach's Alpha Based on Standardized Items						,857	,808
Component 1: Management							
Component 2: Team							

Table 40: Item reduction of section 13

9.1.14. Outcome from Survey to Quick Scan

Quick Scan

The survey of 303 variables is eventually reduced to 55 substantive variables. In the beginning 12 variables were rejected after executing Skewness and Kurtosis tests. Then the sub sections were removed that had less than 30 respondents. The concern here, that make sections in which the respondent is asked why none of the resources or support have not been used. In the elaboration of the data it is clear that at an expected response of about 200 teachers it is not advisable to begin with conditional questions. The use of this will lead to a low number of respondents for each section. For this reason the variables with a particular feature; the **Why** question: 'Why did you not use this resource?' the **Control** question: 'Are you sure this resource is not present?' and the **Fact** question: 'The fact that this resource is not available has a negative impact on my education' are not included in the Quick Scan.

9.2. Part 2: Implementation of the MBO ICT policy monitor

Having come so far, the Quick Scan of the ICT policy monitor is ready for use and meets the criteria of the entire ICT policy monitor and can be conducted as a final product. This means that a closer look can be taken at the specifics of the MBO organization, an interview takes place with the management or the one responsible for ICT to determine what the organization is doing at the moment when it comes to the use of ICT in education. What is important and which projects and/or plans are being executed? This information is important in order to be able to make a correct interpretation of results of the ICT policy monitor.

9.2.1. The Quick Scan

The Quick Scan consists of 55 questions divided into 10 components. (1) *Vision & strategy* of the organization for ICT use, *Influence* of the organization in the application of ICT in education, (2) *ICT resources*, (3) *Education and training*, (4) *Technical support*, (5) *Educational support*, (6) *Accessibility of internal digital material*, (7) *Accessibility of external digital material*, (8) *Development tools* to be able to develop independently from digital equipment, (9) *Management* the influence of management on the use of ICT, and (10) *Team* the influence of the team in the use of ICT in education by the teachers. Finally, the characteristics of the respondent are asked. Appendix 3 displays a flowchart in the construction of the sections. The complete Quick Scan is included in Appendix 4.

9.2.2. Recruiting a MBO educational organization for the Quick Scan

Recruitment

The recruitment of an MBO education organization to conduct the ICT policy monitor as a finished product was easy. The MBO educational organization Gilde Veste, where I work as a Senior Project manager did express they were interested. Gilde Veste is a trade school for the maritime sector and is considered one of the smaller MBO organizations with 4.147 MBO students. By the development of the ICT policy monitor the choice is made to involve a large ROC as well. Now that the ICT policy monitor has been developed, it can also be used for smaller MBO organizations. The Gilde Veste school represents a big change in which the emphasis lies on more cooperation of the employees and enriching the digital learning environment. Achieving this, will be a huge appeal done on ICT. For working and developing new digital teaching materials will be implemented in a completely new ICT platform based on

Sharepoint 2013. This platform will also be used for communication with the students and would be able to offer customized e-learning. The MBO policy monitor ICT is used in order to get a clear picture on where the organization is at the moment with implementing the ICT in education and how this is experienced by the teachers.

Gilde Veste	The Gilde Veste is the MBO organization for shipping, transportation, logistics and the process industry. These courses integrate seamlessly with professions within the maritime and transportation sectors.
Portfolio of Gilde Veste	The Guild Veste has 80 teachers in service that take care of the MBO education. The Gilde Veste offers two pathways, the full-time programme Professional Training (BOL), and the part-time Professional Accompanying Programme (BBL). With emphasis on BOL educations as the highest level. The number of MBO students is 4.147. The Gilde Veste has specialist training courses for the following sectors: Ports, Aviation, Road transport, Rail, Logistics, Ship and Yacht building, Dredging company, Nautical, Fishing industry, Rhine and inland navigation and Process industry.
Mission of Gilde Veste	The Gilde Veste is a world player in the field of maritime education and training. The Gilde Veste provides MBO education in the Netherlands. Educating young people remains a people's business. After all, there is nothing as powerful as an experienced teacher or trainer who, with passion and a good amount of practice experience is able to transfer his knowledge to the students. But that on its own is not enough. Special education requires a balanced mix of insight, listening and practice. That is the basis of the successful educational model, that makes also use of an extensive and advanced simulators.
Organization	Using Mintzberg's organization structures (Mintzberg, 1992), with the corresponding five forms of control, Gilde Veste can be typified as a professional organization of specialists that where the professionals get sufficient freedom to develop and to contribute to increase the quality of education. The education team offers education on the basis of a clear educational concept in which knowledge is transferred first and after that put to use in a simulated environment where the student has to be able to apply the knowledge and skills gained in professional practice and carry out his duties. The role of the management is clearly focused on the direct control of the educational teams.
Respondents	To get sufficient respondents, the MBO teachers were personally approached to take part in this study. There have been personal conversations with each teacher. The importance of this research was made clear by first explaining what Gilde Veste plans for the coming years in the field of ICT in education. For the realization of all these plans it is important to know what the teachers think about the current state of affairs as it is about the use of ICT in education. The ICT project team can adjust its implementation plan based on this information.
Sample size	The sample size can be calculated on the basis of the population of 80 MBO teachers. Used with a margin of error of 6%, a confidence level of 95% and a scatter percentage of 50% is the minimum sample size 62 teachers. See table 56.

Margin of Error	Reliability level	Scatter percentage	Population	Minimum sample size
5%	95%	50%	80	67
6%	95%	50%	80	62

Table 41: Sample size of the population of Gilde Veste

In order to be able to get this sample size, the teachers of the Gilde Veste are personally approached.

9.2.3. The application of the MBO policy monitor ICT at Gilde Veste

The final version of the MBO policy monitor ICT is applied at Gilde Veste. This way it becomes clear whether the MBO ICT policy monitor actually meets the prescribed content and user specifications. In other words, does the ICT policy monitor meet the expectations that the programme management has in mind? In Chapter 11 the evaluations of use in both ROC Uitholland and Gilde Veste are described.

The teachers of Gilde Veste are generally requested to fill out online surveys, whether it is for internal or external use. This is mostly research about the quality of education and practical training. The responses on these investigations especially if this is an external request, are quite low. There is a certain

resistance for filling out online questionnaires. To make sure to have enough respondents for the Quick Scan, it was decided to personally approach each teacher with a hardcopy questionnaire. The big advantage of this is to be present yourself and be able to answer any questions or take away any ambiguities or resistance of the respondent.

By conducting the survey personally, the purpose of the Quick Scan and how this connects on the started ICT projects could be made clear. A number of salient points at the decrease in the Quick Scan at Gilde Veste are given in the following paragraphs.

Perception of the teacher

The purpose of the Quick Scan had to be explained a number of times before it was understood. Hereby, the emphasis was mainly on explaining that it is about your own opinion and on how the teacher experiences the application of ICT in education. Also, teachers responded with to the anonymity of the research. Apparently this was not always the case on previous investigations. If you had any questions about money, it was quickly said that teachers could not make the estimations, because they are not involved with any financial decisions. Any questions on ICT support were often thought of as the IT infrastructure and not so much about the support with the functional deployment of applications in education. This way of reasoning stems from a strong ICT department that focused on IT infrastructure. Another obvious point was at the questions about the use of development tools for the manufacture of digital teaching materials. It is found that some classes are internationally certified and for that reason did not allow the teachers to make any changes as far as IT was concerned.

9.2.4. The analysis of the data Quick Scan

The Quick scan was conducted on paper at Gilde Veste. This is partly because of the expectation that the response to an e-mail call, to make the scan, would be too low, but also has the advantage that it is possible to give an oral explanation about the purpose of the research and the design of the scan.

Number of respondents

63 teachers MBO of Gilde Veste responded to the Quick Scan.

Missing values

The question here is what kind of missing values can occur?

At ROC Uitholland the survey of 303 questions has been conducted by using different sections that not all have to be answered by each respondent. Missing values did occur at sections that were not entirely completed. The Quick scan consists of one section that is answered by all respondents and does not know this form of missing values. Another type of missing values can arise, because the respondent skip questions when answering the questionnaire. This type of missing values has not taken place because it was also directly checked at the end if all questions were answered. If this is not the case, the respondent was asked to answer the unanswered questions. The answer possibility *don't know/not applicable* this option will get the value 6 and not be included in the further processing of the data.

Valid respondents

The respondent should have credibly answered the Quick Scan. For example, not all questions answered with option 1. This form of answering did not take place during the conducting of the Quick scan.

Effective number of respondents

All respondents meet the stated criteria. The number of valid respondents is equal to the number of participants 63 in total.

Distribution

The Quick scan provides the MBO ICT policy monitor of the needed data. No requirements for the distribution of the data per variable, because no further statistical calculations are necessary where this is a requirement. The MBO ICT policy monitor offers a broad range of views on the data. What is striking is that there are a number of questions where the teachers had a very strong opinion about Gilde Veste and the distribution of the data was consequently very low. VAR006; *There is cohesion between the vision on education and the vision of ICT.* (disagree) VAR009; *I choose in which ways I use ICT in education.* (agree) VAR043; *The way that ICT use is evaluated, helps me in applying ICT in my teaching.* (disagree)

9.2.5. Developing the information dashboard MBO policy ICT monitor

For developing the dashboard of the MBO ICT policy monitor, the datasets of ROC Uitholland and Gilde Veste are used. On the basis of the specifications described in Chapter 7, the dashboard should provide the management immediate with insight per management building block; vision and strategy, people, resources, structure and culture. It must also become clear whether the organization is in balance to implement ICT in education. There is chosen for a visual presentation of the result in a single image. The data serve as indication for the management building blocks. The MBO ICT policy monitor uses Excel to

calculate the information and to present this in the form of a dashboard. The following table shows how the results are calculated.

Management building block	Components	Variables score 1-5	Score 1-5	Score 1-5
Vision % strategy	Vision en Strategy	VAR004,VAR005,VAR006 VAR007		Average 1
People	x	VAR001,VAR009,VAR011		Average 2
Resources	x	VAR001,VAR040	Average 3.1	Average 3
	ICT-resources	VAR012,VAR013,VAR014 VAR015,VAR016,VAR017 VAR018,VAR019	Average 3.2	
	Education and training	VAR020,VAR021,VAR022 VAR023	Average 3.3	
	Technical support	VAR024,VAR025	Average 3.4	
	Educational support	VAR026,VAR027	Average 3.5	
	Accessibility of internal digital material	VAR028,VAR029	Average 3.6	
	Accessibility of external digital material	VAR032,VAR033	Average 3.7	
	tools	VAR036,VAR037,VAR038	Average 3.8	
Structure	x	VAR003,VAR008,VAR009 VAR042,VAR043		Average 4
Culture	Management		Average	Average 5
	Team		Average	
		VAR030,VAR031,VAR034 VAR035,VAR039,VAR041	Average	
Results				Average – (0,5 *maxvariance)

Table 42: Overview calculating the results

Dashboard

The results are presented on the basis of a chart with juggling balls. The maximum variation between management building blocks are taken into account with the calculation of the maximum variation between the management building blocks. Figure 20 displays the main overview of the MBO policy monitor ICT. The end result equals an average total – 0.5 * (maximum variation between the management building blocks) See figure 21.

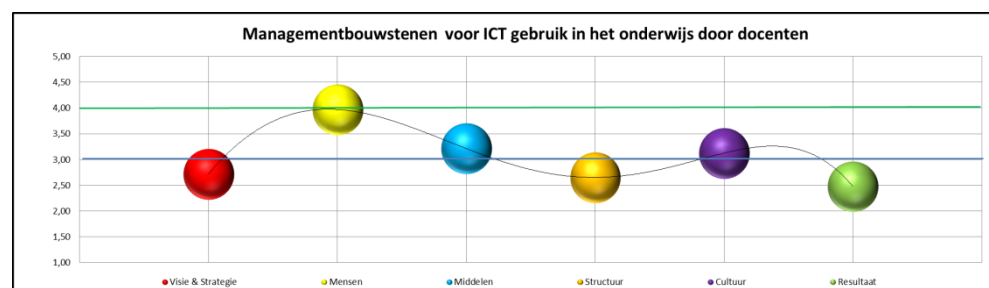


Figure 21: Overview dashboard MBO ICT policy monitor

Results

It is easy to derive from the main overview whether the educational organization is in balance, the average value per management building block presented in table 58.

Vision & strategy		People		Resources		Structure		Culture		Result	
Total	2,72	Total	3,97	Total	3,21	Total	2,65	Total	3,12	Total	2,48

Table 58: Overview of results in colour

Presentation in colours

The presentation of the results is supported by using colours. Green for the value 3 and above, orange for the value between 2.5 and 3 and red for the value fewer than 2.5. These colours give a visual image of the complete result. The complete dashboards of ROC Uitholland and Gilde Veste are to be found in appendices 12 and 13. See table 59 for the dimension of the scale.

Score	Meaning	Colour
< 2,5	Insufficient	Red
2,5 - 3,0	Moderate	Orange
3,0 - 3,5	Normal	Green
3,5 – 5,0	Good	Green

Table 59: The score of the results

Links to variables

The dashboard is constructed in such a way that the user can click from this screen via the indicated links to the reviews of the underlying components and variables. From the overview of the components the user can click through to the particular components to the variables that compose each component built. It is possible to turn back and forth between the dashboard and the several overviews.

9.2.6. Applying the MBO ICT policy monitor

After the development of the dashboard of the MBO ICT policy monitor comes the part for the user. The Quick Scan of the MBO ICT policy monitor can be deployed by using an online survey tool. This tool does not require any option to be able to jump conditionally to different sections. A standard tool that allows multiple choice questions already suffices. The dataset can be read in the dashboard using Excel. In the *Basic data* tab the data of the monitor can be pasted. Here also the number of respondents and the different location/department where the Quick scan was conducted can be imported. Also in the *Basic data* the data sheet and numbering can be filled out, so this can be taken into account in case the Quick scan is periodically filled out.

9.2.7. Interpretation of the obtained result of the MBO ICT policy monitor ICT

Interpretation of the results

It should be possible to draw up a plan of improvement for the use in ICT in education based on the results obtained by the application of the MBO ICT policy monitor. A correct interpretation of the results is important here. To determine whether it is possible to come to a substantive statement, an evaluation meeting was organised at ROC Uitholland, as well as at school Gilde Veste. The question here is: *Is it possible for a policy advisor or training manager of a MBO education organization to give a substantive statement about the achieved results where the MBO policy monitor ICT has taken place?* Chapter 11 focusses on the Evaluation of MBO policy monitor and will come to answer this question. Firstly there will be verification in Chapter 10 of the individual components of the MBO policy monitor ICT. The question here is whether the components, found in the design of the MBO policy monitor still have a valid scale in the application of the dataset of Gilde Vested.

9.3. Conclusion

Conclusion realisation and implementation

The survey of 303 questions has been brought back to 55 questions that are divided into 14 components. (1) *Vision & strategy* of the organization for ICT use, (2) *Primary preconditions* consisting of knowledge and skill, time for the implementation of ICT and consultation possibilities in the form of meetings, (3) *Influence of the organization* in the application of ICT in education, (4) *ICT resources*, (5) *Education and Training*, (6) *Technical support*, (7) *Educational support*, (8) *Accessibility to internal digital material*, (9) *Encourage use internal digital material*, (10) *Accessibility external digital equipment*, (11) *Encourage use external digital material*, (12) *Tools* to be able to develop digital material independently, (13) *Management* the influence of the management in the use of ICT, and (14) *Team* the influence of the team in the use of ICT in education by the teachers. Finally the respondents are asked about their personal characteristics.

Image building

Focus

Search for
solutions

Choice

Specification

Design

Implementation

Verification

Evaluation

	Vision & strategy
	People
	Resources
	Structure
	Culture

10. Verification: MBO ICT policy monitor

This chapter describes the verification of the MBO ICT policy monitor. Twelve valid components are selected for the MBO ICT policy monitor by means of the Principal Component Analysis and using the dataset of ROC Uitholland. These components are: *vision and strategy, primary precondition, influence of the organization, ICT resources, Education and training, technical support, educational support, accessibility internal digital material, accessibility external digital teaching material, tools, management, and team*. To determine the strength of the internal consistence of the variables, the Cronbach's Alpha coefficients are calculated. The following rule of thumb is used: " $\alpha > 0,9$ is excellent, $\alpha > 0,8$ is good, $\alpha > 0,7$ is acceptable, $\alpha > 0,6$ is doubtful, $\alpha > 0,5$ is bad, and $\alpha < 0,5$ is not acceptable".

To verify each component, the Cronbach's Alpha coefficients are calculated of the data set of the Gilde Veste and compared to the data set of ROC Uitholland. From this it can be determined if the element is still strong enough. In case that it is not strong enough, then the element will be removed and the underlying elements will separately be included in the MBO ICT policy monitor.

The tables below show the overview of the Cronbach's Alpha coefficients per component of the data set of ROC Uitholland and Gilde Veste.

Section 1S	Vision & strategy, Primary preconditions, Influence of the organization	ROC Uitholland			Gilde Veste		
VARs	Description	$\alpha 1$	$\alpha 2$	$\alpha 3$	$\alpha 1$	$\alpha 2$	$\alpha 3$
VARs001 People	I get enough time to try out how I can use ICT in my teaching. I have sufficient knowledge and skills to use ICT in my teaching.		,668			,230	
VARs002 Resources	I get enough time to try out how I can use ICT in my teaching.		,304			,220	
VARs003 Structure	There are regular meetings to discuss how we can use ICT in the best possible way within our education.		,641			,686	
VARs004 Vision & Strategy	Our organization has a clear vision on education.	,904			,857		
VARs005 Vision & strategy	Our organization has a clear vision on the use of ICT in education.	,822			,690		
VARs006 Vision & strategy	There is cohesion between the vision on education and the vision on the use of ICT.	,818			,641		
VARs007 Vision & strategy	The vision on ICT in education is known to the teachers.	,875			,721		
VARs008 Structure	By the use of ICT in my teaching, I let guide me what management expects from me.			x			x
VARs009 Structure	I decide myself how to use ICT in my education.						
VARs010 Structure	I use ICT in my education in a way that corresponds to what the organization of me expects.			x			x
VARs011 People	I want more with ICT in education than the organization expects of me.						
Cronbach's Alpha		,890	,661	,661	,792	,541	,370
Cronbach's Alpha Based on Standardized Items		,888	,655	,662	,783	,541	,370
Component 1: Vision & strategy							
Component 2: Primary preconditions,							
Component 3: Influence of the organization							
Extra variables VAR013, VAR015: determinant actor Teacher							

Table 60: Verification section 1S

Section 1S, Three components:
Vision & strategy,
Primary preconditions,
Influence of the organization

Initially, three components were found in section 1S (data ROC Uitholland) which can also be explained. This is the group variable related to *Vision and strategy, Primary precondition and Influence of the organization*. The Cronbach's Alpha coefficient ranged from 0.890 to 0.661. Verifying these components with data from the Gilde Veste shows that component 2; Primary precondition and component 3; Influence of the organization the Cronbach's Alpha coefficient is too low. The variables of component 2; VARs001, VARs002, VARs003 and by component 3; VARs008, VARs010 will be included as independent variables in the MBO ICT policy monitor. The component 1; Vision and strategy with a Cronbach's Alpha coefficient of 0.890 for the data set of ROC Uitholland and a value of 0.92 for the data set of Gilde Veste will be included as a valid component in the MBO ICT policy monitor under the

management building *Vision and strategy* of the organization.

The variables VARS009 and VARS011 are about the own consideration of the teacher to apply ICT in education. The expert sessions have shown that this information was of importance. The teacher is the most important determining factor for the use of ICT in education. These variables will be included as independent variables under the management building block structure (VARS009) and people (VARS011) of the organization.

Section 2S	ICT resources	ROC Uitholland	Gilde Veste
VAR	Description	$\alpha 1$	$\alpha 1$
VARS012 Resource	In the classrooms are a sufficient number of PCs, printers, projectors etc.	,807	,836
VARS013 Resource	In the teachers room are a sufficient number of PCs, printers, projectors etc.	,818	,868
VARS014 Resource	The available ICT resources are in good order.	,815	,865
VARS015 Resource	The available ICT resources are new enough.	,815	,867
VARS016 Resource	The internet connection in the classrooms is good enough for my education.	,822	,887
VARS017 Resource	In the classroom I have a good access to the network of my department.	,809	,906
VARS018 Resource	The available ICT resources are helping me by my lessons.	,813	,876
VARS019 Resource	Management of the ICT resources takes into account how I want to use ICT in education.	,814	,887
Cronbach's Alpha		,834	,891
Cronbach's Alpha Based on Standardized Items		,835	,898
Component 1: ICT resource			

Table 61: Verification section 2S

Section 2S, One component;
ICT-resources

The component *ICT resources* is a powerful construct with a high Cronbach's Alpha coefficient of 0.834 for the data set of ROC Uitholland and for the data set of Gilde Veste is this 0.891. The component ICT resources will be included in the MBO ICT policy monitor under the management building block *resources* of the organization. See table 61.

Section 3S	Education and training	ROC Uitholland	Gilde Veste
VAR	Description	$\alpha 1$	$\alpha 1$
VARS020 Resource	To follow a training there is enough time available.	,546	,817
VARS021 Resource	To follow a training there is enough money available.	,635	,738
VARS022 Culture	My colleagues encourage me to follow training.	,595	,812
VARS023 Resource	The available training is in line with my lessons.	,610	,744
Cronbach's Alpha		,666	,824
Cronbach's Alpha Based on Standardized Items		,664	,830
Component 1: Education and training			

Table 62: Verification section 3S

Section 3S, One component;
Education and training

The *Education and training* component is a construct with a minimal Cronbach's Alpha coefficient of 0.666 for the data set of ROC Uitholland and the data set of Gilde Veste have a strong value of 0.842. The *Education and training* component will be included in the MBO ICT policy monitor under the management building block *Resources* of the organization. See table 62.

Section 4S	Technical support	ROC Uitholland	Gilde Veste
VAR	Description	$\alpha 1$	$\alpha 1$
VARS024 Resource Service	ICT support gives me enough attention	x	x
VARS025 Resource Service	The ICT support helps to use ICT more effectively	x	x
Cronbach's Alpha		,899	,831
Cronbach's Alpha Based on Standardized Items		,909	,831
Component 1: Technical support			

Table 63: Verification section 4S

Section 4S, One component;
Technical support

In section 4S technical service is the service quality of the internal ICT Department measured. The

number of variables is drawn back to two with a high Cronbach's Alpha coefficient of 0.899 for the data set of Uitholland and the data set of Gilde Veste has also a high coefficient: 0.831. The service quality of the ICT Department can be determined on the basis of these two variables. The component *Technical support* will be included in the MBO ICT policy monitor under the management building block Resources of the organization. See table 63.

Section 5S	Educational support	ROC Uitholland	Gilde Veste
VARs	Description	$\alpha 1$	$\alpha 1$
VARs026 Resource Service	The educational support is of high quality	x	x
VARs027 Resource Service	The educational support helps me to use ICT in education more effectively	x	x
Cronbach's Alpha		,866	,727
Cronbach's Alpha Based on Standardized Items		,868	,727
Component 1: Educational support			

Table 64: Verification section 5S

Section 5S, One component; Educational support

The section 5S *Educational support* measures the service quality of the educational supporting department. This is also the number of variable is gone back to two with a high Cronbach's Alpha coefficient of 0.866. At the data set of the Gilde Veste is this 0.727. The component *Educational support* will be included in the MBO ICT policy monitor under the management building blocks *Resources* of the organization. See table 64.

Section 6S	Internal digital material	ROC Uitholland		Gilde Veste	
VARs	Description	$\alpha 1$	$\alpha 2$	$\alpha 1$	$\alpha 2$
VARs028 Resource	The available internal digital material is easy to find.	x		x	
VARs029 Resources	The available internal digital material is easy to get and use in my lessons.	x		x	
VARs030 Culture	The management encourage me to use internal digital material		x		x
VARs031 Culture	Colleagues encourage me to use internal digital material		x		x
Cronbach's Alpha		,791	,547	,864	,024
Cronbach's Alpha Based on Standardized Items		,794	,548	,867	,024
Component 1: Accessibility of internal digital material					
Component 2: Encouragement of the use of internal digital material					

Table 65: Verification section 6S

Section 6S, Two components; Accessibility, Encouragement

In the section 6S *Internal digital material* are two components found: one which is about the accessibility of the material and secondly, expanding the use of national digital material by the training management and direct colleagues. Component 2: *Encouragement of the use of internal digital material* is too low at both ROC Uitholland and Gilde Veste, and therefore is component 2 removed. The Cronbach's Alpha coefficients for this component are 0.547 and 0.024. Component 1; *Accessibility of the internal digital material* is strong with a coefficient of 0.794 for ROC Uitholland and 0.864 for Gilde Veste. Component 1 will be included in the MBO ICT policy monitor with the management building resources of the organisation and the variables of component 2 VARs030 and VARs031 are independently included in management building block under the management culture of the organization. See table 65.

Section 7S	External digital material	ROC Uitholland		Gilde Veste	
VARS	Description	α1	α2	α1	α2
VARSO32 Resource	The available external digital material is easy to find.	x		x	
VARSO33 Resource	The available external digital material is easy to get and use in my lessons.	x		x	
VARSO34 Culture	The management encourage me to use external digital material.		x		x
VARSO35 Culture	Colleagues encourage me to use internal digital material.		x		x
Cronbach's Alpha		,658	,415	,829	,318
Cronbach's Alpha Based on Standardized Items		,660	,416	,832	,332
Component 1: Accessibility of external digital material					
Component 2: Encouragement of the use of external digital material					

Table 66: Verification section 7S

Section 7S, Two components;
Accessibility, Encouragement

In the section 7S *External digital material* are two similar components found from the data set of ROC Uitholland and also at the internal digital material; namely the accessibility of the digital material and encouragement of the use by the training management and direct colleagues. The Cronbach's Alpha coefficient is for component 1 0.658 and for component 2 0.415. The value for component 2 is too low. Component 2: *Encouragement of the use of external material* is also in the data set of Gilde Veste too low with a value of 0.318 and will not be taken as a solid component in the MBO ICT policy monitor but as two separate variables in the management building blocks Culture of the organization. Component 1; *Accessibility of digital external material* will be included as a component in the MBO ICT policy monitor management building block under the Resources of the organisation. This component has a Cronbach's Alpha coefficient of 0.658 for the data set of ROC Uitholland and a value of 0.829 for the data set of Gilde Veste. See table 66.

Section 8S	Tools	ROC Uitholland		Gilde Veste	
VARS	Description	α1	α2	α1	α2
VARSO36 Resource	The software tool is easy to use	,683		,918	
VARSO37 Resource	With the tool I can realise my ideas	,724		,880	
VARSO38 Resource	With the software tool I'm able to make material of high quality	,616		,919	
Cronbach's Alpha		,759		,935	
Cronbach's Alpha Based on Standardized Items		,759		,936	
Component 1: Tools					

Table 67: Verification section 8S

Section 8S, One component;
Tools

One component is found at section 8S *tools* which consist of three variables with a Cronbach's Alpha coefficient of 0.759 for the data set of ROC Uitholland and a value of 0.935 at the data set of Gilde Veste. The component *tools* will be included in the MBO ICT policy monitor in the management building block *Resources* of the organization. See table 67.

Section 10S	Management and Team	ROC Uitholland		Gilde Veste	
VARS	Description	α1	α2	α1	α2
VARSO44 Culture	The management makes the purpose of the use of ICT clear	x		x	
VARSO45 Culture	The management encourage teachers in the use of ICT	x		x	
VARSO46 Culture	The team knows what is possible with ICT in education		x		x
VARSO47 Culture	The team members working together on the use of ICT		x		x
Cronbach's Alpha		,850	,808	,810	,777
Cronbach's Alpha Based on Standardized Items		,857	,808	,810	,777
Component 1: Management					
Component 2: Team					

Table 68: Item reduction section 10S

Section 10S, Two components;
Management and Team

At the section 10S are two recognizable components found in the data set of ROC Uitholland. Component 1 *Management* has both for the data set of ROC Uitholland 0.850 as 0.810 for Gilde Veste a high Cronbach's Alpha coefficient. Component 2: *Team* also has a high Cronbach's Alpha coefficient of 0.808 for the data set of ROC Uitholland and 0.777 for the data set of Gilde Veste. Both components are included in the MBO ICT policy monitor under the management building block *Culture* of the organization. See table 68.

10.1. Conclusion

The verification research has shown that there are two authentication components used in the data set of ROC Uitholland still were strong enough and at the data set of Guild Veste, this no longer the case. This is the *Primary precondition* and *Influence of the organization*. Both components will be removed and the underlying variables will be included as independent variables in the MBO ICT policy monitor. The other ten components are found strong enough after verification. The table below shows the classification of the final review.

Section	Description	Component	variables	Management building block
1S	Vision & strategy	Ja		Vision & strategy
	Primary preconditions	No	VAR001	People
			VAR002	Resource
			VAR003	Structure
	Influence of the organization	No	VAR008	Structure
			VAR010	Structure
	Determined actor Teacher	No	VAR009	Structure
			VAR011	People
2S	ICT resources	Yes		Resource
3S	Education and training	Yes		Resource
4S	Technical support	Yes		Resource
5S	Educational support	Yes		Resource
6S	Internal digital material	-		Resource
	Accessibility of Internal digital material	Yes		Resource
	Encouragement to use Internal digital material	No	VAR030	Culture
			VAR031	Culture
7S	External digital material	-		Resource
	Accessibility of external digital material	Yes		
	Encouragement to use external digital material	No	VAR034	Culture
			VAR035	Culture
8S	Tools	Yes		Resource
10S	Management en team	-		
	Management	Yes		Culture
	Team	Yes		Culture

Table 69: Number of components

Image building

Focus

Search for
solutions

Choice

Specification

Design

Implementation

Verification

Evaluation

11. Evaluation: MBO ICT policy monitor

The MBO policy monitor ICT with the survey of 303 statements and questions is initially conducted at ROC Uitholland. The outcome of the MBO ICT policy monitor is evaluated with the coordinator of ICT and education. The final version of the MBO policy monitor ICT is then conducted at the MBO vocational organisation Gilde Veste. In this chapter, the use of the MBO ICT policy monitor at ROC Uitholland and Gilde Veste is described.

11.1. Evaluation ROC Uitholland

ROC Uitholland works at the time of consultation on a reorganization of the educational organization, the organization of a division structure is reduced to smaller recognizable units. The highest priority of the management lies within this area. It does not alter the fact that there was enough time for evaluation of the results of the MBO ICT policy monitor. The following paragraph is a view of this evaluation, which is held together with ROC Uitholland. Figure 22 gives a view of the dashboard with the result per management building block.

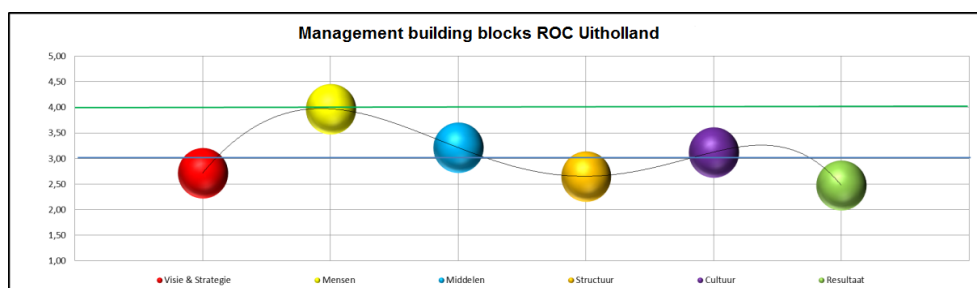


Figure 22: Dashboard of ROC Uitholland

Vision & strategy		People		Resources		Structure		Culture		Result	
Total	2,72	Total	3,97	Total	3,21	Total	2,65	Total	3,12	Total	2,48

Table 70: Results of ROC Uitholland

First reaction

What is the first reaction on the results of the MBO policy monitor ICT?

The results are remarkably high at the point of *people*, management building block *Culture* is also experienced as high by all the insecurities which are in the organization because of the present reorganization.

Vision & strategy

The teachers believe that ROC Uitholland works with a clear vision on education, but they do not see a specific role for ICT in here. This is also true, because there is no specific elaboration on this. The need for an ICT plan has become evident.

People

What immediately stands out is the relatively high value for the management building block *People*. The teachers say that they have sufficient knowledge and skills to use ICT in education and want to do more with IT than the training management expects of them. The side note is that this is not evidenced, for example, the use of the digital portfolio of the participants. But a small group of teachers are actively involved in this process. This is still a requirement. This is a concrete action point to improve.

Resources

The teachers find that they get too little time to implement ICT in a good way in their education. It seems that they see the use of ICT too much as an additional activity. For example, not keeping a complete digital portfolio of the students while this is a requirement. The response to this should be that the use of ICT for education adds value and that once fully in a time saving will have to use the right pose. The available ICT resources are experienced as insufficient, in particular those with which the classroom are equipped. The main idea of ROC Uitholland is that there is a minimal ICT facility within the classroom, but a lot of the public learning centres must be used where there are a lot of ICT resources. There are always possibilities to subscribe for courses and training. The teachers indicate that there is too little time. Training may be seen as an additional burden in addition to their regular work. Therefore, it has to

be made clear that these training courses are part of their own development and it is not something needs to happen on the side.

Resources, technical and educational support are considered as sufficient. ROC Uitholland has the opinion that these more focussed support can take place if there is also a clear ICT plan is where management explains what they have in mind in the use of ICT in education. The available digital teaching materials and the ability to make this yourself is marked as sufficient.

Structure

The teachers indicate that for the use of it they are not guided by what the training management of their expected. On the other hand, we also see that the training management is also not clear what is expected of teachers. This circle would break through by clear principles ROC Uitholland appoint to go on the role and added value of ICT in education. The teachers also confirm this by indicating that help standards and guidelines in the application of ICT.

Another point is being able to consult with other teachers on the use of ICT. This can be done by exchanging and evaluating experiences and trajectories. On both accounts, the ROC Uitholland here falls short. The training management recognizes these deficits and intends to involve it and education coordinators.

Culture

It is noticed that the management scores low at the management building block culture. The training management is not clear about showing what the added value of ICT in education is for ROC Uitholland and also insufficiently stimulates the use. This is a serious concern and will need to be picked up by the management team. The first move would draw up an ICT plan which clearly what the role and added value of ICT for education and to inform the management. ROC Uitholland works with results-oriented teams and is also visible in the application of ICT. Consult the team members about this and learn from each other's experiences.

Result

There is an imbalance in the management building blocks, the training management is aware of this and is going to launch in a number of areas: the preparation of an ICT plan in which the role of ICT is clear. This in turn can lead to greater understanding and information on the management, which can make this clear in their own way to the lecturers teams. Also scheduling meetings will take on the coordinators. At those meetings evaluated experiences are exchanged and major routes. Another important point is the age structure of the respondents. It has been in the management announced that the teaching staff is ageing.

11.2. Evaluation Gilde Veste

Gilde Veste has on the basis of the results of the MBO policy monitor ICT a concrete action plan (annex 14) the things that have emerged are linked to the implementation of the new digital working and learning environment by Gilde Veste. The MBO policy monitor ICT gives the implementation team of this new digital working and learning environment a clear picture of the current use and support of the teacher at application of ICT in education. The action plan uses the same management building blocks as those of the MBO policy monitor ICT. See figure 23 and table 71.

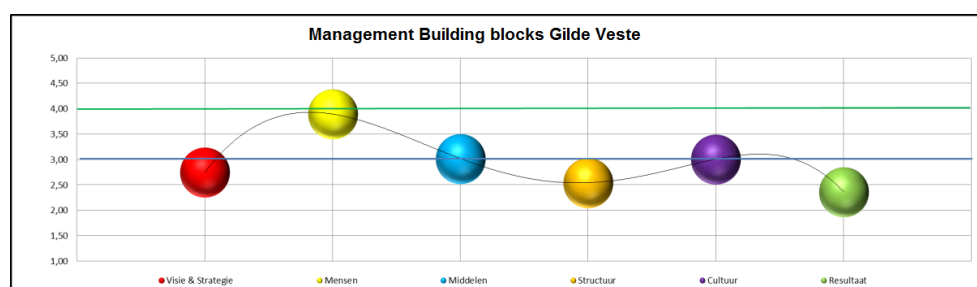


Figure 23: Dashboard of Gilde Veste

Vision & strategy		People		Resources		Structure		Culture		Result	
Total	2,75	Total	3,89	Total	3,02	Total	2,54	Total	3,01	Total	2,37

Table 71: Results of Gilde Veste

What instantly stands out, is the high value of the management building block *People*. The teachers

generally find that they have sufficient knowledge and skills to implement ICT in their education and want to put in more than the organization expects of them. In the following paragraphs, all management building blocks will come up for discussion with a concrete action plan to improve. Table 72 gives a brief description of the plans and actions on the basis of the management building blocks; *vision and strategy, people, resources, structure and culture*.

Management building block	Plan	Action
Vision & strategy	<i>Gilde Veste works with an integral ICT-policy plan linked to the own strategy and educational philosophy.</i>	Write policy plan ICT
Vision & strategy	<i>Gilde Veste know what is expected of them for the use of ICT in education.</i>	Set up guidelines for the use of ICT
People	<i>On the basis of online e-learning modules can teachers learn the basic skills of Sharepoint.</i>	Develop e-learning
People	<i>The teachers can follow through the STC-Academy training about how to apply ICT in education as didactic working method.</i>	Develop training
People	<i>Teachers are kept informed of new developments in the field of ICT for education. Developing promotional materials on the application of ICT in education. (Captivate e-learning module)</i>	Set up e-learning team site
People	<i>All employees of Gilde Veste can for the use of relevant software packages follow training. (Sharepoint, Captivate, MS-Word, Excel, Outlook, Powerpoint, Projects).</i>	Training MS office
Resource	<i>Teachers are aware that the application of ICT in education is a form of more efficient learning and teaching.</i>	ICT will help the teacher in effective time management explain this
Resource	<i>The staff and participants can have a sufficient and reliable ICT infrastructure for the use of ICT in education</i>	ICT-resources up to date
Resource	<i>Teachers can follow courses and training in line with the practice of the teaching. See action plan people, teaching methods, ICT use and theme ICT in education</i>	Education and training possibilities
Resource	<i>The teachers of Gilde Veste use professional ICT support to use ICT in education.</i>	ICT support more effective
Resource	<i>Department of Education Guidance and quality, will in addition to the existing training and consultancy in the field of educational training and advice also specially advice in the field of ICT</i>	Educational support more effective
Resource	<i>All teachers of Gilde Veste can make use of the new working and learning environment. By adding material and material use by colleagues</i>	More internal digital materials
Resource	<i>By using the e-learning theme site in the new working and learning environment keep teachers informed of relevant external digital material</i>	Easier access to external digital material
Resource	<i>All the teachers are aware of the use of Adobe Captivate to develop e-learning</i>	Training for this tool
Structure	<i>Gilde Veste features a key-user for the new working and learning environment. The key-user is the point of contact for the team in the use of ICT in education.</i>	Sharing knowledge on sharepoint
Structure	<i>The teachers of Gilde Veste know on the basis of guidelines and standards how they have to use ICT in education.</i>	Set up guidelines for the use of ICT
Culture	<i>The Department head is stakeholder and partly responsible for the implementation of the new working and learning environment. It stimulates and motivates the use of ICT</i>	Management encourage the use of ICT
Culture	<i>Team members know what is expected of them if they start using ICT in education.</i>	More collaboration

Table 72: Plan Gilde Veste

The implementation team of Gilde Veste is planning to use the MBO policy monitor ICT again in the beginning of 2015 to see if the specific actions also have led to a measurable improvement.

11.3. Evaluation: use MBO ICT policy monitor

On the basis of the specification for the use of the MBO policy monitor ICT is in this section using the policy monitor by ROC Uitholland and Gilde Veste evaluated.

The MBO policy monitor ICT can be used as an actual **baseline** assessment. The management can be satisfied in advance with the use of ICT in education but has no overview of any bottlenecks. This is clearly the case at Gilde Veste. The training management is satisfied with the use of ICT in education, while the implementation team of the new learning and working environment really uses the results of the MBO policy monitor ICT to fit in with the situation as it now is experienced on the shop floor. ROC

Uitholland.

Preventive use	The MBO policy monitor ICT can be used preventively . The future plans of the management can be compared to the current situation. Based on this, the future risks can be indicated and the right measures can be taken. The implementation team of the Gilde Veste has used the MBO policy monitor ICT preventively in order to be able to assess how big the hole is between the current use of ICT in education and the plans which have been drawn up for the use of the new digital learning and working environment.
Periodically use	The MBO policy monitor ICT can be periodically used periodically to determine whether the measures taken actually led to improvements in the workplace. It shapes the process of continuous improvement . Gilde Veste wants to use the MBO policy monitor ICT again after the implementation of the new learning and working environment to see if real improvements have been made.
Use of the dashboard	The results of the MBO policy monitor ICT will be presented in the form of a dashboard . It should be clearly seen what the results are with management building block people, resources, structure and culture of the organization. To see the results of the underlying items, it should be possible to have a simple approach and to get an overview of this. Both ROC Uitholland and Gilde Veste have indicated that the MBO policy monitor ICT is pleasant to use and it is clear from what specific items the components are built of and how the results are established.
Balance indication	The MBO policy monitor ICT should give direct insight whether the management building blocks are in or out of balance. The dashboard as a strong point experienced and gives an overview of the management building blocks that directly good or less good performer. Also for those management building blocks that orange (moderate) or green (good) colours, it is clear to see which children still red (bad) score.
Organization level	The MBO policy monitor should be able to give an overview on the level of the organization but also at the level of an individual department. At ROC Uitholland are multiple domains and breakdowns are made per domain. In the basic sheet of the MBO policy monitor can 10 different domains, departments or locations be included.
Cross relations	The MBO policy monitor should also be able to present relevant cross relations between data. For example those of; internet use <> gender, ICT skills <> gender, ICT skills <> age, ICT resources <> location/department, ICT support <> location/department, educational support <> location/department, ICT part of the course <> gender, ICT skills <> ICT part of the course. The links to these individual contingency tables are included in the dashboard of the MBO policy monitor ICT.

11.4. Conclusion

Conclusion evaluation phase	Firstly, it was very difficult to interest the educational organizations to take the developed long survey of 303 questions and statements. Another factor was that the objective of the MBO policy monitor ICT <i>providing insight into what actually takes place in the workplace in the use of ICT in education</i> could be seen as a threat by ICT coordinators and department managers who feared to be held accountable on the results of the policy monitor.
Conclusion evaluation phase construction	Due to the extensive survey of 303 to build conditional on the objectives and questions respondents do not cycle through all sections whereby the number of NET questions per respondent was reduced. This construction did have the disadvantage that when using Principal Component analysis (PCA) be included only those respondents who have answered all questions within a set of variables. This will lower the number of valid respondents per section. The format of the individual items on the basis of the management building blocks results, people, resources, structure and culture in line with the experiences of the management where each requires a separate form of control building block. However, the underlying items per management building block no significant component. One of the explanations for this is for example at the management building block <i>resources</i> the nature of the medium is different. The time, money, training, support resources, digital material and development tools are too different to form one component. These components are found on subject level. By using expert teams for the content and construct validation is the quality of the MBO policy monitor greatly improved.

12. Answering research questions

The main objective of this research study is at the centre when answering the research questions.

Main objective

Developing a policy monitor ICT for the management of a MBO educational organization to obtain relevant management information over what is really happening with ICT in the primary education process based on the actual experience and perception of the teacher's, so management is better prepared to achieve their on ICT objectives.

Main research question

In with way should it be possible to develop an ICT policy monitor for the management of a MBO educational organization based on the actual experience and perception of the teacher in the use of ICT in primary education process and obtain adequate management information to achieve the prescribed ICT goals for education?

Research questions

1. Which types of measurement instruments are there in the educational field to qualify the use of ICT in the primary educational process?

Several important models have been looked at for the technical part of the development of the MBO policy monitor. These models look at the use of ICT in education and these quantify them in several ways. We talk about the methodology of Benchmarking and the maturity models, the Capability Maturity model (CMM), the Computing Education Maturity model (CEMM), the e-learning Maturity Model (eMM) and the Dutch Vier in Balans Model. No valid argument has been found for these maturity models about why an instrument coming from the software industry is also suitable for within the context of an educational system. The Vier in Balans Model looks from traditional formats which are often aimed at the teacher to new ICT formats whereby the student has the focus. This starting point does not have a link with the idea of the MBO ICT policy monitor.

- 1.1. What kind of research method is used for the development of the MBO ICT policy monitor?

For the development of the MBO ICT policy monitor the perception of the teacher is central on the use of ICT in his or her education. This approach can be seen as a bottom-up approach where there is examined with regard to the actual experience of the workplace of the education organization. The method is based on the rational approach for troubleshooting of problems described by Bots, (2001). The design phase and verification phase for the development of the policy monitor has been added. These phases are from the Waterfall model of Winston, (1970) for the development of software. This way, they are taking into account the rational approach to the complex issue and the technical aspects for the development of the policy monitor itself.

- 1.2. With research studies are relevant for the development of the MBO ICT policy monitor?

For the managerial part of the development of the MBO ICT policy monitor is looked at the management and organization theories ESH, 7S McKinsey, INK, and EFQM. In the management and organization theories is the basis of the models of interest. The principle of equilibrium of the organization building blocks where the ESH and 7S model are based upon is applied at the design of the MBO ICT policy monitor in order to determine whether the education organization is in balance for applying ICT. The building blocks: vision & strategy, people, resources, structure and culture which are appointed, should be in balance at a maturity organization. It is important that the organization has a process of continuous improvement at the quality models INK and EFQM. It is learned from experience that the organization can grow to a higher maturity level. This aspect is also included in the development of the MBO ICT policy monitor. The supporting staff services of an organization play an important role in the support of the teachers in teaching and technical use of ICT in education. To determine the extent to which the teachers are satisfied with this service, the importance of the quality of these services must be quantified. The service quality models, SERVQUAL, SERPERF, Customer Satisfaction Index (CSI), and Customer Experience Index (CxPi) are examined.

2. Which requirements must the MBO ICT policy monitor have?

The MBO ICT policy monitor must provide the management of a MBO education organization of concrete information to realize the set goals for the use of ICT in the primary education process. The actual experience and the perception of the teacher must serve as starting points.

2.1. How are the user requirements identified and defined?

By interviewing the managers in the MBO education and to determine the management information the MBO ICT policy monitor must be equipped with the desired guidance about the use of ICT in education. The users' wishes have to do with the main objectives in the MBO in the field of personalization, becoming more professional and performance. To enhance the personalization-part, they try better to differentiate on study content, study speed and where possible on learning styles of the student. Becoming more professional has to do with the didactics and the professionalism of the teaching staff. The assumption is that by better to differentiate more attention is being paid to the specific needs of the participant or audience and that this possibility of differentiation leads to better performance. The expectation is that by the application of ICT, large steps can be taken. The requested implementation of ICT in the primary educational process however brings new risks. For this reason, more and more managers of MBO education have the need to have a better understanding of the real impact of the ICT investment. For this specific management information, it is important to identify the subjective opinion or perception of the teaching staff to get to know in the use of ICT in their own education. What do the teachers think is important for themselves, what hinders them and how they become more motivated to apply ICT? The MBO ICT policy monitor can give answer to these questions.

2.2. Which user requirements must the MBO ICT policy monitor have?

The MBO ICT policy monitor has a content specification (which information has the monitor) and a specification for the use itself (how the monitor can be applied and read). The MBO ICT policy monitor can be used as a benchmark, but also preventively to get insight into future risks at the use of ICT in the education. In order to come to a process of continuous improvement, the MBO policy monitor ICT can be used periodically in order to track the progress of the improvements and to correct if necessary. The management gets confidence by obtaining information about what really happens on the working floor with the use of ICT in education. The MBO ICT policy monitor distinguishes itself from other used instruments which are applied in the MBO. The management gets management information in a recognizable way which is based on the management building blocks: *vision and strategy, people, resources, structure and culture* of the organization. The management also gets management information on the sub areas which perform less, which makes it possible to make a funded improvement strategy whereby improvement actions can be the priority. The MBO ICT policy monitor also gives a qualification of the delivered service quality of the supporting services.

2.3. How are the design requirements established?

Based on literature research, all the relevant items of the use of ICT in education are divided in the management building blocks *vision & strategy, people, resources, structure and culture*. The items with content and the chosen framework are proposed to the expert teams in the field of use of ICT in education to determine the final design demands. It concerns sessions for a content and construct validation.

2.4. Which design requirements must the MBO ICT policy monitor have?

The MBO policy monitor ICT has the following factors which are of importance when applying ICT in education: *vision and strategy, ICT policy, expertise and skills of the teacher, team collaboration, leadership, management, pedagogical didactic support, technical support, possibility of education and training, possibility of developing digital material, quality, organization and evaluation and, of course, the ICT infrastructure*.

The framework of the MBO policy monitor ICT consists of the following management building blocks:

- **Results** of the organization, what is to be achieved?
- **Vision and Strategy** of the organization, what we want to achieve, how and when?
- **People** of the organization, with whom?
- **Resources** of the organization, which and what?
- **Structure** of the organization, how to organize it?
- **Culture** of the organization, the way we do think together?

The items to determine the service quality of the supporting services consist of: reliability; *Support delivers what is promised on time, responsiveness; Support has pleasant hours of operation, Assurance; Support helps me out, Empathy; Support gives me enough attention, Tangibles; The ICT products and materials, Usefulness; The support helps me to use ICT in education more effectively, Satisfaction / Enjoyability; The staff employees are customer friendly, Perceived quality;*

The service is of a high quality, Customer expectation; Support helps me to use ICT more effectively when I need support, Perceived value; Due to the support I'm able to use ICT more effectively, Ease of Use; The support helps me to use ICT in education more effectively, Competence; Support has good ideas, Access to service; The support is easily accessible.

2.5. How are the results of the MBO ICT policy monitor presented?

The results of the MBO ICT policy monitor will be presented in the form of a dashboard. It should be clear what the results are of the management building block *people, resources, structure and culture* of the organization. In order to see the results of the underlying items, it should be possible to get easily access thereto and to get a clear overview. The MBO ICT policy monitor must indicate whether the management building blocks are in or out of balance. The MBO ICT policy monitor should give an overview on the level of the organization, but also at the level of an individual department. The MBO ICT policy monitor should also be able to present relevant cross relations between data. For example those of: internet use vs. gender, ICT skills vs. gender, ICT skills vs. gender, ICT skills vs. Age, ICT resources vs. location/department, ICT support vs. location/department, educational support vs. location/department, ICT part of the course vs. gender, ICT skills vs. ICT part of the course.

3. Which modifications or extensions of the MBO ICT policy monitor can be proposed for further study?

Examining whether the pattern found whereby the management building block *people* scores high and management building blocks *vision & strategy* and *structure* are scoring low is a nationwide recurring pattern in the Netherlands. This could well be done by implementing the MBO ICT policy monitor nationwide and compare the results taking into account the differences of management control of those MBO organizations.

Research can be done on the major differences in the results between vocational MBO education, secondary education and higher education in the Netherlands by using the ICT policy monitor. Also take into account the specific characteristics of each educational sector.

3.1. In with way are the results consistent with the theoretical assumptions?

This is the verification of the MBO policy monitor ICT. In the verification phase is the MBO policy monitor ICT tested for both the content and the functionality. For this, the final version of the MBO policy monitor ICT has been conducted at the trade school Gilde Veste. The classification of the individual items on the basis of the management building blocks *results, people, resources, structure and culture* connect to the experiences of the management where each building block requires a separate form of control. It is, however, that the underlying items per management building block are no significant components. One of the explanations for this is for example the management building blocks *resources*, the nature of the resource is different. The resources time, money, training, support, digital media and development tools are too different to form one component. On topic level these components are found. It has also shown that 4 components of the 14 components that were originally found in the dataset of ROC Uitholland at Gilde Veste were not strong enough anymore. It are the components (1) *Primary precondition*, (2) *Influence of the organization*, (3) *Encouragement of the use of internal digital material* and (4) *Encouragement of the use of external digital material*. These components are to be cancelled and the underlying variables are included as independent variables in the MBO policy monitor ICT. The other ten components were strong enough. This *Vision and Strategy, ICT Resources, Education and Training, Internal technical support, Internal educational support, Accessibility internal digital material, Accessibility external digital media, Development tools, Management* and the component *Team*.

3.2. How is the MBO ICT policy monitor evaluated by management?

ROC Uitholland works at the time of consultation on a reorganisation of the education organization. The organization of a divisional structure involving management is reduced to smaller recognizable units. This is the highest priority for the education management. It does not mean that there was still sufficient space for evaluation of the results of the MBO policy monitor ICT. The results of the MBO policy monitor ICT is by the management of ROC Uitholland experienced as particularly informative. Remarkably were the results found for the management building block *people* and *culture*. This was despite the uncertainty within the organization remarkably high.

The educational organisation Gilde Veste has, on the basis of the results of the MBO policy monitor ICT a concrete action plan (appendix 14). The concerns which have been raised are linked to the implementation of the new digital work and learning environment of Gilde Veste. The MBO policy monitor ICT gives the implementation team of this new digital work and learning environment a clear picture of the current use and support of the teacher in the application of ICT in education. The action plan has the same management building blocks as that of the MBO policy monitor ICT. What immediately stuck out was the high value of the management building block *people*. The teachers think generally that they have sufficient knowledge and skill to apply ICT in their education and actually want to do more than the organization expects of them.

13. Conclusion

In this chapter, the main conclusions of this research are given and two recommendations are done for further research in the field of ICT use in education. First the main research question is answered and the main aspects of the research problem are given in a descriptive framework of *situation, complication, approach, results, next steps* and *recommendations*. Then the conclusion of each phase of the development of the MBO ICT policy monitor is summed up to give an overview of the complete development process. At the end there will be a reflection on the scientific relevance of this research and a reflection of the researcher self.

Main research question

In which way should it be possible to develop an ICT policy monitor for the management of a MBO educational organization based on the actual experience and perception of the teacher in the use of ICT in primary education process and obtain adequate management information to achieve the prescribed ICT goals for education?

Situation

It is clear that ICT plays an important role in our daily lives. More and more ICT is also used to support the learning process of students. All kinds of applications are brought in the educational organisation by teachers and students. The MBO Council of the Netherlands has also formulated its ambition and set out three P's to underline this ambition; Performance (higher academic success), Professionalization (of staff and teachers) and personalizing education. Personalize it by being able to differentiate on study content, study pace and where possible even on the students' learning style. The assumption is that to be more able to differentiate more attention is paid to the specific needs of the student and that this effort leads to a better academic success. The determining actors in the deployment of ICT in the learning process are the teachers themselves. A number of studies suggest that teachers often think that the way they organise their education is part of their own professional identity and this conviction is strong and is not easy to change. (Ertmer 2005; Ertmer 2009). So they must have confidence and understand that the use of ICT has added value in the learning process. This is crucial for effective use of ICT. The motive of the teaching staff for the use of ICT in the learning process has to be determined. For management, it is important to know this motive. What kind of support really helps the teacher and what doesn't?

Complication

The problem addressed is that the management of a MBO organization has little insight/knowledge of the use of ICT in the primary education process. This observation is done by Koerst (2014) during his career of fifteen years by three major MBO organizations. So they don't know how effective their own ICT policies are on classroom level. With applications and tools works and with don't and how effective is the ICT and educational support to support the teachers on the use of ICT in education? This can be seen as a complex problem where the main actors; the board, management, ICT and educational support having their own objectives and views on the use of ICT and the new role that ICT gets is large and contains many aspects of the learning process itself and the organization of it.

Approach

Knowing that teachers see the way they teach as an important part of their own professional identity and this conviction is strong and not easy to change, the approach of this study is based on the perception of the teacher. Looking in the mind and through the glasses of the teacher when he or she uses ICT to support the educational process. Knowing this kind of information management must be able to adapt an effective strategy to achieve the prescribed ICT goals for education and enrich the professional identity of the teachers rather than harm it. It may well be possible that according to the perception of the teacher there is no possibility to make use of for example educational support for the use of ICT, while the MBO organization does actually offer this support. Also, this type of information is important for management. Apparently teachers are not aware of the existence of this kind of support. This approach can be seen as a bottom-up approach which examines the reality in the workspace.

Results

The MBO ICT policy monitor is used at ROC Uithoorn and Gilde Veste. The results were useful to management and staff. The results pointed out on which components the organizations were weak. Overall they were weak on; *ICT vision, digital materials, evaluation and management support*. The presentation of the results of the MBO ICT policy monitor gives the overall pictures. (1) The achieved score per management building block, showing whether these building blocks may or may not be in balance. (2) An overview of the underlying data or components per management building block. (3) An

overview of the service quality of the support departments. (4) An overall picture of a number of important items. The MBO ICT policy monitor can be used as a *baseline instrument*, but also for *preventive* measures to gain insight in *future risks* in the use of ICT in education. In order to come to a process of *continuous improvement*, the MBO policy monitor could be used *periodically* to track the progress and to make adjustments when necessary.

Next steps

For the formulation of the next steps two research studies are recommended.

Further research study 1

Examining whether the pattern found whereby the management building block *people* scores high and management building blocks *vision & strategy* and *structure* are scoring low is a nationwide recurring pattern in the Netherlands. This could well be done by implementing the MBO ICT policy monitor nationwide and compare the results taking into account the differences of management control of those MBO organizations. The recommended hypotheses and research questions for this type of study are:

1. Teachers assess their own competencies for the use of ICT as strong.
 - a. Do teachers know what kind of knowledge, skills and attitude is expected from the organisation for the use of ICT?
 - b. Based on the demanded ICT competence profile, do teachers still assess their own ICT competence as strong?
2. Most educational organisations have a weak strategic ICT policy.
 - a. Is there a significant difference between organisations that have a clear strategic ICT policy and those how haven't in the (successful) use of ICT in education?
3. The use of ICT in education is seldom evaluated.
 - a. Are there significant differences between educational organisations that use a Total Quality model and those how don't in the use of ICT in education.

Further research study 2

Research can be done on the major differences in the results between vocational MBO education, secondary education and higher education in the Netherlands by using the ICT policy monitor. Also take into account the specific characteristics of each educational sector. The recommended hypotheses and research questions for this type of study are:

1. There are no significant differences based on the outcome of the ICT policy monitor between the different types of education in the Netherlands.
 - a. With specific adjustments must be done to make the ICT policy monitor suitable for secondary and higher education.
 - b. The difference is measured on the level of the management building blocks: *Vision & Strategy, People, Resources, Structure* and *Culture* of the organisation.

Recommendation 1

The MBO organization Gilde Veste has, based on the results of the MBO ICT policy monitor, made an improvement plan with concrete actions. In order to evaluate the effect of these actions, it is recommended that the MBO ICT policy monitor is deployed again after a year.

Recommendation 2

By the realization and development of the MBO ICT policy monitor a number of variables were lapsed. This was due to the distribution of these variables. They did not meet the requirements for performing a Principal Component Analysis (PCA). This analysis was necessary in order to achieve a reduction of the number of variables. These variables do provide information about a very one-sided view of the teacher population. Using a larger sample of respondents over 300, the distribution of these variables will tends to a normal distribution and a Principal Component Analysis (PCA) can be done. It is recommended to use these variables with a nationwide deployment of the MBO ICT policy monitor where the response would be high enough to include them.

13.1. Conclusion development process MBO ICT policy monitor ICT

The conclusions are made by means of the ICT policy monitor development phases of the MBO. These phases are from defining the problem to *image building, focussing, searching for solutions, making choices, specifications, design, realization and implementation, verification* with the last phase the *evaluation*. At the conclusion per development phase is also the final use of the MBO policy monitor ICT at ROC Uitholland and Gilde Veste evaluated.

Problem definition

How can management of a MBO organization gain more insight knowledge into the motivation of the

teaching staff in the use of ICT in the learning process and based on this information achieving their own objectives in the field of ICT use in primary education process?

Context of MBO vocational education

Personalizing, becoming more professional and performing lie in the focus the upcoming years at MBO education. Personalize can be improved by being able to differentiate on study content, study pace and where possible at the student's learning style. Professionalizing concerns the professionalism of teachers and teaching methodology. This includes the application of ICT in education. Performing has to do with the ultimate efficiency of training. The assumption here is that by differentiating more, more attention is paid to the specific needs of the student or audience and that this possibility of differentiation leads to increased graduation rates. The use of ICT in education is to personalize, becoming more professional and perform in such a manner as the management has in its mind.

Conclusion Image building phase

The use of ICT in education includes many different facets and has social economic added value. Carnegie provides a clear basis in which the student is central with her or his learning questions. The use of ICT can make it possible to connect to; the student's learning style, the desired pace and substance. The incentive programme Europe 2020 gives here another boost to the Digital Agenda for Europe (DAE) action programme 86 of Pillar VI promoting and embedding e-learning in the national policies of the member states.

Conclusion Image building phase the use of the MBO ICT policy monitor

A few things stand out when looking at MBO education with the two criteria above by Carnegie. The implementation of the new ICT possibilities in MBO education is a slow process. The curriculum and the chosen working methods for the establishment of a course are often fixed for a longer period. This certainly applies to the MBO education where the regulation of the education is high. The management of a MBO education organization is often reluctant because it is not clear in advance what added value of the use of ICT is when talking about the teaching process and in major structural changes of the educational training still continues to comply with the supervisory framework that represents the Dutch Inspectorate of education. This development runs counter to the desire of higher MBO management to be able to offer more and more efficient education programs.

Conclusion focus phase

The main conclusion of the focus phase is that in the application of ICT in education is clearly a complex issue involving many departments and employees. This is a different design of the primary education process, which may have a big impact on the entire education organization. Also, it has become clear that there is not one right way is for the use of ICT in education but that this strongly depends on what the management of the MBO educational organization want to achieve on their own. The determining factor here is the teacher who often can determine with a high degree about his education. Teachers must therefore be well aware of what the organization desires of them with the use of ICT. The management of a MBO education organization must make clear what role ICT plays in the execution of education. This role should be concrete and feasible. The support staff services, such as the automation and Education Department must help the teachers. This support consists of the learning of educational and technical skills needed to apply ICT adequately. The role of the teacher in teaching can change considerably.

Conclusion focus phase use of the MBO ICT policy monitor

The results at both ROC Uitholland as the trade school Gilde Veste confirm the image that the teacher is the determining factor in the use of ICT in education. The teacher decides how he applies ICT effort and he indicates that he wants to go further than the management expects from him. It is also true that the message of the management about the usefulness and need for ICT in education in turn is too insufficient. Also the use of ICT is not encouraged enough and too little evaluated. There is too little talk of a clear link between the educational philosophy and the use of ICT to education to shape this vision. Important questions that can be asked are, what role does ICT have?, what is expected of it and how should teachers apply it with their teachings?

Conclusion search for solutions Instruments

The researched maturity models Capability and Maturity models for instrument development have their origins in the software industry. As a result, the CEMM and eMM model very technical and detailed in their design. A number of important conclusions on these models are:

1. There is no valid basis found in the literature research why a tool that comes from the software industry is suitable as measuring instrument in the context of an educational organization. The difference between both sectors is significant. Both in the management of the business processes and corporate culture.

2. Both eMM and CEMM didn't become a standard for educational organisations to quality the use of ICT in education.
3. The use and the processing the results of the eMM and CEMM model is very labour intensive. This can be a reason for many organizations with small staff departments why they don't use the models.
4. The application of the models can lead to bureaucratic perverse behaviour. If it's good on paper this will have to lead to the desired result.
5. There is no proven link between the use of these models and the improvement of the core processes.
6. By using the models in which all the main processes are fully described is procedures can result in inflexibility. The organization is no longer able to react quickly to a changed market demand or new ICT opportunities.

The factor *process orientation for product development* from the software industry is not included in the MBO policy monitor ICT because it assumes a fully written-out method for developing software. This does not matter for the MBO policy monitor ICT because teachers in the MBO do not develop complete e-learning packages. Another important factor that is not included in the MBO policy monitor ICT is to support the students in the use of ICT in education, this is because the MBO policy monitor ICT is based on the perception of the teacher in the use of ICT and how management can make use of this information to the use of ICT can improve in its sole discretion.

Conclusion search for solutions
Management

At the management and organizational theories is the starting point the examined models. The principle of equilibrium of the organization building blocks which is the starting point of the ESH and 7S model in the creation of the MBO policy monitor ICT applied in order to determine whether the educational organization for the use of ICT is in balance. It is important with the quality models EFQM and INK that the organization enters into a process of continuous improvement. This learned from experience, allowing the organization to grow to a higher maturity level. This aspect is also included in the development of the MBO policy monitor ICT. In this phase are the management building blocks: *vision & strategy, people, resources, structure, and culture* appointed. These building blocks should be in balance at a mature organization. By using the MBO policy monitor periodically, there be learnt from the management improvement actions that have been made to promote the use of ICT in education.

Conclusion search for solutions
Service quality

For the determination of the service quality of the support departments that help the teachers in the use of ICT in education are the following topics of interest after examining the quality models: reliability; *Support delivers what is promised on time, responsiveness; Support has pleasant hours of operation, Assurance; Support helps me out, Empathy; Support gives me enough attention, Tangibles; The ICT products and materials, Usefulness; The support helps me to use ICT in education more effectively, Satisfaction / Enjoyability; The staff employees are customer friendly, Perceived quality; The service is of a high quality, Customer expectation; Support helps me to use ICT more effectively when I need support, Perceived value; Due to the support I'm able to use ICT more effectively, Ease of Use; The support helps me to use ICT in education more effectively, Competence; Support has good ideas, Access to service; The support is easily accessible.*

Conclusion search for solutions
use of the MBO ICT policy monitor

The main conclusion at this stage for the use of the MBO policy monitor ICT is that it worked using a classification on the basis of management blocks for the items that are relevant in the use of ICT in education. The learning capacity of the organization is also supported by MBO policy monitor ICT because it can be used periodically. The service quality of the support services is measured separately and belongs to the management building block *resources*.

Conclusion Choises
Instruments factors

The selection of factors that are important in the application of ICT in education are: vision & strategy, ICT policy, expertise and skill of the teacher themselves, team collaboration, management leadership, educational didactic support, technical support, possibility of education and training, to be able develop digital material itself, quality assurance, organization & evaluation and of course the ICT infrastructure. On the basis of these factors is the MBO policy monitor initially develop.

Conclusion Choises
Management

The management building block *chain* of the organization that the importance of having an eye for supply and decreasing external parties is lapsed as a building block because the MBO policy monitor ICT is directed internally at first. The statement: *through cooperation with other educational institutions I learn how I can use ICT in my teaching* is included under management building block *structure* of the organization. The management building block *social added value* is also not designed as a separate

management building block. The imaging phase has already shown that the topic ICT use in education as a whole is already seen as socially relevant topic.

Conclusie Choises
Service quality

The items are: reliability; *Support delivers what is promised on time, responsiveness; Support has pleasant hours of operation, Assurance; Support helps me out, Empathy; Support gives me enough attention, Tangibles; The ICT products and materials, Usefulness; The support helps me to use ICT in education more effectively, Satisfaction / Enjoyability; The staff employees are customer friendly, Perceived quality; The service is of a high quality, Customer expectation; Support helps me to use ICT more effectively when I need support, Perceived value; Due to the support I'm able to use ICT more effectively, Ease of Use; The support helps me to use ICT in education more effectively, Competence; Support has good ideas, Access to service; The support is easily accessible.*

Conclusion Choises
Use of the MBO ICT policy monitor

The subdivision in the management building blocks *results, people, resources, structure and culture* provides a recognizable and well-organized dashboard for management. The chosen items to determine the service quality are a strong construct.

Conclusion specifacation

The MBO ICT policy monitor can be used as a *baseline* assessment, but also *preventive* to gain insight into future risks in the use of ICT in education. To come to a process of continuous improvement can be used to periodically monitor the MBO policy ICT upgrade to be able to follow its progress and make adjustments when necessary.

Conclusion specifacation
Use of the MBO ICT policy monitor

The management gets *confidence* by getting information about what really happened in the workplace in the use of ICT in education. The MBO policy monitor ICT distinguishes itself at this point of other used instruments applied in the MBO. The management gets on a *recognizable way management information* based on the management building blocks; *result, vision and strategy, people, resources, structure and culture* of the organization. This gives the management information on the *sub areas* that *perform less*, which will enable an *informed improve strategy* where the *improvement actions* can be prioritized. The MBO policy monitor ICT also gives a qualification of the *delivered service quality* of the supporting services.

The results of the MBO policy monitor ICT are presented in a dashboard. The results are can be seen clearly per management building block showing *results, people, resources, structure, and culture* of the organization and is immediately visible if the organization is in balance or out of balance. It is also possible to see the results and relevant connections with the underlying items.

Conclusion design phase
expertsessions

There can be determined that the purpose of the MBO CTpolicy monitor I is tricky to explain during the design stage. During the realization must be more attention given on this. Also, the subdivision in the management building blocks requires a clear explanation so that the definitions of the management building blocks are unambiguous. An important consideration is whether the questions in the design of the teachers should be related to the ICT policy of the educational organization itself. There is talk of a top-down approach or that the questions purely on the experience of the teachers themselves should be focused. There is a mention of a bottom-up approach. The expert team believes that a bottom-up approach was more obvious. The consideration here is that the ICT policy in many cases is probably not known to the teacher and that the ICT policy monitor is a diagnostic tool that should be able to quickly send a signal that it is one of the management building blocks (*results, people, resources, structure, and culture*) is not doing well. The management can make an estimate based on ICT policy itself how serious these deficits are for realizing the ICT policy and undertake targeted actions for this.

The framework of the policy monitor in the management building blocks; *people, resources, structure and culture* is clear and is considered as innovative. By the questions and objectives on topic and not by management to submit the respondent goes through a logical building block line in answering the questionnaire. The underlying framework of the management building blocks will be in the elaboration and presentation of the results of interest again. It has also become clear that the introduction of the questionnaire should state the purpose and the used terms should be clear to the respondent in order to conduct the survey easily. It is also better to connect directly to existing concepts of education organization that commit the policy monitor. The expert panel also had trouble answering a number of questions and objectives because they didn't know or certain services or products there were or felt that this did not apply. The answers of the questions and objectives for this added option; "I don't know or not applicable". Also it was decided to have a support service or product (brand) to ask first and then ask if there is here taken to point to the experience of the respondent the use of the service or product questions. The accessibility and availability is also considered important. In the formulation of the

questions and objectives is the advice to put this in the same form. In this case the positive confirmed form. As a result, the questions need not be converted into a same shape and allows the respondent also less confusing.

Conclusion design phase
Use of MBO ICT policy monitor

The assumption at the expert team that the ICT policy ever could be insufficiently known to the teachers is confirmed at both ROC Uitholland and Gilde Veste. The chosen bottom-up approach in the development of MBO policy monitor ICT suited well.

Conclusion implementation and
realization

The survey of 303 questions is returned to 55 questions divided into 14 components. (1) *Vision & strategy* of the organization for & ICT use, (2) *Primary preconditions* consisting of knowledge and skill, time for the use of ICT and consultation possibilities in the form of meetings, (3) *Influence of the organization* in the application of ICT in education, (4) *ICT resources*, (5) *training and training resources*, (6) *Technical support*, (7) *Educational support*, (8) *Accessibility Internal digital material*, (9) *Encourage use internal digital material*, (10) *Accessibility external digital material*, (11) *Encourage use external digital material* (12) *Tools* to develop from digital equipment, (13) *Management* the influence of the management in the use of ICT, and (14) *Team* cooperation of the team in the use of ICT in education by the teachers. Finally, they were asked about the characteristics of the respondent.

Conclusion implementation and
realization use of the MBO ICT
policy monitor

The dashboard is constructed in such a way that this provides an overview of all management components on a single screen and directly visible or the organization may or may not be in balance. From this screen the user can click through the indicated links to the reviews of the underlying components and variables. You can return from all the lists to the dashboard.

Conclusion varification

The MBO policy monitor ICT consists of 10 valid components namely: *Vision and Strategy*, *ICT resources*, *Education and training*, *Internal technical support*, *Internal educational support*, *Accessibility internal digital equipment*, *Accessibility external digital equipment*, *Tools*, *Management* and the component *Team*.

Conclusion verificatiefase use of
the MBO ICT policy monitor

There are on the basis of the verification at Gilde Veste no functionality changes to the ICT policy monitor made the components MBO adjusted.

Conclusion evaluation

The MBO ICT policy monitor is used at ROC Uiholland and Gilde Veste. The results were usefull to management and staff. The results pointed out on witch components the organizations were weak. Overall they were weak on; *ICT vision*, *digital materials*, *evaluation and management support*. Gilde Veste has made an improvement plan based on the results of the MBO ICT policy monitor and this goal was the main objective of this research.

13.2. Scientific reflection of this study

Relevance

The nature of the MBO ICT policy monitor is different than commonly used instruments that are used to review the use of ICT in education. Knowing that teachers see the way they teach as an important part of their own professional identity and this conviction is strong and not easy to change, the approach of this study is based on the perception of the teacher. Looking in the mind and through the glasses of the teacher when he or she uses ICT to support the educational process. Knowing and understanding his or here's views on the actual use of ICT should be eye opener for management and provide clear management information over the actual use of ICT. Based on this information management can act more effectively in realising their own goals for the use of ICT.

This study is based on quantitatively and qualitatively research. Qualitatively because the reference point of this study is the perception of the teachers and not for example the number of personal computers available. The aim is to look at a group of teachers and not specific to one teacher and his behaviour on the use of ICT. So in order to say something about the perception of a group of teachers quantitatively research is necessary. In order to qualify the perception of a group of teachers on the use of ICT you must know the main factors relating directly to the use of ICT and then look at the environment of the teacher, the organization itself. Looking as a teacher to all elements of the organisation that are of influence on the use of ICT.

The approached used was a wide literature research on ICT instruments to determine the main factors of the use of ICT and on management theories and quality models to determine the main elements of the organisation that are of influence on the use of ICT.

The instruments researched were based on benchmarking, Maturity (eMM, Marshall & Michell, 2006) of the organization to use ICT, and the principle of balance between the main elements of the organisation for the use of ICT. This means the elements are equalled important and need the same management attention. The quality models are based on the ability of the organisation to learn from experiences, this is also an important principle. (7S McKensey/ESH Waggeman, 1997)

The MBO ICT policy monitor combines all those aspects in one model. The ICT factors of the instruments researched; benchmarking on your own policies, and grow to the wanted maturity level those factors are placed in the organisational elements (Management building blocks, Nieuwenhuis, 2006) and the aspect of quality fits in by having a feedback loop between the operational process and the achieved results. (EFQM/INK)

The learning aspect of the organisation is important and embedded in the management cycle of plan, do, check and act, in this way quality is used by management and not only for accountability. A spring off of this research is service quality to measure the service quality of the support departments on the use of ICT. This is been done by using service quality items of SERVQUAL(Parasuraman, 1988) and is placed under the management building block *Resources*

13.3. Reflection of the researcher

Reflection of the researcher

The amount of factors found in the literature was a problem there were to many valid factors. Even the use of three expert sessions didn't reduce the number of factors. The experts were of the opinion that the factors were relevant and valid. The only way to reduce them was on the base of statistical reduction of items. To do this you need enough data to begin with. To obtain the data the long survey with all the factors was set out by al large MBO organisation. With this data a statistical reduction of items could be made. The survey was set up in sections and not all sections were relevant to all respondents. There was a possibility to answer only those questions of sections were the respondent has experience in. This was a problem using the Principal Component Analysis (PCA) to reduce the number of items. To do this all items must be valid, in this case answered. The result was that PCA was done on section level.

Another problem was those questions that were answered in a strong one sided way. Those variables were not suitable to carry out a PCA analyse. By a large number of respondents >500 those variables should be more normal distributed and good enough to carry out a PCA analyse.

As a result both organisations ROC Uitholland and Gilde Veste have the same pattern of results on the management building block, *Vision & strategy, People, Resources, Structure and Culture* of the organisation. This is due to almost the same score on item level. The monitor doesn't tender is this direction due to the calculation rules to obtain the results.

I'm proud to see that the MBO ICT policy monitor foresees in an important request of the management of a MBO organization and functions clearly well.

14. References

- A
- ACODE, (2006). *Benchmarks for the use of technology in learning and teaching in universities*. Australasian Council on open, distance and learning.
<http://www.acode.edu.au>
- Alvesson, M. (2002). *Understanding Organisational Culture*. London: Sage Publications Ltd.
- Anderson, T. (2002). Is e-learning right for your organization? *Learning Circuits: ASTD's Online Magazine All About E-Learning*, Retrieved July 25, 2005, from,
<http://www.learningcircuits.org/2002/jan2002/anderson.html>.
- Athos, A. & R. Pascal (1981). *The Art of Japanese Management*. New York: Pinquin Books.
- Aydin, C. H., & Tasci, D. (2005). *Measuring Readiness for e-Learning: Reflections from an Emerging Country*. *Educational Technology & Society*, 8 (4), 244-257.
- B
- Babakus, E., & Boller, G. W. (1992). *An empirical assessment of the SERVQUAL Scale*. *Journal of Business Research*, 24(3), 253-268.
- Bacsich, P. (2006). *The relevance of the MIT90s framework to benchmarking e-learning*. Retrieved July 25, 2005, from <http://www.elearning.heacademy.ac.uk/weblogs/benchmarking/wp-content/uploads/2006/09/MIT90s-survey-20060925.doc>
- Banwet, D. K., & Datta, K. (2002). *Effect of service quality on post visit intentions over time. The case of a library*. *Total Quality Management*, 13(4), 537-546.
- BECTA, (2004). *Maturity Modeling – year 2, International Self Assessments*. British Educational Communications and Technology Agency.
- Benc, Anton, (2003) Managing Partner, Benchmarking Partnerships, Business Excellence Australia: Managing Benchmarking Expectations. Presentation given at the University of Melbourne, Nov. 18, 2003.
- Bolton, R. N., & Drew, J. H. (1991). *A multistage model of customers' assessments of service quality and value*. *Journal of Consumer Research*, 17(4), 375-384.
- Boulding, W., Kalra, A., Staelin, R., & Zeithaml, V. (1993). *A dynamic process model of service quality: From expectations to behavioral intentions*. *Journal of Marketing Research*, 30, 7-27.
- Brady, M. K., Jr., Cronin, J., Jr., & Brand, R. R. (2002). *Performance-only measurement of service quality: A replication and extension*. *Journal of Business Research*, 55, 27-31.
- Brown, T. J., Churchill, G. A., Jr., & Peter, J. P. (1992). *Improving the measurement of service quality* (Working Paper No. 92-4). Madison, WI: A.C. Nielsen Center for Marketing Research.
- Brummelhuis, A.C.A. ten (1998). *ICT-monitor 1997/1998: voortgezet onderwijs*. Enschede: Universiteit Twente.
- C
- CAO BVE 2007-2009 verlenging 2010
http://www.aob.nl/kixtart/modules/absolutenm/articlefiles/47303-Verlengde_CAO_BVE_2007_2009_tot_31_10_2010.pdf
- Carman, J. M. (1990). *Consumer perceptions of service quality: An assessment of SERVQUAL dimensions*. *Journal of Retailing*, 66(1), 33-55.
- Cahill, M. & Hamilton, L. & Lynch, L. & Lynch, J. (2011) *Next generation Learning-Defining the opportunity*. Carnegie Corporation of New York

-
- Chapnick, S. (2000). *Are you ready for e-learning?* Learning Circuits: ASTD's Online Magazine All About ELearning. Retrieved July 25, 2005, from <http://www.learningcircuits.org/2000/nov2000/Chapnick.htm>.
- Collis, B., & Moonen, J. (2001). *Flexible learning in a digital world: Experiences and expectations*. London: Kogan Page.
- Cook, C., & Thompson, B. (2000). *Reliability and validity of SERVQUAL scores used to evaluate perceptions of library service quality*. Journal of Academic Librarianship, 26(4), 248-258.
- Cronin J. J., Jr., & Taylor, S. A. (1992). *Measuring service quality: A reexamination and extension*. Journal of Marketing, 56, 55-68.
- D** Dam, G.T.M. ten, H. van Hout, C. Terlouw & J. Willems (red.) (2000). *Onderwijskunde hoger onderwijs: handboek voor docenten*. Assen: Van Gorcum.
- De Vries, P. (2005). *An Analysis Framework Approach for Managing Corporate E-learning Development*. Brussels: De Vries. Doctoral dissertation.
- E** Education and Training 2010 program as part of the Lisbon objectives set for 2010 European commission. (ET 2020, Official Journal C 119 of 28.5.2009)
- F** Fullan, M.G. (2001a). *The new meaning of educational change*. 3rd Edition. New York: Teachers College Press.
- Fullan, M. G. (2001b). *Leading in a culture of change*. San Francisco: John Wiley & Sons.
- Fielden, John (1997). *Benchmarking University Performance*. CHEMS paper No 19. Page 1. <http://www.acu.ac.uk/chems/onlinepublications/930914591.pdf>
- G** Garrison, D.R., & Anderson, T. (2003). *E-Learning in the 21st Century. A framework for research and practice*. London: Routledge Falmer.
- Gilbert, G. R., Veloutsou, C., Goode, M. M. H., & Moutinho, L. (2004). *Measuring customer satisfaction in the fast food industry: A cross-national approach*. The Journal of Services Marketing, 18(5), 371-383.
- Gortemaker, F. , Hanekamp, M., Sprenger, J. (2014) *ICT monitor mbo 2013: Vergelijking van ict- organisatie, visie, infrastructuur, applicaties, projecten, personeel en financiën van 24 mbo- scholen*. Kennisnet, Zoetermeer
- H** Hofstede, G., & Hofstede, G.J. (2005). *Cultures and Organisations, Software of the Mind*. USA, McGraw-Hill
- I** ICT-Onderwijsmonitor Hoger Onderwijs 2003. Leiden: Research voor beleid. Retrieved July 25, 2005, from http://www.rvbh.nl/ict/downloads/scanvragenlijstdrukkerversie3_A_.pdf
- IHEP.(2000). *Quality on the line, Benchmaks for success in internet-based distance education*. The Institute for Higher Education Policy (USA)
- J** Jackson, Norman and Lund, Helen (2000). *Benchmarking for Higher Education*. Buckingham, Open University Press.
- Jalote, P. (2003), 'Needed: a capability maturity model for engineering education', The Economic Times India .
- Jiang, J. J., Klein, G., & Carr, C. L. (2002). *Measuring information system service quality: SERVQUAL from the other side*. MIS Quarterly, 26(2), 145-166.
- K** Keillor, B. D., Hult, G. T. M., & Kandemir, D. (2004). *A study of the service encounter in eight countries*. Journal of International Marketing, 12(1), 9-35.

Kennisnet, Weten Wat Werkt en Waarom over opbrengsten en werking van ict in het onderwijs
Wetenschappelijk tijdschrift Jaargang 3, nummer 1 – maart 2014 Kennisnet, Zoetermeer

Kettinger W. J., & Lee, C. C. (1994). *Perceived service quality and user satisfaction with the information services function*. Decision Sciences, 25(6), 737-766.

Kop, R.P., M. van den Berg & T. Klein (2004). *Survey naar de toepassing van ICT voor onderwijsdoeleinden in het hoger onderwijs*. Leiden: Research voor beleid.

- L Landrum, H., & Prybutok, V. R. (2004). *A service quality and success model for the information service industry*. European Journal of Operational Research, 156(2), 628.

Landrum, H., Prybutok, V. R. Kappelman, L. A., & Zhang, X. (2008). *SERVCESS: A parsimonious instrument to measure service quality and information system success*. The Quality Management Journal, 15(3), 17-25

Landrum, H., Prybutok, V. R., Strutton, D., & Zhang, X. (2008). *Examining the merits of usefulness versus use in an information service quality and information system success web-based model*. Information Resources Management Journal, 21(2), 1-17.

Law, A. K. Y., Hui, Y. V., & Zhao, X. (2004). *Modeling repurchase frequency and customer satisfaction for fast food outlets*. The International Journal of Quality & Reliability Management, 21(5), 545-563.

Likert, R. (1931). *A technique for the measurement of attitudes*. Archives of Psychology. New York: Columbia University Press.

Liljander, V. (1994). *Modeling perceived service quality using different comparison standards*. Journal of Consumer Satisfaction, 7, 126-142.

Lockhorst, D., Weijers, S, Smit, B, Admiraal, W (2014). *Experimenten met ict in de ulo Eindrapportage Kennisnet Zoetermeer*

Lutteroth, C. & Luxton-Reilly, A. & Gillian Dobbie, G. & Hamer, J. (2007)
A Maturity Model for Computing Education. The University of Auckland, New Zealand

Lynch, R. (2005). *Corporate Strategy: The Implementation Process*. Person Education. Limited. P. 679-P805, London

- M Marshall, S. (2006). *E-Learning Maturity Model Version Two*. Victoria University of Wellington.

McKinnon, K.R., Walker, S.H. & Davis, D. (2000) *Benchmarking: A manual for Australian universities*, [Higher Education Division, Department of Education, Training and Youth Affairs. Available: <http://www.deet.gov.au/archive/highered/otherpub/bench.pdf> [2001, 12 November].

Mintzberg, H. (2001) *Organisatiestructuren*. Schoonhoven: Academic Service

Myers, B. L., Kappelman, L. A., & Prybutok, V. R. (1997). *A comprehensive model for assessing the quality and productivity of the information systems function: Toward a theory for information systems assessment*. Information Resources Management Journal, 10(1), 6-25.

- N Nieuwenhuis, M.A. (2006) *The Art of Management*. Apeldoorn: uitgegeven in eigen beheer.
<http://the-art.nl/>

Nitecki, D. (1996). *Changing the concept and measure of service quality in academic libraries*, Journal of Academic Librarianship, 2(3), 181-190.

Nitecki, D. A., & Hernon, P. (2000). *Measuring service quality at Yale University's libraries*. Journal of

Academic Librarianship, 26(4), 259-273.

Onderwijscoöperatie (2012). Herijking. Het nieuwe voorstel bekwaamheidseisen.
http://www.bekwaamheidsdossier.nl/cms/bijlagen/OC_WTK_doc_Herijking_120426.pdf.

O'Connor, B. P. (2000). *SPSS and SAS programs for determining the number of components using parallel analysis and Velicer's MAP test*. *Behavior Research Methods, Instrumentation, and Computers*, 32, 396-402. Department of Psychology, Lakehead University

Oomens, M. (Oberon), Weijers S. (Oberon), Veerman A, (Omtrend Advies) (2011)
Zes voordelen van ICT voor het MBO: Prestaties, motivatie, zelfstandig werken, differentiatie, Onderwijstijd, toetsing. Kennisnet, Zoetermeer

- P** Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions. *Journal of Retailing*, 64(1), 12.

Parasuraman, A, Zeithaml, V. A., & Berry, L. L. (1994). Alternative scales for measuring service quality: A comparative assessment based on psychometric and diagnostic criteria. *Journal of Retailing*, 70(3), 201.

Peng, L. Y., & Wang, Q. (2006). Impact of relationship marketing tactics (RMTs) on switchers and stayers in a competitive service industry. *Journal of Marketing Management*, 22(1,2), 25-59.

Peters, T. & R. Waterman (1982). *In search of excellence*. New York: Harper & Row.

Priscilla, A. & F.S. Glasow. (2004). How Cognitive and Behavioral Factors Influence Command and Control. In: *Phalnx, The Bulletin of Military Operations Research*, Vol 37, nr. 1.

- R** Rogers, E. M. (2003). *Diffusion of innovations* (5th Ed.), New York, NY: Free Press.

Rosenberg, M. J. (2000). *The e-learning readiness survey: 20 key strategic questions you and your organization must answer about the sustainability of your e-learning efforts*, Retrieved July 25, 2005, from, http://www.ucalgary.ca/~srmccaus/eLearning_Survey.pdf.

Rosenberg, M.J. (2001). *E-learning: Strategies for delivering knowledge in the digital age*. New York: McGraw-Hill.

Rosenberg, M.J. (2006). *Beyond E-Learning: Approaches and Technologies to Enhance Organizational Knowledge, Learning, and Performance*. San Francisco: Wiley and Sons.

- S** Schneider, B. (1990). *Organizational Climate and Culture*. Oxford:Josey-Bass Ltd.

Schoonenboom, J., H. Sligte, D. Elshof, B. Emans & F. Roozen. (2004). *Praktijkvoorbeelden hoger onderwijs. ICT-onderwijsmonitor studiejaar 2002/2003*. Amsterdam: SCO-Kohnstanm Instituut.

Schoonenboom, J., F. Roozen & H. Sligte. (2004). *Stand van zaken ICT in het hoger onderwijs. ICT-onderwijsmonitor studiejaar 2002/2003*. Amsterdam: SCO-Kohnstanm Instituut.

Simons, P.R.J. (2002). *Digitale didactiek: hoe (kunnen) academici leren ICT te gebruiken in hun onderwijs*. Universiteit Utrecht: Inaugurele rede.

Simons, P.R.J. (zj). *Professionalisering van academische docenten met betrekking tot het gebruik van ICT in het onderwijs*. Expertise Centrum ICT in het onderwijs, Universiteit Utrecht.

Smeysters, H. en Sporken, J. (red.) (2004). *Van taak tot competentie, "Leren leren" voor het hoger beroepsonderwijs*

Spector, P. (1992). *Summated rating scale construction*. Thousand Oaks, CA: Sage.

Spohrer, J. & Maglio, P. (2008). The emergence of service science: Toward systematic service

innovations to accelerate co-creation of value. *Production and Operations Management*, 17(3), 238-246.

Swanink, J.J. (1988). *Werken met de organisatiecultuur. De harde gevolgen van de zachte factor*. Vlaardingen: Nederlands Studie Centrum (NSC).

- V** Van Dam, N. & Marcus, J. (2005) *Een praktijkgerichte benadering van Organisatie en Management*. Noordhoff Uitgevers B.V Groningen/Houten

Van Dyke T. P., Kappelman, L. A., & Prybutok, V. (1997). Measuring information systems service quality: Concerns on the use of the SERVQUAL questionnaire. *MIS Quarterly*, 21(2), 195-208.

Van Dyke, T. P., Prybutok, V. R., & Kappelman, L. (1999). Cautions on the use of the SERVQUAL measure to assess the quality of information systems services. *Decision Sciences*, 30(3), 877-892.

Van Elswijk, M. (2012) *Hoe? Zo! Social media in het MBO*
Kennisnet, Zoetermeer, OBT bv, Den Haag

Veen, W. & Jacobs, F. (2005). *Leren van jongeren, een literatuuronderzoek naar nieuwe geletterdheid*. Stichting SURF, Utrecht.

Veen, W. & Vrakking, B. (2006). *Homo Zappiens Growing up in a digital age*. London: Continuum International Publishing group Ltd.

Veld, J. in't. (1992). *Analyse van Organisatieproblemen, een toepassing van denken in systemen en processen*. Leiden: Stenfert Kroese Uitgevers.

Ven, A. van de. (1999). *Organisatie Engineering, Het Rabbit-Hill model*. Kluwer B.V.

Vier in balans monitor 2013 *De laatste stand van zaken van ict en onderwijs* (PO,MBO,VO)
Kennisnet, Zoetermeer

Voogt, J., Braak, J. van., Heiting, M. (2013) *Didactische ICT-bekwaamheid van docenten* Kennisnet, Zoetermeer

- W** Weggeman, M. (1997) *Kennismanagement*. Schiedam: Scriptum.

Weggeman, M. (1997). *Kennismanagement : inrichting en besturing van kennisintensieve organisaties*, Schiedam Scriptum.

Weggeman, M. (1992) *Leiding geven aan professionals: het verzilveren van creativiteit*. Schiedam: Scriptum.

Wood, J.C. & M.C. Wood (red). (2004) *W. Edwards Deming: Critical Evaluations in Business and Management*. Routledge.

- Z** Zeithaml, V.A., Parasuraman, A., & Berry, L. L. (1990). *Delivering quality service: Balancing customer perceptions and expectations*. New York, NY: Macmillan.

Appendix 1: Expertsessies GDR 1 verslag

Locatie	GDR Sessie 1 TU-Delft Locatie: TU Delft TBM		
Projectleden	Pieter de Vries Harm Weistra Robert Koerts	Projectleider Onderzoeker/specialist Master student	Tu-Delft Universiteit Leiden / Weistra consult Tu-Delft TBM
Deelnemers	Henk de Canne Wim Dechering Roelof Kooy Marchel Dupuis Piet van der Zanden Henk Frencken Ria Jacobi Chris Kuijpers	Mondriaan onderwijsgroep Universiteit Leiden Haagse Hoge School Universiteit Leiden Tu-Delft Universiteit Leiden / e-Merge Universiteit Leiden Hoge School Zuyd	
Chaufeur	Marcel van der Vos	Tu-Delft	
Doel van de sessie	Door voorlegging aan een expertpanel, bekijken of de uitgangspunten en keuzes die er gemaakt zijn overeenkomen met die van het panel (construct validiteit) en te komen tot verdere verdieping van de probleemstelling.		
Vorbereiding	Afweging wat willen we weten - Hun inbreng staat voorop, vanuit een blanco start. - Dus niet gelijk onze vragen set voorleggen. Afspraak volgorde: - Eerst de groep volledig langs alle categorieën - Dan even terug naar het begin nu iedereen inzicht heeft in het onderzoek en wat er precies gevraagd wordt - Dan de ontwikkelde vragen set voorleggen om te zien wat overeenkomt wat aanvult en wat wij hadden en zij niet. - Afsluitende discussie Verslag van de GDR sessie 1		
13:45 uur	Introductie van Harm opzet van de QuickScan. Geeft ook al een aantal voorbeelden van categorieën en soort vraag die er gesteld kan worden. Piet: Je wilt van een IST naar een SOL situatie, dan zal je beide moeten weten en uitwerken. Worden de vragen ook gebruikt om achter de SOL situatie te komen? Harm: Je vraagt of medewerkers kennis hebben van het ICT beleidsplan, (de SOL situatie). De medewerkers zijn hiermee onbekend, bekend, dragen het of gebruiken het. Dit is de begin situatie van de Scan. Wim: De docent heeft vaak geen weet van wat "het beleid" is, de handelingen komen dan voort uit impliciet gedrag. Harm: Het vertrekpunt blijft het beleid, en de perceptie hiervan bij de medewerker.		
14:00 uur	Categorie Mensen Vraag om gezamenlijk een lijst met doelen op te stellen voor het inzetten van ICT in het onderwijs.		
14:06 uur	Harm: geeft aan dat we uitgaan van vier verschillende categorieën als we het hebben over de een organisatie die de doelstellingen wilt gaan halen, mensen, middelen, structuur, cultuur. De bedoeling is dat we nu voor de categorie mensen een lijst van Items gaan samenstellen die van belang zijn bij het realiseren van het beleidsplan. Marchel: Kan je de scan doen zonder al te veel toelichting?		

Kleine afwijking componenten

Commentaar: bij de uitleg van de opbouw van de Quick Scan komt over als complex, de veronderstelling is dat deze misschien ook in het gebruik complex zal zijn. Men kan snel tot items komen maar moet ook al keuzes maken in welke categorie deze valt. De groep krijgt een dubbele vraag mee, nl zijn de categorieën juist gekozen en welke items horen hier bij. Er is onduidelijkheid over de definitie van de categorieën en welke items er nu onder vallen. Discussie over Items categorieën en aspecten loopt door elkaar.

Chris: Kunnen we nu alles gelijk invullen? Ook de aspecten?

Vraag om gezamenlijk de items op te stellen voor de categorie mensen

Roelof: veel door elkaar (items van verschillende orde)

Marchel: Je gaat snel de items invullen vanuit het perspectief van een docent

Chris: Het is beter om de vragen naar doelgroep te gaan stellen

Harm: Vraagstelling per doelgroep lijkt hier zinvol, en geeft ook een verkorting van de vragenlijst.

14:30 uur

Categorie Middelen

Uitleg en discussie: Over wat valt er nu onder een middel en wat onder structuur valt. De PC is een middel en het netwerk valt onder structuur.

Wim: De organisatie zien we nu als een black box die afgeschermd is, maar er zijn veel contacten naar buiten in de vorm van samenwerking met andere organisaties en directe interfaces met andere systemen. Hoe vrij ben je om te experimenteren geeft de organisatie je voldoende ruimte.

Discussie: Je ziet ook steeds meer dat er activiteiten naast het formele systeem plaats vinden.

Web 2.0 en zelf samenwerkingsomgevingen opzetten.

Harm: Geeft illustratie met een voorbeeld, van een samenwerkingsomgeving die ook na het afronden van de studie nog steeds actueel is en waar men contact met elkaar blijft houden.

14:40 uur

Gevraagd wordt om de items voor de categorie middelen op te schrijven.

14:45 uur

Categorie Structuur

Gevraagd wordt om ook de items voor de categorie structuur op te schrijven.

14:55-15:10

Pauze

Vertrek van Henk de Canne en Henk Frencken. (hebben andere verplichtingen)

15:10

Categorie cultuur

Roelof: Cultuur is wel de belangrijkste categorie, een samenbindend aspect.

Commentaar: Zou het kunnen zijn dat cultuur inderdaad een zwaar bepalende factor is? Zwaarder dan de andere categorieën.

Harm: Het is een moeilijke categorie, je kan niet meer of minder cultuur gaan meten, we weten in ieder geval dat leiderschap, visie, werkhouding, en het functioneren van een team een belangrijke rol spelen.

Roelof: Het gaat ook vaak over instellingsdenken, het niet verantwoordelijkheid kunnen of willen zijn voor een probleem van een ander! Is er een ontwikkelingsgerichte creatieve cultuur.

Marcel: Ik heb het gevoel weer terug te zijn bij mensen. Veel heeft te maken met omgang tussen mensen. (Intern en extern)

15:20 uur

Gevraagd wordt om ook de items voor de categorie structuur op te schrijven.

15:30 uur

Opdracht

Plenaire sessie over de door het projectteam voorgelegde vragenlijst.

Bekijk deze en ga na of de gekozen invalshoek de juiste is.

Marchel: De vragen set heeft dus dubbellingen met die van de groep leggen we de andere er bij?

Harm: Dit zal wel ideaal zijn maar kunnen we nu niet gelijk realiseren. Dus graag nu op en aanmerkingen.

Opmerkingen over de vragen set

Roelof: Is er wel duidelijk verschil tussen beleid algemeen en ICT specifiek, weet men wel het verschil en hoe exact kan je op de hoogte zijn? Heeft een docent wel inzicht in het beleid.

Harm: het is het uitgangspunt van de meting om hier juist naar te kijken.

Ria: Veel vragen voor een Quick Scan.

Dechering: Bij doelstellingen niet iedereen begrijpt wat er onder de items verstaan wordt (Case Based Learning ed.) Je moet wel oppassen voor meerdere interpretaties van een item.

Roelof: In hoeverre is ICT nog een echt (zelfstandig) issue. ICT is overal en ver geïntegreerd in de

samenleving. Kan ICT nog wel los gemeten worden? Pas op docenten weten vaak niet hoe de visie precies geformuleerd is en welk ICT beleid er is.

Piet: Is er een verhouding tussen de “spullenboel” en de specifieke visie en doel. Er zal altijd een basis aan spullenboel zonder dat daar echt een visie aan vast zit.

Chris: Huisvesting staat er nu algemeen in, gaat dit ook over toekomstige huisvesting?

Vragen als “in hoeverre stelt uw organisatie ed.” wat wordt hiermee bedoeld opleiding, afdeling, het geheel. Deze vragen worden ook rol specifiek ingevuld.

Piet: Sprake van suggestieve vragen, want wat verstaat een docent onder de inzet van ICT in het onderwijs. Dit kan per docent verschillen.

Harm: Er zijn al veel toepassingen die niet meer onder ICT vallen. Moeten aan het beging van de vragen goed uitleggen wat we er onder verstaan wordt.

Chris: het blijft moeilijk ICT los te zien van het algemeen beleid en deze factor dus te isoleren van de rest.

Piet: Nog erg veel doelen uit te kiezen, misschien max 5 met als vertrekpunt wat gebruikt je als medewerker het meest.

Discussie

Knelpunt hoe specifiek en op welk niveau ga je naar ICT toepassingen vragen. (van stekkerdoos tot architectuur) dit niveau door de vragen set heen gelijk houden.

Piet: Er zit nog steeds een groot verschil tussen de beleving van het CVB en de werkelijkheid op de vloer.

Harm: dit is wel van belang om te weten, in de breedte zien wat men wilt met ICT.

Chris: verschillende inzichten per laag heb je ook met het begrip organisatie (afdeling, sectie ed.) Het verschil zit hem ook in de rol die men heeft en welke functionaliteit men dan verlangt.

Wim: De aspecten (kenmerken) van een docent zitten er nog niet goed in. Waar zit hij, wat doet hij ed. Individueel gericht of communicatief, zit in innovatieve projecten omarmt ICT ed. Deze zaken bepalen de perceptie van de docent. Pas op voor een negatieve generaliserende beoordeling, kijk niet alleen naar alles wat nog moet gebeuren uit het beleid maar ook naar de dingen die al ingang zijn gezet, Hou het positief,

Harm: Uit ervaring vorige Surf onderzoek blijkt dat er over het algemeen niet zo negatief wordt ingevuld

Wim: Het kan ook zijn dat uit specifieke groepen bijvoorbeeld sociale studies een nadrukkelijke vraag komt voor bijvoorbeeld een pakket dat bij economie als alledaags gereedschap wordt gezien. Dus door in subgroepen te differentiëren kan je veel rijke informatie opleveren.

Chris: pas op het is wel een Quick Scan.

Wim: Zou je al met 7 vragen klaar kunnen zijn? Kun je hem zo terug dringen? Probeer niet volledig te zijn maar werkbaar te houden. Hou de 80/20 regel aan. 80% verklaren uit 20% informatie. Focus op wat je nodig hebt.

Wim: ICT kan bepalend zijn voor het waarmaken van je doelen, dan hebben we het niet over expliciete doelen hier. Maar wel een taak waarbij ICT nodig is.

Ria: De inzet van ICT uit de doelstelling halen is toch wel algemeen, ik heb toch liever duidelijkheid over wat er gewenst is en hierop verder te gaan.

Harm: geeft aan dat er in ieder geval naar rol gedifferentieerd moet worden en dat de scan, Quick moet blijven.

16:00 uur

Pieter geeft een korte samenvatting van de dag en met alvast een eerste indruk van het resultaat. Dit ziet er goed uit. Bedankt iedereen en als men nog ideeën opdoet dan ontvangen we die graag. De deelnemers worden op de hoogte gehouden over de voortgang van het project. En zullen waarschijnlijk nog een keer gevraagd worden om naar de definitieve vragenlijst te kijken.

16:10 uur

Einde.

Conclusie

Er kan vastgesteld worden dat het doel van de scan lastig uit te leggen is. Hier moet extra aan dacht aan besteed worden. Ook de opzet in de categorieën vergt een duidelijke uitleg met een strikte definitie van de categorieën zelf. Bij het inzetten van het instrument bij een onderwijsorganisatie moet deze benadering duidelijk zichtbaar zijn. Dit kan bijvoorbeeld in de vorm van een dashboard waarbij de resultaten per categorie getoond worden. Bij de tweede sessie kan nu op basis van goed gedefinieerde categorieën de onderliggende vragen/stellingen behandeld worden.

Appendix 2: Expertsessies GDR 1 output

Doelen van ICT in het onderwijs (Categorizer output)

1. rendementsverhoging	doelmatigheid	{#13}
2. ontsluiting bijzondere bronnen	Het zou mooi zijn als de diverse HO en WO bibliotheken te ontsluiten zijn. in 1e instantie vanuit de instituten, maar liever open access voor de maatschappij	{#55}
3. betere studentenwerkplekken	Ik zou veel liever gaan voor de personal learning environment, waar de laptop persoonlijk is en de software door universiteit gesponsord wordt	{#58}
4. wireless		
5. flexibiliteit	flexibele leertrajecten	{#67}
	flexibilisering onderwijs	{#16}
	afwisseling van onderwijsactiviteiten	{#23}
	plaats en tijdsafhankelijkheid	{#44}
	opheffen plaats- en tijdgebondenheid onderwijs	{#56}
	afwisseling	{#20}
6. internationalisering		
7. Gebruik beroep gebonden applicaties		
8. overzicht van lesmateriaal bieden	integreren van diverse bronnen (multimedia)	{#39}
9. nieuwe vormen van onderwijs ter voorbereiding van information age	stimulerende leeromgeving (rijk gevuld met media)	{#28}
	samenwerkend leren	{#25}
	tussen studenten, studenten-docenten, studenten-docenten-bedrijfsleven	{#54}
	internationale werkvormen tussen studenten bijv. multi-culti ontwerpen	{#36}
	'rijkere' fysieke leeromgeving (ppt, beamers, podcasts, etc.)	{#41}
	personaliseerbare leeromgeving	{#40}
	realiseren van studentwerkplekken in het bedrijfsleven; authentieke stages en begeleiding on the job	{#45}
	aansluiten bij ICT gebruikskompetenties van studenten	{#49}
	geïndividualiseerd onderwijs voor grote groepen	{#51}
10. internationalisering en flexibilisering (tijd en plaats)		
11. efficiency (meer zelfstudie mogelijk)		
12. samenwerking		
13. mogelijk maken van complexe logistiek		
14. informatie-uitwisseling		
15. ICT-ondersteuning onderzoek		
16. nieuwe vormen van kennis productie en deling		
17. betere toegankelijkheid	terugvindbare opslag plus archivering onderwijsmaterialen	{#47}
18. ondersteuning van ondersteunende processen. bijv. efficiënte logistiek, automatische koppeling van data tussen systemen	studieplanning	{#42}
19. toetsing	toetsing	{#31}
20. status geven "moderne universiteit"		
21. communicatie verbeteren	efficiënt contact docent student {#35}	
22. ondersteuning van verwevenheid onderzoek en onderwijs		
23. mobiliteit		
24. ondersteuning kwaliteitszorg		
25. professionalisering van docenten ook qua ICT-vaardigheden		
26. feedback geven op persoonlijke onderwijsproblemen		
27. COO-toepassingen		
28. verantwoording	evaluatie	{#37}
29. ontsluiten van onderwijsmateriaal en daarmee toegankelijk maken voor studenten en docenten		
30. context rijk onderwijs		
31. marketing van onderwijsaanbod		
32. keuze facilitering		

Table 73:Doelen

Mensen (Categorizer)

1. visie op de rol van ICT in et onderwijs (management)		
2. bekendheid met elo's	kunnen werken met elo's	{#31}
3. didactiek (docenten; ICTO coördinatoren; trainers)	didactische vaardigheden {#20}	
4. onderwijs ontwerp competenties (voor docenten)	rijke leeromgevingen kunnen ontwerpen	{#14}
	rijke leeromgevingen kunnen creëren	{#18}
	ontwerpen van onderwijs met ICT (docenten; trainers; ICTO-coörd)	{#22}
5. informatievaardigheden om redelijk vlot bepaalde info te kunnen vinden en in te schatten hoe waardevol deze is		
6. directe hulp bij dringende problemen		
7. vermogen om op niveau van leek dan wel expert mee te denken		
8. ICT-competenties over de volle breedte van de applicaties	ICT-vaardigheden	{#9}
	Basisvaardigheden ICT (ECDL)	{#7}
	multimedia kunnen inzetten	{#13}
	technische kennis en vaardigheden (ICTO coördinatoren; technische ondersteuners)	{#16}
	computervaardigheden op gebied van tekstverwerking, rekenbladen, presentatiesoftware, communicatiesoftware	{#19}
	uit kunnen leggen waarom bepaalde software wel en andere niet beschikbaar is	{#28}
	de beamer kunnen aanzetten en koppelen met de pc	{#39}
	beheersing van allerlei programma's	{#40}
	tooljes kunnen inzetten in onderwijs en kunnen uitleggen (docenten en studenten)	{#36}
9. kunnen communiceren met digibeten		
10. voorbeelden van nieuwe toepassingen		
11. goede schrijfvaardigheid		
12. voldoende inzicht in de logistiek van de processen		
13. draagvlak creëren (managers)	bedrijf analytisch kunnen denken en informatieel kunnen omzetten	{#32}
14. leercontent kunnen beheren en ontsluiten (bibliotheek)		
15. niet gebonden zijn aan een platform (windows, Apple, linux, etc)		
16. experimenteer en uitprobeer competenties voor allerlei nieuwe kleine software die voorbijkomt (voor zoiets web 2.0 blijkt te heten....)		
17. inbeeldingsvermogen tussen ICT technen en beleidmakers / vormgevers en goed de communicatie kunnen vertalen. omzetten		
18. kunnen adviseren over ICT in het onderwijs / blended learning (ICTO)		
19. communiceren van visie en concretisering ervan (uni-management; onderwijsmanagement; ICTO coördinatoren; ondersteuners docenten)		
20. planmatig met ICT-ontwikkelingen kunnen omgaan (icto-coördinator faculteit)		
21. vermogen om leerobjecten adequaat te coderen d.m.v. tagging		
22. willen vernieuwen m.b.t. ICT	bedrijf analytisch kunnen denken en informatieel kunnen omzetten	{#32}
	duidelijkheid over tijd nodig voor ontwikkelingstraject, producten, etc.	{#38}
23. op de hoogte zijn en willen zijn van nieuwe trends (uni-management; onderwijsmanagers; trainers; ondersteuners docenten)		
24. vertalingsslag kunnen maken van leerproces naar instrumentele ondersteuning m.b.v. groepssoftware en samenwerkend ontwerpen		
25. geen muizen laten vallen	grapje Marc	{#47}
26. productietips kunnen geven		
27. nieuwe trens kunnen vertalen naar praktische didactische voorbeelden en adviezen (trainers; docentondersteuners; ICTO coördinatoren)		
28. vermogen om kort, bondig, zakelijk en op tijd te communiceren		
29. digitaal kunnen communiceren		
30. maximaal kunnen benutten van huidig aanwezig en gemakkelijk in te zetten software. veel wordt minimaal gebruikt		
31. systemen kunnen beheren		
32. voor- en achterkant van een pc uit elkaar kunnen houden		

Vervolg Mensen		
33. inleven in mediagebruik student		
34. methoden en technieken die nu vooral in rapporten verdwijnt omzetten naar elektronische modellen als open source componenten voor games en simulaties		
35. servicegerichtheid (helpdesk, ICT-dienst)		
36. inlevingsvermogen in de leer- en communicatiestijlen van de nieuwe student		
37. onderzoeksresultaten m.b.t. ICT in Onderwijs kunnen vertalen in advies (trainers; docentondersteuners)		
38. architectuurbenadering (ICT dienst)		
39. op de hoogte zijn van nieuwe tools (iedereen)		
40. brug slaan tussen gebruik van ICT bij bedrijven in de werksituatie en de vertaling naar het klaslokaal		
41. willen delen van ervaringen, kennis m.b.t. wetenschappelijke software en ICT&O tools		
42. bedrijfsprocessen kunnen vertalen naar elektronische communicatieprocessen i.v.m. koppelen van diverse bedrijfsfuncties (SOA)		
43. begrijpen dat voor ICT in de toekomst geen apart beleidsplan meer moet worden geschreven		
44. voldoen aan in ieder geval de e-rijbewijs vaardigheden (iedereen)		
45. zelfraadzaamheid		
46. willen ondersteunen (diensten) en luisteren naar wensen		
47. in contact brengen van opdrachtgevers, uitvoerenden en gebruikers		
48. ICT in de picture hebben, ook voor algemeen beleid / weten waar ICT effectief en efficiënt kan werken (management)	nieuwe ontwikkelingen kunnen volgen en prioriteren binnen de instelling	{#59}
	bestuurlijke ervaring om ICT projecten te initiëren, begeleiden, etc.	{#58}

Table 74: Mensen

Middelen (Categorizer)

1. elo		
2. servers		
3. video conferencing-tools		
4. helpdesk		
5. wireless network		
6. multimediafaciliteiten		
7. smartboards		
8. een persoonlijke werkplek die op basis van de eigen werkzaamheden kan worden ingericht en aangevuld		
9. geld		
10. digitizers, scanners, dvd-recorders		
11. streaming video server		
12. innovatiebudget		
13. programma's		
14. deskundigheidsbevordering budget		
15. thuiswerkplek		
16. beheerbudget		
17. werkplekken voor studenten		
18. een beschreven architectuur		
19. software (ook shareware, freeware of andere vormen)		
20. activiteiten gerateerde werkplekken	concentratieruimtes, kleinschalige samenwerkingsruimtes, etc.	{#27}
21. servers voor wiki's, weblogs, en andere nieuwe tools		
22. manuals, en instructiefilms (lynda.com)		
23. voldoende opslagcapaciteit		
24. een informatiesysteem waar alle medewerkers zijn te vinden met hun competenties, portfolio, publicaties (dus veel meer dan NAW en telefoonnummers)		
25. goede beveiliging		
26. content library		
27. back-up faciliteiten	Back-up systemen	{#31}
28. portal waar alle tools beschreven staat en van daaruit toegankelijk / beschikbaar zijn (met eventueel instructie)		
29. opnamestudio voor film, podcasts		
30. Voldoende opslagcapaciteit		
31. een moderne architectuur die flexibel de diverse informatie systemen aan elkaar kan koppelen (SOA)		

32. content		
Vervolg Middelen		
33. systeemredundantie		
34. netwerk		
35. group decision software		
36. verbindingen		
37. voldoende stopcontacten		
38. open access tot bibliotheken, vakgroep publicaties, leermaterialen, softwarebibliotheken	repositories	{#28}
39. toegankelijk en beschikbare wetenschappelijke software		
40. portfolio		
41. diverse leeromgevingen	individuele leeromgeving, informele virtuele ontmoetingsplaats, formele virtuele ontmoetingsplaats	{#49}
42. productiefaciliteiten als kleurenprinters, dvd branders, video opnames		
43. game development studio om vrij snel multimediale leerobjecten te kunnen samenstellen (zowel fysiek als online)		
44. VC-zaal te gebruiken bijv. bij conferenties		
45. digitaal studentvolgssysteem		
46. portals voor diverse disciplines met alle beschikbare info, studiemateriaal, referenties, etc.		
47. goed ventilatiesysteem		
48. (beperkte) mogelijkheid om zelf software te kunnen installeren		
49. ontschotting van de diverse faculteitsmuren door multidisciplinaire projectteams instituut breed te ondersteunen (shared service gedachte)		
50. tijd		
51. campuslicentie software		
52. gemakkelijk te downloaden software benodigd voor de eigen opleiding		
53. persoonlijke portal voor iedere student (en dus daaraan gekoppelde opslagruimte)		
54. website ruimte voor medewerkers		
55. collaboration tools		

Table 75:Middelen

Structuur (Categorizer)

1. robuust netwerkbeheer		
2. goed werkende infrastructuur		
3. afstemming van tools		
4. verdeling bevoegdheden		
5. vlotte afhandeling wijzing aanvragen		
6. afstemming centrale en decentrale ICTO-organisatie		
7. is uitwisseling internationaal mogelijk		
8. snellere besluitvorming		
9. shared service centres organisatie om 'standaard'ondersteuning door het instituut te garanderen	goede helpdesk met bijbehorende backoffice	{#11}
10. van thuis uit bereikbaar door bijv. portals		
11. efficiënte beveiliging		
12. goede verdeling (en scheiding) van verantwoordelijkheden	controle op naleving beleid	{#16}
13. snel op internet kunnen met wireless		
14. kennis/ervaring deling circuit	bottom up ideeën ondersteunen	{#41}
	gefaciliteerde communities of practice	{#23}
	uitwisseling kennis/ervaring mogelijk maken	{#42}
15. krachtig bestuur en uitvoering van beleid		
16. soepele en flexibele organisatie		
17. faculteiten afbreken en meer multidisciplinair kunnen opereren. veel wordt dubbel gedaan in de onderwijskolommen		
18. afstemming business/processen en ICT		
19. experimentele mogelijkheid bieden met nieuwe software		
20. goede relatie met externe ondersteuning		
21. vanuit thuiswerkplek gemakkelijke toegang via internet tot werkplek	flexibele toegankelijkheid	{#21}
22. duidelijk eigenaarschap voor systemen, processen, ...	adequate inrichting IT-governance	{#20}
23. ondersteunende systemen van onderwijs en onderzoek meer op elkaar afstemmen; vooral in wetenschappelijk onderwijs moet de ineenvlechten beter worden	afstemmen opleidingen op elkaar, met name internationaal als een master ergens anders wordt gevolgd	{#17}
	entrepreneurs ondersteunen vanuit	{#27}

	onderwijs (proces) en niet alleen vanuit onderzoek (product). waardoor vernieuwing van binnenuit kan plaatsvinden	
24. informatieplanning		
25. goede planning- en control cyclus		
26. architectuur/soa-structuur	standaarden waar nodig formuleren en hanteren	{#44}
	helder beleid op basis van architectuur	{#22}
27. robuustheid		
28. ondersteunende systemen tussen onderwijs en bedrijfsleven (communicatie, ontwerpsoftware en software bibliotheken) beter afstemmen		
29. scholingsmogelijkheden	ICT-trainingsfaciliteiten voor docenten	{#43}
	kennismakingscursus ICT voor studenten	{#37}
	meer kennis van wat er allemaal al is (tools, kennis, ervaring, ideeën), dit toegankelijk maken, dit opschalen	{#39}
30. uitleenbeleid voor laptop, apparatuur, software, etc.		
31. oplossingen bieden copyrights		
32. flexibele en dienstverlenende I-groep		
33. online diensten (met wel f2f mogelijkheid)		

Table 76:Structuur

Cultuur (Categorizer)

1. bereidheid tot experimenteren		
2. inlevingsvermogen in andere denkpatronen en gewoontes		
3. docent georiënteerdheid i.p.v. organisatie		
4. de student beschouwen als lid van de intellectuele gemeenschap en niet als klant, waardoor een andere financiële situatie / stuurmiddel ontstaat		
5. bereidheid tot plaats en tijd-onafhankelijk werken		
6. meer samenwerking tussen de diverse faculteiten zien te bewerkstelligen, meer multi t.o.v. monodisciplines		
7. interesse in de ontwikkelingen op vakgebied en communicatie	willen vernieuwen	{#8}
8. onderzoek gerichtheid: wel onderbouwde argumenten hebben bij vernieuwing		
9. openstaan voor nieuwe ontwikkelingen en technologieën	bereidheid te gaan voor gemeenschappelijke oplossingen	{#10}
10. meer nadruk op ethische aspecten, niet alleen in de opleiding maar in zijn algemeenheid		
11. denkend vanuit beleving student		
12. kans op mislukkingen accepteren		
13. openheid en samenwerking i.p.v. concurrentie vooropstellen		
14. flexibele cultuur		
15. kennis willen delen		
16. accepteren dat privacy niet bestaat		
17. honoreringssystemen voor verbetering van ICT in onderwijs toepassingen		
18. multimediaal denken		
19. gerichtheid op aansluiting: weten welke studenten binnenkomen en weten wat beroepenveld vraagt		
20. elkaars problematiek willen begrijpen (docenten <-> ICT-ondersteuners)		
21. open cultuur		
22. denken vanuit de instelling		
23. open over successen en teleurstellingen		
24. nieuwsgierigheid		
25. niet de student centraal stellen maar het leerproces. En dan vooral richten op context loos leren (principes, methoden) met daarnaast de praktijk of beroepsgerichte aandacht waar de vakkennis voorop staat		
26. creativiteit		
27. niet denken dat wat van elders komt per definitie slecht(er) is		
28. aandacht geven in ontwikkeling van communicatieve vaardigheden bij studenten/docenten		

29. digitale ondersteuning logistiek nastreven		
30. geen rendementsberekeningen als target stellen maar het groepsgevoel. Het netwerkgevoel van de community waar(mee) je opereert		
31. cultuurverandering jeugd accepteren		
32. 'not invented here'-denken overwinnen		
33. innovatieve cultuur		
34. innovatieve toepassingen belonen en doorspelen		
35. ICT als nuttig en normaal beschouwen en niet als hinderlijke en tijdrovende techniek		
36. stoppen met polemieken traditioneel vs nieuw leren		
37. leren gebeurt niet alleen in de instelling		
38. samenwerken i.p.v. individueel, dat wil ook zeggen dat je kennis deelt, eigenaarschap deelt, ideeën deelt		
39. kennispoort gedachte	oftewel: instelling heeft rol in de samenleving	{#45}
40. bevorderen van participatieve leerprojecten		
41. netwerkvorming omarmen		
42. positief waarderen i.p.v. afremmen		
43. kijken naar de mogelijkheden van ideeën i.p.v. naar de onmogelijkheden		
44. de maatschappij duidelijk maken dat een ouderwets diploma niet garant staat voor de competenties die een persoon bezit. Dit tezamen met instaptoetsen laat een boel mensen afvallen, die op zich wel academisch vaardig zijn, maar niet voldoen aan de opleidingseisen die in het industriële tijdperk voldeden, maar met virtueel werken anders dienen te worden gebruikt		
45. standaards als handig beschouwen, niet als dwangbuis		
46. gebruik maken van reeds bestaande kennis, tools, ervaring (en niet zelf gaan ontwikkelen)		

Table 77: Cultuur

Rollen (Categorizer)

1. studenten		
2. opleidingsvoorzitters, middle management		
3. gebruikers		
4. docenttrainers		
5. ict&o coördinatoren (faculteit)		
6. onderzoekers		
7. functioneel beheerders		
8. opleidingsdirecteuren		
9. applicatiebeheerders		
10. ict&o adviseurs (centraal)		
11. technisch beheerders		
12. vakgerichte moderatoren voor professionele virtuele communities		
13. helpdesk		
14. ICT-adviseurs		
15. bibliotheek medewerkers		
16. HRM		
17. virtuele helpdesk avatars ter ondersteuning van studenten		
18. geldschietters		
19. betrokkenen bij specifieke doelgroepen: studenten met functiebeperking		

Appendix 3: Expertsessies GDR 2 verslag

Tweede GDR Sessie TU-Delft

Projectleden	Pieter de Vries Harm Weistra Robert Koerts	Projectleider Onderzoeker/specialist Student parttime	TU-Delft Universiteit Leiden / Weistra consult TU-Delft TBM
Genoeg respondenten krijgen	Nico Juist Ellen Sjoer Sofia Dopper Joost Groot Kormelink Nel Pouw	Inholland TU Delft TBM TU Delft TBM TU Delft TBM TU Delft IDE	
Chauffeur	Marcel van der Vos	TU-Delft	
Locatie	TU Delft Faculteit Techniek, Bestuur en Management (TBM) Jaffalaan 5 2628 BX Delft		
Aanleiding	De Quick Scan vragen set staat nog te ver af van de belevingswereld van de docent, om als Quick scan te kunnen worden ingezet. Oorzaak hier voor is tweeledig: De docent is vaak niet of slechts gedeeltelijk op de hoogte van het (centrale) ICT beleid waaraan gerefereerd wordt. De vragen staan nog in te hoge abstracte vorm om snel en begrijpelijke beantwoord te kunnen worden.		
Doel van de sessie	Het komen tot een voor de docent begrijpelijk en herkenbare referentiepunt, als het gaat om centraal geformuleerd ICT beleid voor het onderwijs. De 33 vragen die nog niet in een begrijpelijke stelling staan, voor te leggen in een blinde GDR sessie waarbij de panelleden afzonderlijk de vragen kunnen omzetten in stellingen.		
Inleiding	Afweging wat willen we weten Starten met een open discussie over de bekendheid van het centrale ICT beleid bij de docent. Bekijken of we kunnen komen tot een begrijpelijke en herkenbaar referentpunt voor de docent als het gaat over ICT beleid van de onderwijsorganisatie zelf. De vragen set; van vraag naar stelling. De inbreng van het panel staat voorop, het liefst zonder beïnvloeding van elkaar. Het is dus niet de bedoeling om op elkaars stellingen te reageren. Maar onafhankelijke van elkaar, gezamenlijk te komen tot ca. een vijftal stellingen per vraag.		
Afspraak volgorde	Inleiding doelstelling van het onderzoek en doelstelling van de sessie Open discussie over de beleving van het centrale ICT beleid bij de docent GDR sessie om te komen tot de stellingen Afsluitende discussie Maken van vervolg afspraken met de panelleden		
	Verslag van de GDR sessie		
13:45 uur	Opening GDR Pieter: Introductie opzet van de QuickScan als diagnostische toets voor de onderwijsorganisatie om te zien hoe de organisatie er voor staat bij de toepassing van ICT in het onderwijs. Harm: Uitleg hoe te komen van (abstracte) vragen naar begrijpelijke stellingen Joost: Gaat het om het algemene beeld? En over welke componenten hebben we het? Nico: Hoe breed is het en hoe expliciet dan wel impliciet is het? Harm: Uitleg gericht op docenten en hun perceptie van de werkelijkheid (in dit geval de verwezenlijking van het ICT beleid). We kijken dus naar de beleving van de docent en verbinden hier geen waarde oordeel aan.		

Nico: Het gaat dus over wat de instelling van mij verwacht bij de toepassing van ICT. Dit moet wel duidelijk worden gemaakt bij de Scan.

Harm: Het is wel zaak dit goed te benoemen in de inleiding van de scan en misschien ook per vraag categorie nogmaals herhalen.

Pouw: Wat kun je er mee, ik ben ook opzoek naar wat er al is afgesproken over de inzet van ICT en merk dat hier weinig van op papier staat.

Joost: Het gaat vaak om een vraaggerichte aanpak, de docenten vragen om iets te mogen toepassen of te onderzoeken en dan wordt dit ondersteund.

Nel: Bij ons is er (over de inzet van ICT in het onderwijs) nog weinig over bekend.

14:15 uur

Het voorleggen van de stellingen.

15:30 uur

Discussie over het referentiekader

Joost: Het is vaak een bottum up proces die maar weinig van boven gestuurd wordt.

Pouw: Inderdaad uitgaan van wat de docent zelf graag zou willen.

Pieter: Het is wel zo dat er dan dingen gevraagd kunnen worden die niet uitvoerbaar zijn. Het moet wel getoetst worden of de aanvragen in de lijn van het ICT beleid liggen.

Harm: Het zou wel mooi zijn om zowel vanuit de docent als vanuit de organisatie de scan af te nemen. Dit zou kunnen met twee selectieve steekproeven binnen de zelfde organisatie, de ene vanuit de eigen referentie (bottum up) en de tweede vanuit de organisatie als referentie (top-down).

Nel: In veel nieuwe zaken is de docent toch leidend en wordt dan ondersteund door de organisatie.

Nico: Deze vraagsturing wordt vaak gehanteerd.

Ellen: Dit kan dus per sectie verschillen, met als gevolg dat de ene sectie een eigen repository heeft waar hij/zij zijn materiaal moet inzetten en andere secties dit weer gelijk in BB doen of gewoon op het netwerk zetten.

Joost: Je hebt altijd voorlopers die het initiatief nemen en hopen dat de rest gaat volgen. Het gaat dus vaak bottum-up in plaats van top-down. Het moet dus heel concreet gevraagd worden en niet abstract naar beleid en degelijke.

Ellen: Het zou altijd concreet moeten zijn ook als het vanuit de organisatie gemeten wordt.

Harm: De Quick Scan moet inderdaad snel en duidelijk zijn, dus concreet.

Nico: Het gaat ook om de verwachting van de docent hoe hij/zij ondersteund wenst te worden. Past de ondersteuning (gevoel/houding) bij de manier zoals de docent dit verwacht.

Pieter: Het is goed om te weten wat zijn of haar referentiekader is.

Nico: Dit kan dus zeer lokaal zijn alleen al de collega's op je kamer kan bepalend zijn.

Harm: Het succes van de toepassing ICT hangt sterk samen met het team (hoe collega's hier met elkaar omgaan) en indirect het management die dit team proces stimuleert en faciliteert. (Surf onderzoek geweest)

Nico: Het is sterk gericht op de mensen zelf!

Nel: De invalshoek ligt dan ook eerder op Bottum-up dan Top-down. Een snelle thermometer is hier wel handig voor.

Ellen: Kunnen de gegevens in een dashboard gepresenteerd worden, en kun je dan nog in zoemen?

Harm: Dit is welk de bedoeling, eerst op hoofdcategorie en daarna in zoemen op deel aspecten (schalen)

Sofie: Voor de inzet van de scan had Ivo Bouwman TBM nog reageert in een mail, met de strekking van wat er nu gemeten wordt: 1. Heeft de architect het huis goed ontworpen of meten we; of de bewoners tevreden over hun huis zijn.

Harm: Het zou mooi zijn beide te doen.

Ellen: Het is wel van belang te weten wat de docenten zelf willen.

Nel: Dit kunnen we dan ook jaarlijks inzetten, en zien of er veranderingen optreden.

Pieter: geeft aan dat dit ook de bedoeling is.

Het kan wel zo zijn dat door de groei van ICT ook de wensen bijna automatisch mee groeien. (voorbeeld bandbreedte van internet)

15:00 uur

Afsluiting

Conclusie

Graag een bottum up benadering van de scan, dus wat de docent graag wil. Het gaat over een diagnostisch instrument dat snel een signaal moet kunnen afgeven dat het op een van de categorieën (mensen, middelen, structuur en cultuur) niet goed zit. De herhalende term "voor het waarmaken van het

ICT-beleid” komt hierdoor te vervallen. Het panel is sterk het gevoel dat de vragen set een stuk begrijpelijker geworden is. De panelleden vonden het een zinnige en productieve sessie.

Afspraken

Na bestudering van de resultaten van de projectleden, worden de panelleden geïnformeerd over de resultaten en de uiteindelijke gemaakte keuzes en formuleringen van de stellingen. Graag willen we met de panelleden verdere afspraken maken over het afnemen van de scan om deze verder te kunnen valideren. (na factoranalyse van de uitkomsten bekijken of de vragen set nog verder ingekort kan worden) Graag willen de projectleden nog gebruik maken van het panel voor feedback doeleinden. (Het panel vindt dit oké)

Appendix 4: Expertsessies GDR 2 output

Quicksan (Survey)

Questions and Choices in Original Order

Vraag 1

Beschikt u over de kennis, inzicht en vaardigheden voor het waarmaken van het ICT-beleid?

- Ik beschik over voldoende kennis, inzicht en vaardigheden om ICT toe te passen in mijn onderwijs, zoals de organisatie dat van mij verwacht.
- Ik beschik over voldoende kennis, inzicht en vaardigheden voor het inzetten van ICT in mijn onderwijs
- Ik ben voldoende toegerust om waar te maken wat de organisatie van mij verwacht.

Algemene opmerkingen over dit deel van de quick scan

- Er zitten een aantal dubbelingen in
- Soms wordt ICT genoemd, soms ICTO
- Je mag denk ik niet verwachten dat een docent gaat inzoomen op kwesties als huisvesting versus beleid en eigen toepassing
- Ik weet niet welke vragen er nog meer komen maar zou je niet hier al een rubricering willen hanteren (DLO- toetsen - streaming video, etc.)
- Gebruik je dit instrument bottom-up (genereren van ideeën, wat is daarvoor nodig?) of juist top-down

Algemene opmerking: stellingen formuleren als 'mijn onderwijs' of 'het onderwijs'.

Dus persoonlijk, het onderwijs van die ene docent of het onderwijs in het algemeen.

Vraag 2

Bent/wordt u voorbereidt, getraind en/of geschoold voor het waarmaken van het ICT-beleid?

- Ik ben voldoende voorbereid om ICT toe te passen in mijn onderwijs
- ik ben goed voorbereid, getraind en/of geschoold voor het waarmaken van het ICT-beleid.
- Ik weet hoe ik ICT moet toepassen in mijn colleges
- Ik voel me voldoende voorbereid, getraind en/of geschoold om ICT in het onderwijs toe te passen.
- (kan dus persoonlijke voorbereiding zijn, informeel leren of reguliere scholing/training. De vraag is hoe men die verschillen zelf waardeert...)
- Ik ben voldoende voorbereid, getraind en/of geschoold.
- (opm.) Voorbereid, trainen en scholen zijn 3 vragen in 1. Splits dit.
- (opm.) Waarmaken is een beladen term; vervangen door 'uitvoeren'.
- [drie-in-een vraag]
- [waar gaat het om? Dat je door de organisatie bent geschoold? / geïnformeerd over het ICT beleid / of dat je voldoende bent voorbereid/bagage hebt om ICT toe te passen?]
- Ik heb trainingen gevolgd over het toepassen van ICT in mijn onderwijs.
- Ik heb lunchlezingenworkshops/trainingen [mogelijkheid om hier per organisatie wat je aanbiedt te bevragen] gevolgd binnen de organisatie over hoe ICT toe te passen in mijn onderwijs.
- Ik weet wat de organisatie van mij verwacht op het gebied van ICT in het onderwijs
- Ik heb voldoende mogelijkheden om me voor te bereiden/trainen/scholen in het gebruik van ICT in mijn onderwijs, zoals de organisatie van mij verwacht
- Ik ben voldoende voorbereid/getraind/geschoold in het gebruik van ICT in mijn onderwijs, zoals de organisatie van mij verwacht

Vraag 3

Wordt u door de organisatie met technisch advies ondersteund, voor het waarmaken van het ICT-beleid?

- Ik krijg voldoende technische ondersteuning voor het toepassen van ICT in mijn onderwijs
- Ik word voldoende ondersteund met technisch advies.
- weglaten: waarmaken van..
- Ik krijg als ik daar behoefte aan heb voldoende technisch advies om het geen van mij verwacht wordt waar te maken.

- Er is voldoende technisch advies en ondersteuning binnen de organisatie beschikbaar om ICT toe te passen in het onderwijs.
- Binnen de organisatie is technisch advies beschikbaar als ik ICT wil toepassen in mijn onderwijs.
- Ik krijg vanuit de organisatie voldoende technische ondersteuning om ICT in mijn onderwijs toe te passen zoals de organisatie dat van mij verwacht
- Er is voldoende onderwijskundige ondersteuning beschikbaar om ICT goed in het onderwijs toe te passen. (Stukje over relatie "ICT in onderwijs toepassen" en "ICT beleid van de organisatie " in inleiding)
- Ik kan gebruik maken van de afdeling ICT voor technisch advies [of benoemen per organisatie, wat je aanbiedt] als ik dat nodig heb.
- [of wil je weten of iemand dat heeft gedaan het afgelopen jaar?]
- Ik krijg voldoende technisch advies om ICT in mijn onderwijs goed in te zetten

Vraag 4

Wordt u door de organisatie met onderwijskundig advies ondersteund, voor het waarmaken van het ICT-beleid?

- Ik krijg voldoende onderwijskundige ondersteuning voor het inzetten van ICT in mijn onderwijs
- weglaten: waarmaken van...
- Je kunt niet een docent verantwoordelijk maken voor het realiseren van beleid
- Ik word door de organisatie ondersteund met onderwijskundig advies
- Ik heb veel aan de onderwijskundige ondersteuning, om ICT zo in te zetten zoals het verwacht wordt.
- Kunt u binnen uw organisatie terecht voor onderwijskundig advies als u ICT wil toepassen in uw onderwijs.
- Ik krijg voldoende onderwijskundige ondersteuning bij de toepassing van ICT in mijn onderwijs, zoals door de organisatie van mij wordt verwacht
- idem
- Ik kan binnen de organisatie met onderwijskundig advies ondersteund worden als ik daar behoefte aan heb.

Vraag 5

Zijn de collega's die u ondersteunen met onderwijskundig advies en hulp naar uw mening competent, voor het waarmaken van het ICT-beleid ?

- De collega's die mij met onderwijskundig advies ondersteunen verstaan hun vak
- beleid weglaten..
- De onderwijskundige adviezen die ik krijg zijn voor mij waardevol, om
- De onderwijsondersteuners en ICTO-ers zijn in staat u effectief en efficiënt te ondersteunen bij het gebruik van ICT in het onderwijs.
- 'Waarmaken van ICT-beleid' zou ik vervangen door: toepassen van ICT in mijn onderwijs.
- Het onderwijskundig advies is van voldoende kwaliteit.
- De onderwijsadviseurs die mij adviseren/ondersteunen bij het toepassen van ICT in mijn zijn hiervoor voldoende competent
- De collega's die mij ondersteunen met onderwijskundig advies over ICT in het onderwijs zijn competent of Ik krijg goede onderwijskundige adviezen over ICT in het onderwijs van collega's die daarvoor zijn aangesteld.
- [moet je wel ooit advies hebben gehad.
- Dus gaat een vraag aan vooraf: Heb je het afgelopen jaar onderwijskundige adviezen gekregen over ICT in het onderwijs?
- Indien ja:
- Ik ben tevreden over de kwaliteit van het onderwijskundig advies over ICT in het onderwijs..

Vraag 6

Krijgt u de tijd, voor het waarmaken van het ICT-beleid?

- Ik krijg voldoende tijd om (nieuwe?) ICT-toepassingen in te zetten in mijn onderwijs
- krijgt u tijd voor de toepassing van ICTO..
- Ik krijg voldoende tijd om ICT in mijn onderwijs toe te passen.

- Ik krijg apart tijd voor het toepassen van ict in mijn onderwijs, om te realiseren wat men van mij wil.
- Deze tijd is gewoon onderdeel van mijn lesvoorbereiding
- Ik krijg voldoende tijd voor het toepassen van ICT in mijn onderwijs.
- ik krijg de tijd die nodig is om de verwachtingen van de instelling waar te maken.
- Ik heb voldoende tijd beschikbaar om ICT toe te passen in mijn onderwijs zoals de organisatie van mij verwacht.
- Ik heb voldoende tijd om ICT toe te passen in mijn onderwijs zoals de organisatie van mij verwacht.
- Of ik krijg voldoende tijd om te experimenteren met ICT in mijn onderwijs
- [tijd waarvoor? Extra tijd om te implementeren, om ermee te experimenteren? Kost ICT de docent extra tijd? Wat is de perceptie van tijd in relatie met ICT voor de docent?]
- Binnen mijn reguliere taken heb ik voldoende tijd om ICT goed in mijn onderwijs in te zetten

Vraag 7

Beschikt u over digitaal onderwijs- en leermateriaal voor het waarmaken van het ICT-beleid?

Voor de manier waarop ICT binnen mijn onderwijs wil inzetten, heb ik voldoende digitaal leermateriaal?

Voor de manier waarop ik geacht wordt ICT binnen mijn onderwijs in te zetten, beschik ik over voldoende (het juiste?) digitaal leermateriaal?

- een lastige....
- Iedereen heeft digitaal materiaal
- Maar is dit voldoende kwalitatief en kwantitatief
- Ik kan over voldoende digitaal onderwijs en leermateriaal beschikken om ICT in het onderwijs toe te passen.
- Ik kan uit voldoende digitale bronnen beschikken, voor
- ik beschik over voldoende digitaal onderwijs- en leermateriaal
- Ik heb voldoende beschikking over digitaal onderwijs- en leermateriaal om ICT in mijn onderwijs toe te passen.
- Ik beschik over voldoende digitaal onderwijs- en leermateriaal om ICT toe te passen in mijn onderwijs, zoals de organisatie van mij verwacht.
- [?? gaan we ervan uit dat de docent zijn materiaal zelf maakt of zoekt op Internet, databases etc.?]
- Hoeveel procent van uw onderwijs- en leermateriaal is digitaal beschikbaar?
- Al mijn onderwijs- en leermateriaal is digitaal beschikbaar.
- [voor het waarmaken van het ICT beleid hangt er hier vreemd achteraan.]
- In deze organisatie moet alle onderwijsmateriaal digitaal beschikbaar zijn.
- Ik vind dat er voldoende digitaal onderwijs-leermateriaal beschikbaar is.
- (ja, maar gebruik ik het ook?)

Vraag 8

Beschikt u over de software voor het maken van digitaal onderwijs- en leermateriaal voor het waarmaken van het ICT-beleid?

- Voor de manier waarop ik geacht wordt ICT binnen mijn onderwijs in te zetten, beschik ik over voldoende (het juiste?) digitaal leermateriaal
- Voor de manier waarop ik geacht wordt ICT binnen mijn onderwijs in te zetten, beschik ik over voldoende (de juiste?) (toepassings?)software
- beleid weg..
- vraag moet zijn: de juiste software
- Ik beschik over alle noodzakelijke software applicaties voor het realiseren van onze doelstellingen
- Ik beschik over voldoende software voor het maken van digitaal onderwijs- en leermateriaal
- Ik beschik over de juiste software om digitaal onderwijs- en leermateriaal te ontwikkelen.
- Er is software voor het maken van digitaal onderwijs- en leermateriaal voor mijn onderwijs beschikbaar.
- Ik maak gebruik van software (zoals ...voorbeelden noemen) voor het ontwikkelen van digitaal onderwijsmateriaal.
- [of als je wilt weten of ze erover kunnen beschikken:]

- Ik kan gebruik maken van in de organisatie aanwezige software (zoals) voor het ontwikkelen van mijn onderwijs.
- [weer vind ik 'voor het waarmaken van het ICT-beleid' hier vreemd staan]
- Voor het maken van digitaal leermateriaal heb ik de juiste hulpmiddelen

Vraag 9

Heeft u toegang tot een digitale bibliotheek uitgerust met te raadplegen en te downloaden materialen (boeken, artikelen en onderzoeksresultaten) voor het waarmaken van het ICT-beleid?

- De (digitale?) bibliotheek ondersteunt mij voldoende bij het inzetten van ICT in mijn onderwijs
- weglaten: beleid
- Ook dit specifieker: 'op uw vakgebied' of zoiets
- Ik heb toegang tot voldoende digitale leermiddelen en achtergrond informatie om ICT in mijn onderwijs goed toe te passen
- ik heb toegang tot een digitale bibliotheek met relevante materialen (boeken, artikelen en onderzoeksresultaten)
- // zie 7
- // materialen? over de toepassing van ict of gewoon vakinhoudelijke materialen?
- Ik kan gebruik maken van een digitale bieb, die mij toegan tot nuttig materiaal geeft.
- Ik maak gebruik van een digitale bibliotheek om onderwijsmaterialen te downloaden ten behoeve van mijn onderwijs
- Ik heb toegang tot een digitale bibliotheek om ICT toepassingen te raadplegen en materialen (zoals onderzoeksresultaten) te downloaden voor mijn onderwijs.
- [het moet wel duidelijk zijn of het hier om een leermiddelen bibliotheek gaat (repository voor onderwijsmateriaal) of een gewone bibliotheek??] [relatie met het onderwijs moet worden gelegd] [misschien beetje achterhaalde vraag als je het zo stelt: iedere onderwijsinstelling heeft een digitale bibliotheek, wil je weten of daarin voldoende materiaal op zijn/haar vakgebied te vinden is?]
- Ik heb toegang tot een digitale bibliotheek met te downloaden boeken en artikelen die ik kan gebruiken in mijn onderwijs.
- Voor het inzetten van ICT binnen mijn onderwijs is er voldoende digitaal materiaal waarop ik kan terugvallen, zoals boeken, artikelen, onderzoeksresultaten etc.

Vraag 10

Beschikt u over (toepassingen) software die uw onderwijs ondersteunt voor het waarmaken van het ICT-beleid

- voor uw onderwijs
- Er zijn voldoende applicaties/software beschikbaar om ICT in mijn onderwijs goed te passen
- Ik maak gebruik van (toepassingen) software binnen mijn onderwijs
- // applicaties?, simulaties?, cijfer registratie?, elo's ed
- Ik beschik over voldoende educatieve software, voor het behalen van onze doelstelling.
- lastige vraag. weet niet wat 'toepassingssoftware' is: dus voorbeeld geven van toepassingssoftware
- ... ja, ik beschik erover, maar werkt het, kun je er iets mee of is het er gewoon?
- (opm.) Welke verschil is er met vraag 8?
- [Toepassingssoftware, is mij niet duidelijk wat je hier precies mee bedoelt, BB, BB+, de software die de instelling aanbiedt? software die de instelling niet ondersteunt]
- 'die uw onderwijs ondersteunt'
- Ik maak gebruik van de elektronische leeromgeving op een manier zoals de instelling dat van mij verwacht.
- [of wil je weten of de respondent weet of het er is, maar ik kan me niet voorstellen dat dat ene interessante vraag is.]:
- Ik heb de beschikking over een elektronische leeromgeving bij de instelling waar ik werk.
- Voor het inzetten van ICT binnen mijn onderwijs heb ik de beschikking over voldoende ICT-tools en software

Vraag 11

Beschikt u over handleidingen voor het werken met de voor uw onderwijs handige of noodzakelijke ICT-hulpmiddelen voor het waarmaken van het ICT-beleid?

- Bij de ICT-middelen die ik gebruik voor mijn onderwijs zitten adequate handleidingen
- Er zijn voldoende handleidingen voor het werken met ICT toepassingen beschikbaar voor mijn onderwijs
- // KAn wel beschikken maar zijn ze ook te gebruiken is veel belangrijker.
- Ik beschik over handleidingen die mij verder helpen. bij de toepassing van ict, voor het behalen van onze doelstellingen
- Ik beschik over voldoende handleidingen om de ICT middelen noodzakelijk voor mijn onderwijs te kunnen inzetten
- Ik heb voldoende toegang tot hulpmiddelen zoals om ICT in mijn onderwijs in te zetten
- Ik heb voldoende ondersteunend materiaal dat dienst als hulpmiddel voor ICT-gebruik in mijn onderwijs
- Het gaat om de helpfunctie en de vraag is of de 'handleiding' de gedoodverfde hulp is. er zijn meer mogelijkheden en middelen
- (opm.) Splts vragen in 2; enerzijds een vraag over handleidingen; anderzijds een vraag over ICT hulpmiddelen.
- Er zijn handleidingen beschikbaar om info over ICT toepassingen te raadplegen.
- Ik heb de beschikking over handleidingen voor alle ICT onderwijstools die de organisatie ondersteunt.

Vraag 12

Heeft u toegang tot hulpmiddelen als stappenplannen, best practices, templates, resultaten van pilots voor de inzet van ICT voor het waarmaken van het ICT-beleid?

- Als ik ICT wil toepassen in mijn onderwijs dan heb ik de beschikking over best practices, stappen plannen, templates etc.
- Ik ben op de hoogte van beschikbare handleidingen, best practices, templates en resultaten van pilots. om te gebruiken bij het vormgeven van ICT in mijn onderwijs
- De technische ondersteuners beschikken over voldoende tijd om mij te ondersteunen bij het inzetten van ICT in mijn onderwijs
- ik heb toegang tot hulpmiddelen (....)
- ik gebruik die hulpmiddelen
- // van belang is te weten waar ik dit soort hulpmiddelen vandaan haal en of ze relevant zijn voor mij.
- Ik heb veel aan resultaten van afgeronde projecten en ondersteunend materiaal bij de toepassing van ict in mijn college.
- (opm.) Maak er een meerkeuzevraag van:
- Voor het toepassen van ICT in mijn onderwijs heb ik toegang tot de volgende hulpmiddelen:
 - stappenplannen
 - best practices
 - templates
 - resultaten van pilots
- Ik kan gebruik maken van ...
- Ik heb de beschikking over...
- [en dan noemen wat je wilt weten; Resultaten van pilots en best practices kun je samenvoegen] [stappenplannen voor de implementatie van ICT??? Templates voor wat?]

Vraag 13

Beschikken de mensen die u technisch moeten ondersteunen over de tijd voor het geven van advies en hulp voor het waarmaken van het ICT-beleid?

- De mensen die mij met technisch advies ondersteunen verstaan hun taak / weten waar ze het over hebben
- deze vraag weglaten
- alleen 13
- De mensen (collega's?) die mij met technisch advies ondersteunen hebben daarvoor voldoende tijd
- De technische ondersteuners beschikken over voldoende tijd om mij te ondersteunen bij het inzetten

- van ICT in mijn onderwijs
- De mensen die mij technisch ondersteunen bij de inzet van ICT in mijn onderwijs beschikken over voldoende tijd om dit te doen.
- Ik heb voldoende technische ondersteuning (tijd is 1 element, maar er zijn nog andere criteria zoals kwaliteit, effectiviteit)
- Collega's die mij technisch ondersteunen bij de toepassing van ICT nemen voldoende tijd voor mij, voor het behalen van de doelstellingen
- vraag ertussen? : kent u...
- [maken voldoende tijd voor mij vrij? of: op het juiste moment] De collega's die mij technisch ondersteunen hebben de tijd om mij te helpen op het moment dat ik dat nodig heb
- er is specifieke ICT-expertise beschikbaar

Vraag 14

Beschikken de mensen die u technisch moeten ondersteunen over de kennis, inzicht en vaardigheden voor het geven van advies en hulp voor het waarmaken van het ICT-beleid?

- beleid weglaten
- De mensen (collega's?) die mij met technisch advies ondersteunen weten waar ze het over hebben / verstaan hun vak / zijn deskundig
- De technische ondersteuners beschikken over voldoende "know how" om mij te ondersteunen bij het inzetten van ICT in mijn onderwijs
- De technische ondersteuning beschikt over voldoende kennis, inzicht en vaardigheden
- ...maar zijn ze ook klantvriendelijk of moeten we dat scharen onder 'vaardigheden
- De mensen die mij technisch ondersteunen bij het gebruik van ICT in mijn onderwijs beschikken over voldoende kennis en vaardigheden om dit adequaat te kunnen doen
- Ik leer veel van de mensen die mij technisch ondersteunen en zorgen dat ik weer verder kan.

Vraag 15

Beschikken de mensen die u onderwijskundig moeten ondersteunen over tijd voor het geven van hulp en advies voor het waarmaken van het ICT-beleid?

- De mensen (collega's?) die mij met onderwijskundig advies ondersteunen hebben daarvoor voldoende tijd.
- De onderwijskundige ondersteuners beschikken over voldoende "know how" om mij te ondersteunen bij het inzetten van ICT in mijn onderwijs.
- De mensen die mij onderwijskundig ondersteunen bij het inzetten van ICT in mijn onderwijs beschikken over voldoende tijd om dit te doen.
- De mensen die mij moeten ondersteunen beschikken over voldoende tijd voor het geven van
 1. Ik word overgoten met adviezen over de inzet van ict, door de onderwijskundige collega's
 2. Ik heb veel aan de onderwijskundige adviezen die ik krijg van mijn collega's
 3. Onderwijskundige adviseurs nemen voldoende tijd voor mij.
- De collega's die mij met onderwijskundig advies over ICT in het onderwijs moeten ondersteunen hebben tijd om mij te helpen op het moment dat ik dat nodig heb.
- [NB: moetne er wel collega's zijn die daarvoor zijn aangesteld / wat wil je weten"just in time of hebben ze voldoende tijd]

Vraag 16

Beschikken de mensen die u onderwijskundig moeten ondersteunen over de kennis, inzicht en vaardigheden voor het geven van advies en hulp voor het waarmaken van het ICT-beleid?

- weglaten:beleid
- De mensen (collega's?) die mij met onderwijskundig advies ondersteunen weten waar ze het over hebben / verstaan hun vak / zijn deskundig
- Ik heb toegang tot voldoende interne en externe expertise om ICT goed in mijn onderwijs in te zetten
- De mensen die mij onderwijskundig ondersteunen bij de inbedding van ICT in mijn onderwijs beschikken over voldoende kennis, inzicht en vaardigheden om dit adequaat te doen
- Er zijn voldoende kennis, inzicht en vaardigheden om mij onderwijskundig te ondersteunen.

- De onderwijskundige ondersteuning beschikt over de kennis, zinsinhoud en vaardigheden
- (opm.) Maak er 2 vragen van: interne en externe expertise.
- Binnen mijn eigen organisatie kan ik terecht voor vragen over het toepassen van ICT in mijn onderwijs.
- Onderwijskundig adviseurs helpen mij vaak weer verder, bij de integratie van ict binnen mijn lessen. voor het behalen van de doelstellingen

Vraag 17

Biedt de organisatie u toegang tot interne en externe expertise voor het waarmaken van het ICT-beleid?

- ..voor het realiseren van ICTO
- deze vraag is volgens mij niet nuttig
- Voor vragen over de inzet van ICT binnen mijn onderwijs heb voldoende toegang tot interne en externe expertise
- Ik heb voldoende toegang tot interne en externe expertise om ICT in mijn onderwijs toepassen, zoals de organisatie dat van mij verwacht
- Ik heb toegang tot interne en externe expertise (is dit anders dan technische en onderwijskundige expertise).
- Ik heb zelf mijn interne en externe netwerk voor het verkrijgen van expertise., voor het behalen van de doelstellingen
- intern en extern twee verschillende vragen?
- [twee in een vraag, in ieder geval interne en externe expertise onderscheiden]
- [toegang?] [wat wil je weten: of de docent weet dat er een speciale afdeling is? /persoon?]
- Ik kan gebruik maken van interne expertise op het gebied van ICT in het onderwijs als ik dat nodig heb.
- en: Ik kan externe expertise inhuren op het gebied van ICT in het onderwijs als ik dat nodig heb.

Vraag 18

Voor het waarmaken van het ICT-beleid is er rekening gehouden met de inrichting en indeling van de huisvesting?

- De inrichting van de huisvesting past bij de manier waarop we ICT binnen het onderwijs zullen inzetten
- ik heb geen beeld bij deze vraag
- Binnen de fysieke leeromgeving is qua inrichting en uitrusting voldoende rekening gehouden met ICT voorzieningen
- De inrichting van het gebouw is voldoende geschikt om ICT in mijn onderwijs toe te passen, zoals de organisatie dat van mij verwacht
- De inrichting en indeling van de huisvesting is ICT-vriendelijk
- In de inrichting en verdeling van de huisvesting is voldoende rekening gehouden met het toepassen van ICT in onderwijs.
- De leeromgeving van de student en het gebruik van ICT zijn voldoende op elkaar afgestemd, voor het behalen van de doelstellingen
- De huisvesting is zo ingericht dat we optimaal gebruik kunnen maken van ICT in het onderwijs
- [wel erg algemeen, bv wel geschikt voor PP presentaties, maar niet voor laptops]
- Met de inrichting en indeling van het gebouw [of bedoel je lokalen?] is er rekening gehouden met het gebruik van ICT in het onderwijs zoals dat nu plaatsvindt.
- Er is voldoende rekening gehouden met de inrichting van lokalen voor de ICT tools zoals die op dit moment gebruikt worden in het onderwijs.

Vraag 19

Voor het waarmaken van het ICT-beleid is er rekening gehouden met de inrichting van de processen en procedures?

- De afspraken (?) / processen/procedures (?) binnen onze organisatie passen bij de manier waarop we ICT binnen het onderwijs willen inzetten.
- We hebben de processen binnen onze organisatie zo ingericht dat ze passen bij de manier waarop we ICT binnen het onderwijs willen inzetten.
- Opmerking: blijft een lastige vraag.

- Die vind ik heel moeilijk (Nico) Processen worden vaak ondersteund f gerealiseerd m.b.v ICT en zijn vaak een ICT doel op zich. De vraag interessant wie dat het meeste baat bij heeft.
- De inrichting en beheerstructuur werkt in mijn voordeel bij het inzetten van ICT in mijn onderwijs....
- wat wordt precies bedoeld met inrichting van processen en procedures??
- De inrichting van de processen en procedures houdt rekening met de ICT-eisen
- (opm.) "De processen en procedures" is een zeer brede omschrijving. Wat wordt precies bedoeld???
- //wat?
- Als ik ICT wil gaan toepassen in mijn onderwijs weet ik waar ik aan moet voldoen en bij wie ik moet zijn.
- De organisatie is zo ingericht dat we ICT optimaal kunnen inzetten in het onderwijs (denk aan processen en procedures)
- [voor het toepassen van ICT in het onderwijs zoals de organisatie van mij verwacht'= als alternatief voor: het waarmaken van het ICT beleid]
- [erg abstract processen en procedures; ik moet nu luisteren...;-) we gaan weer centraal]

Vraag 20

Voor het waarmaken van het ICT-beleid is er rekening gehouden met de verdeling van taken en bevoegdheden?

- Bij de verdeling van taken en bevoegdheden binnen onze organisatie is rekening gehouden met de manier waarop we ICT in het onderwijs willen inzetten.
- Opm: taken weglaten?
- Ik beschik over voldoende bevoegdheden om beslissingen te nemen over het toepassen van ICT binnen mijn onderwijs ?????
- Mijn opleidingsdirecteur beschikt over voldoende bevoegdheden om beslissingen te nemen over het toepassen van ICT binnen het onderwijs
- De verdeling van taken en bevoegdheden rond het gebruik en de inzet van ICT is mij helder.
- De verdeling van taken en bevoegdheden ten aanzien van wat?
- De verdeling van taken en bevoegdheden zijn afgestemd op het gebruik van ICT
- //vaag ICT is altijd een onderdeel van
- Het is voldoende duidelijk wie wat moet doen om ict te gaan toepassen in het onderwijs, voor het halen van onze ICTdoelstellingen
- De taken en bevoegdheden zijn zo verdeeld dat we ICT optimaal kunnen inzetten binnen het onderwijs

Vraag 21

Voor het waarmaken van het ICT-beleid is er rekening gehouden met de inrichting van de beheerstructuur van ICT?

- Het beheer van de ICT-middelen is zo ingericht dat het de inzet van ICT in het onderwijs adequaat ondersteunt
- Wat wordt bedoeld met de inrichting van de beheersstructuur van ICT??
- de inrichting van de beheersstructuur is afgestemd op het gebruik van ICT
- Het is voldoende duidelijk wie wat beheerd, voor het behalen van onze ict doelstelling
- De ICT-middelen worden zodanig beheerd, dat we ICT optimaal kunnen inzetten in het onderwijs

Vraag 22

Voor het waarmaken van het ICT-beleid is er rekening gehouden met het beheer van de digitale content (leermateriaal, bibliotheek)

- De manier waarop het digitaal leermateriaal wordt beheerd past bij de manier waarop we ICT willen inzetten in het onderwijs.
- De manier waarop het digitaal leermateriaal ondersteunt mij bij het inzetten van ICT in mijn onderwijs.
- Het beheer en eigenaarschap van digitale content is goed geregeld
- Het delen van ervaringen op het gebied van ICT in het onderwijs vind plaats en heeft voor mij een toegevoegde waarde

- Ik ben op de hoogte van samenwerkingsverbanden op het gebied van ICT en Onderwijs en ik ben bekend met beschikbare diensten en projectresultaten
- beheer veranderen in opslaan en ontsluiten
- Het beheer van digitale content is bij mijn organisatie goed geregeld
- Het beheer van digitale content is geregeld.
- er is een eerdere vraag over 'bibliotheek'....
- // is dit anders dan gewoon beheer?
- Als ik digitale content ter beschikking van de organisatie wil stellen weet ik hoe ik dat moet doen, voor het behalen van onze doelstelling
- De digitale leermiddelen worden zodanig beheerd dat we ICT optimaal kunnen inzetten in het onderwijs

Vraag 23

In hoeverre is voor het realiseren van het ICT-beleid het volgende waargemaakt: standaarden en richtlijnen voor de inzet van ICT?

- De standaarden en richtlijnen voor de inzet van ICT passen bij de manier waarop ik ICT binnen mijn onderwijs wil inzetten.
- De standaarden en richtlijnen voor de inzet van ICT ondersteunen mij bij het inzetten van ICT binnen mijn onderwijs.
- Ik ben voldoende op de hoogte van standaarden en richtlijnen die binnen mijn organisatie worden gehanteerd voor de inzet van ICT in het onderwijs
- Er zijn voldoende standaarden en richtlijnen voor ICT-gebruik.
- Dit lijkt me een hele moeilijke voor docenten, de richtlijnen gaat nog maar standaarden?.... doc, pdf, scorm, dublin core?
- Bij de inzet van ict moet ik me aan de afgesproken standaard houden, voor het
- Er zijn standaarden en richtlijnen gemaakt die de inzet van ICT in het onderwijs ondersteunen

Vraag 24

In hoeverre is voor het realiseren van het ICT-beleid het volgende waargemaakt: formele evaluatie van ICT in het onderwijsproces?

- De manier waarop de inzet van ICT in het onderwijs wordt geëvalueerd past bij de manier waarop ik ICT binnen mijn onderwijs wil inzetten.
- De manier waarop de inzet van ICT wordt geëvalueerd ondersteunt mij bij het inzetten van ICT binnen mijn onderwijs
- De manier waarop ik ICT in mijn onderwijs gebruikt, wordt voldoende meegenomen in de evaluaties van mijn onderwijs
- Toepassingen van ICT in het onderwijs komen terug in evaluaties.
- ICT is geïntegreerd in de formele evaluatie
- Een nieuwe ict toepassing voor het onderwijs wordt na afloop altijd geëvalueerd
- Of is ICT als indicator meegenomen in de formele onderwijs evaluaties?
-

Vraag 25

In hoeverre is voor het realiseren van het ICT-beleid het volgende waargemaakt: delen van ervaringen van het gebruik van ICT in het onderwijs?

- belangrijke vraag!
- De manier waarop wij ervaringen delen helpt mij bij het inzetten van ICT binnen mijn onderwijs.
- Ik heb voldoende mogelijkheden om het gebruik van ICT in mijn onderwijs met collega's te delen
- Er is voldoende uitwisseling van gebruikerservaringen
- De manier waarop wij kennis en ervaringen delen zorgt voor een optimale inzet van ICT in het onderwijs
- 1. Ik deel mijn ervaringen op het gebied van ict en onderwijs altijd met mijn directe collega's
- 2. Voor het delen van ervaringen hebben wij regelmatig overleg
- 3. Onze ervaringen met ict en onderwijs leggen we vast, zodat deze gedeeld kan worden

Vraag 26

In hoeverre is voor het realiseren van het ICT-beleid het volgende waargemaakt: samenwerkingsverbanden met andere (onderwijs-) instellingen en met overkoepelende instellingen (Surf, onderwijsconsortia)?

- Samenwerkingsverbanden zoals bijvoorbeeld binnen SURF of E-merge zijn belangrijk voor de inzet van ICT binnen mijn onderwijs.
- Samenwerkingsverbanden zoals bijvoorbeeld binnen SURF of E-merge hebben een toegevoegde waarde voor de inzet van ICT binnen mijn onderwijs.
- Ik ben van mening dat er binnen de organisatie voldoende samenwerkingsverbanden zijn met andere (onderwijs) instellingen en overkoepelende instellingen om de inzet van ICT in het onderwijs door docenten te stimuleren
- Er zijn voldoende samenwerkingsverbanden met andere onderwijs- en overkoepelende onderwijsinstellingen
- De manier waarop wij met andere (onderwijs-)instellingen samenwerken zorgt voor een optimale inzet van ICT in het onderwijs
- Ik maak zelf gebruik van samenwerkingsverbanden, voor het realiseren van de ICTdoelen

Vraag 27

In hoeverre is voor het realiseren van het ICT-beleid het volgende waargemaakt: Formele communicatie omtrent ICT in het onderwijs?

- informele communicatie net zo belangrijk
- De communicatie over ICT binnen onze organisatie helpt mij bij het inzetten van ICT binnen mijn onderwijs.
- De communicatie over ICT binnen onze organisatie is belangrijk voor het inzetten van ICT binnen mijn onderwijs.
- De formele communicatie rond het gebruik van ICT is helder en duidelijk
- ER is formele communicatie over ICT in het onderwijs
- De manier waarop wij communiceren over de inzet van ICT in het onderwijs helpt mij bij mijn eigen inzet van ICT
- In mijn organisatie is de communicatie rondom ICT in het onderwijs goed georganiseerd.
- Wij houden structureel overleg over de inzet van ict in het onderwijs, voor het behalen van onze ICT doelstelling

Vraag 28

In hoeverre is voor het realiseren van het ICT-beleid het volgende waargemaakt: onderwijskundige expertise voor de inzet van ICT binnen het onderwijs?

- weglaten: overlapt teveel met vraag 14 en 15
- Er is voldoende onderwijskundige expertise binnen onze organisatie om op terug te vallen als ik vragen heb over de inzet van ICT in mijn onderwijs
- Er is voldoende expertise beschikbaar om het ICT beleid te realiseren
- Er is voldoende specifieke ICT expertise beschikbaar om het ICT beleid te realiseren
- Al in andere vorm elders gevraagd
- Onze organisatie heeft voldoende expertise in huis voor het waarmaken van de doelstellingen

Vraag 29

In hoeverre is voor het realiseren van het ICT-beleid het volgende waargemaakt: specifieke ICT-expertise voor de inzet van de ICT binnen het onderwijs?

- weglaten
- overlapt met eerdere vragen (12-13)
- Er is voldoende ICT-expertise binnen onze organisatie om op terug te vallen als ik vragen heb over de inzet van ICT in mijn onderwijs
- wat wordt bedoeld met specifieke ICT expertise? Is dit technisch expertise?

Vraag 30

In hoeverre is voor het realiseren van het ICT-beleid het volgende waargemaakt: structuur voor het vastleggen en onderhouden van kennis over het toepassen van ICT binnen het onderwijs?

- kijk goed naar overlap met eerdere vragen
- Als ik iets wil weten over het inzetten van ICT in mijn onderwijs, kan ik terugvallen kennis die al eerder is opgedaan
- De organisatie stelt op een gestructureerde manier voldoende kennis beschikbaar over het toepassen van ICT in het onderwijs
- Er is een goede structuur voor het delen van kennis over het toepassen van ICT

-
- De manier waarop wij kennis vastleggen en onderhouden helpt bij het inzetten van ICT in mijn onderwijs

Vraag 31

In hoeverre is voor het realiseren van het ICT-beleid het volgende waargemaakt: structuur voor het delen van kennis over het toepassen van ICT binnen het onderwijs?

- Volgens mij is er een duidelijke structuur voor het delen van kennis en ervaringen over het toepassen van ICT in het onderwijs
- Wij leggen de kennis en inzichten die we opdoen met de inzet van ICT in het onderwijs op een goede manier vast
- Binnen de organisatie vinden activiteiten plaats met als doel het delen en uitwisselen van kennis over het toepassen van ICT in het onderwijs.
- Binnen de organisatie wordt op een gestructureerde manier aan kennisdeling over toepassing van ICT in het onderwijs
- er is een goed structuur voor het delen van kennis over ICT-toepassingen
- De manier waarop wij kennis delen, helpt bij het optimaal inzetten van ICT in het onderwijs

Vraag 32

In hoeverre is voor het realiseren van het ICT-beleid het volgende waargemaakt: beoordelings- en promotiebeleid waarbij kennis en ervaring met ICT in het onderwijs een rol speelt?

- hele belangrijke vraag!!
- Bij de beoordeling en promotie van medewerkers speelt hun inzet en kennis van ICT een belangrijke rol.
- In personeelsbeoordelingen wordt rekening gehouden met kennis van en ervaring met het toepassen van ICT in het onderwijs.
- De manier waarop ik ICT in mijn onderwijs toepas, wordt voldoende meegenomen in het beoordelings- en promotiebeleid van de organisatie
- Bij de beoordelingsprocedures spelen de ervaring en kennis met ICT een rol

Vraag 33

In hoeverre is voor het realiseren van het ICT-beleid het volgende waargemaakt: Samenhang tussen ICT-gerelateerde projecten en activiteiten?

- Weglaten
- ik zie het verschil niet met vraag 28
- in deze en andere vragen wordt vaak gesproken over ICT ipv ICTO
- ICT is ook beveiliging, netwerken, kantoorsoftware, etc
- Ik heb het idee dat er een samenhangend beleid is rond ICT gerelateerde projecten.
- Onze organisatie zorgt er voor dat er samenhang is tussen de verschillende ICT-projecten
- Binnen de organisatie wordt voldoende aandacht besteed aan de samenhang en synergie tussen ICT gerelateerde projecten
- Er is samenhang tussen ICT-gerelateerde projecten en activiteiten
- De manier waarop de verschillende initiatieven rond ICT op elkaar worden afgestemd helpt voor een optimale inzet van ICT in het onderwijs

Appendix 5: Expertsessies GDR 3

Uitkomsten begrip validatie Docenten TBM Delft:

Derde GDR Sessie TU-Delft

Projectleden	Pieter de Vries Harm Weistra Robert Koerts	Projectleider Onderzoeker/specialist Student parttime	TU-Delft Edutec Universiteit Leiden / Weistra consult TU-Delft TBM
Genoeg respondenten krijgen	Ellen Sjoer Ubacht, Jolien Bogaard, Maartje van den Gwen Kolfschoten Zanden, Piet van der	TU Delft TBM TU Delft TBM TU Delft TBM TU Delft TBM TU Delft TBM	
Chauffeur	Marcel van der Vos	TU-Delft	
Locatie	TU Delft Faculteit Techniek, Bestuur en Management (TBM) Jaffalaan 5 2628 BX Delft		
Doel van de sessie	Het evalueren van de conceptvragenlijst door een groep TBM docenten. De vragenlijst zal geëvalueerd worden aan de hand van een try-out formulier. Het belang van deze evaluatie is te komen tot een begripsvalidatie van de vragenlijst. De centrale vraag hierbij is of de gestelde vragen zodanig zijn opgesteld dat de respondenten hier de zelfde betekenis aangeeft zoals het ontwikkelteam dit voor ogen had.		
Inleiding	De hoofddoelstelling van de vragenset wordt nogmaals uitgelegd. <i>Hoe kan het management van een onderwijsorganisatie meer inzicht krijgen in de drijfveer van het onderwijzend personeel bij de inzet van ICT in het onderwijsleerproces, om zodoende gerichter te kunnen sturen op het realiseren van de eigen doelstellingen op het gebied van ICT gebruik in het primaire onderwijsproces.</i> Met deze doelstelling in het hoofd zullen vijf docenen de concept vragenlijst te gaan maken en deze evalueren aan de hand van een try-out formulier.		
14:00 uur	Start, bij de start zijn er een aantal vragen van het expertpanel: Onderwerp: We moeten vaststellen wat we precies onder ICT in het Onderwijs verstaan. - Wat is nog het te onderscheiden deel als iedereen Word en powerpoint gebruikt en willen we niet juist de toepassing in het onderwijs zien. - Is hier sprake van een alignment model Uitleg over het nut van de scan en de relevantie voor de respondenten - Wat heb ik hier aan en wat levert het mij op. - Aangeven dat er een terugmelding over de resultaten is of komt is zinvol. Vanuit de instelling of vanuit mijzelf het onderscheid wordt niet consequent gehanteerd. - Eerst maar vanuit de docent gaan afnemen?		
14:30 uur	Het expertpanel wordt gevraagd de conceptvragenlijst te maken.		
14:50 uur	Het expertpanel heeft de vragenlijst gemaakt en zal aan de hand van het try-out formulier de volgende vragen gaan beantwoorden. (deze verloopt plenair via het GDR systeem) De zojuist ingevulde vragenlijst is bedoeld om zicht te krijgen op de vraag in hoeverre de organisatie de gewenste/verwachte inzet van ICT in het onderwijs kan waarmaken. Wilt u met dat doel in uw achterhoofd onderstaande vragen invullen? Op basis van uw opmerkingen kunnen wij de vragenlijst bijstellen. NB U hoeft een vraag niet te beantwoorden als dat niet relevant is of als u er geen antwoord op hebt.		
Vraag 1	In hoeveel minuten heeft u de vragenlijst ongeveer ingevuld?		

	- gemiddeld 13,25 minuut.
Vraag 2	Is de inleidende tekst helder (aan het begin van de vragenlijst)? Zo nee, kunt u aangeven wat u verwarrend of onduidelijk vond? - Deze lees ik vaak niet - Duidelijk - Definitie van ICT wat wordt bedoeld, Primaire onderwijsproces?, kwaliteit van de inzet van ICT (bij ons in NL of de hele wereld) - Wel helder maar ook een beetje formeel
Vraag 3	Wat zou een reden kunnen zijn om de vragenlijst niet in te vullen? - Geen tijd geen zin - Tijdgebrek de zoveelste vragenlijst - Te lang te veel de zelfde vragen - ICT doet mij niets schrikt me af
Vraag 4	Zijn er vragen die u liever niet had ingevuld? Zo ja, welke? - Nee - De leeftijd ik zie geen relevantie - Suggestieve vragen - De vragen die begonnen met het opleidingsmanagement, die waren erg afstandelijk (4 D, E)
Vraag 5	Zijn er vragen die u vaker dan één keer moest lezen, om te begrijpen wat er wordt gevraagd, of die om een andere reden lastig was/waren om in te vullen? Zo ja, welke en waarom? - 5b docenten ruimtes, digitale leermiddelen, samenwerking? - Digitale bibliotheek onbekend begrip - Standaarden en richtlijnen is onbekend - 4b 8 voldoende hardware, 7 H
Vraag 6	Wat vindt u van de afwisseling in het soort vragen? - Oke - Het herhalen van de Bold instructies bij de aanvang categorie vervelend, Wij verzoeken u... - Beperkt, formulering vaak het zelfde - Prettig maar de lijst met stellingen 7 is erg lang
Vraag 7	Vindt u dat er voldoende antwoordmogelijkheden zijn bij de vragen? - Schaal naar 5 punten is oke - Ja - Nee soms behoefte aan weet niet - Ja
Vraag 8	Mist u vragen met betrekking tot de inzet van ICT? Zo ja, welke? - Vindt u ICT in het onderwijs van belang. - Is de inzet van ICT u de extra inspanning hiervoor wel waard - Gebruikt u regelmatig ICT middelen (ook privé) - Heeft u goed inzicht in waar ondersteuning ICT middelen ect te verkrijgen zijn? (de weg weten te vinden) - Beschikbaarheid zegt nog niets over het daadwerkelijk gebruik - Bij mensen: volgt u ook trainingen - Open vraag: heeft u nog meer nodig, dan wordt aangeboden. - Nee - Volgens mij wordt er niet echt gevraagd hoe ik ICT inzet
Vraag 9	Was er iets dat u stoorde in de vragenlijst? Zo ja, wat? - a,b,c,d, dikgedrukte regel - De leeftijd is niet van belang geen relevantie - Het continue herhalen van "de inzet van ICT in het onderwijs" - -Type fouten, en afstandelijke formulering.
Vraag 10	Is er iets dat u in het bijzonder aanspreekt in de vragenlijst? Zo ja, wat? - blanco - De indeling in categorieën. - De vragen over cultuur zijn helder en to de point - nee
Vraag 11	Heeft u verdere suggesties ten aanzien van de vragenlijst? - Kopjes vet maken bij vragen - Echt ervaring vragen: Wat doet u met ICT in het onderwijs - Iets meer toelichting bij bepaalde vragen - Wat levert het invullen van de lijst mij persoonlijk op.
Vraag 12	Heeft u overige opmerkingen of vragen? - blanco

	- Bij alle vragen ook ruimte toevoegen. Of alleen op het einde - Zie vragenlijst - blanco
15:10 uur	Korte pauze
15:15 uur	Plenaire discussie aan de hand van het try-out formulier. (anoniem)
Vraag 1	Gemiddelde duur van de scan komt op 13,25 min - Wordt als haalbaar ervaren
Vraag 2	De inleiding wordt vaak niet gelezen. - Bij het sturen van een mail uitnodiging om de scan te maken dit meenemen in het mail bericht zelf. - Wat levert het de respondent op, zou duidelijk moeten zijn ICT draagt bij aan? Aan wie, waar en hoe. - Het moet duidelijk gaan om het gebruik of eigengebruik van ICT in het onderwijs. - Bij mensen wordt gevraagd of ze competent zijn, dit is niet duidelijk - Structuur is te generiek, kan dit niet alleen organisatie zijn - Middelen hier gaat het ook over geld!, of manieren om hier aan te komen is dit dan structuur? - Kloppen de categorieën wel bij de vragen? Niet altijd helder. - Gebruik van termen, bijv TU Delft – vakgroep (kan per instelling verschillen, dus zou punt voor 'localisatie' zijn). <i>We kunnen de vragen inderdaad logischer rangschikken en achter af de resultaten in de desbetreffende categorie zetten.</i>
Vraag 3	Geen opmerkingen
Vraag 4	Vragen liever niet - Cultuur wordt lang gevonden, misschien in kleinere blokken zetten (met tussenkopjes) - Vragen eindige steeds op Inzet van ICT, dit stopt af. Zinsconstructie, die steeds herhaald wordt is niet zo spannend.
Vraag 5	vragen waarbij moeite: - Moeite met algemeen termen zoals opleidingsmanagement liever specifiek zoals het bij de betreffende instelling is geregeld. - Ons team, welk team is dit? Vakgroep, sectie, werkeenheid, masters of BS. Vakgroep lijkt de meest logische
Vraag 6	Afwisseling in de vragen - Te formeel, veel herhaling
Vraag 7	Voldoende antwoord mogelijkheden - Sommige vragen kun je ook gewoon niet weten. Dus graag een optie weet niet. (vraag 1 ken ik die visie wel)
Vraag 8	Mist u vragen: - Is het gebruik van ICT de extra inspanning waard? - Ik probeer regelmatig nieuwe dingen uit in mijn colleges (met bijbehorende schaal voor innovatief gedrag basic, advanced, innovator) - Voldoende digitaal materiaal ja, als je het zelf maakt, dus vragen over het delen van materiaal en productie hiervan. Er ligt dus vaak niet voldoende op de plank. Misschien is delen ook wel niet gewenst ik maak zelf mijn materiaal als academisch docent. - Is er überhaupt onderwijskundige ondersteuning? - Weten we de weg naar de ondersteuning wel te vinden. - Vormen van ondersteuning, kan ook gebruik maken van onderwijs assistent.
Vraag 9	Welke vragen stoorden: - Vraag 1 als alles ICT is welk onderscheid wordt dan nog gemaakt? - Afstandelijke formulering, hou het dicht bij de docent - Leeftijd heeft geen relevantie. Wel voor het eventueel ontkrachten van stereotype beelden. (moeten we nog wel in oudere investeren?) - Je zou ook met leeftijd categorieën kunnen gaan werken. Andere kenmerken: - aanpassingsvermogen. - Hoeveel tijd wil ik er in steken. (blogs ed.) - Thuisituatie (doe ik al veel digitaal) Mensen - Taal vereenvoudigen - Groeperen van techniek / onderwijskundig / etc. - Bepaalde gelaagdheid aanbrengen (is het er, is het te vinden, was het voldoende?) Middelen

- Toelichting op wat verstaan wordt onder ICT-middelen
- Wat is een digitale bibliotheek?

Cultuur:

- Te lang en in kleinere blokken opdelen
- Niet altijd duidelijk waarvoor
 - o Risico mijdend?
 - o Anders denkende?
 - o Toegevoegde waarde wat is dit dan ed.

Structuur:

- Standarden en richtlijnen worden niet begrepen.
- Wie wat hoe, zijn ze er en zijn er we mee bekend?
- Werkt dit wel en maak ik er gebruik van.

Evaluatie

- Wat wordt er geëvalueerd? Alleen ICT of ook de rest.

Vraag 10

Wat spreekt bijzonder aan?

- De indeling in categorieën

Vraag 11

Suggesties?

- Probeer zoveel mogelijk de vragen met niet te vermijden.
- Ondersteuning onderverdelen in technisch, onderwijs en financieel.
- Komt ondersteuning zijn afspraken na?
- Worden beloftes management nagekomen?
- Werk met vragen in een opbouw hier kan meer informatie uit gehaald worden.
- Voorbeeld: Is er ondersteuning?
 - o Maakt u er van gebruik?
 - o Help het u verder? (adequaat)
 - o Is er voldoende tijd?
 - o Levert het wat op?

Vraag 12

Overige opmerkingen

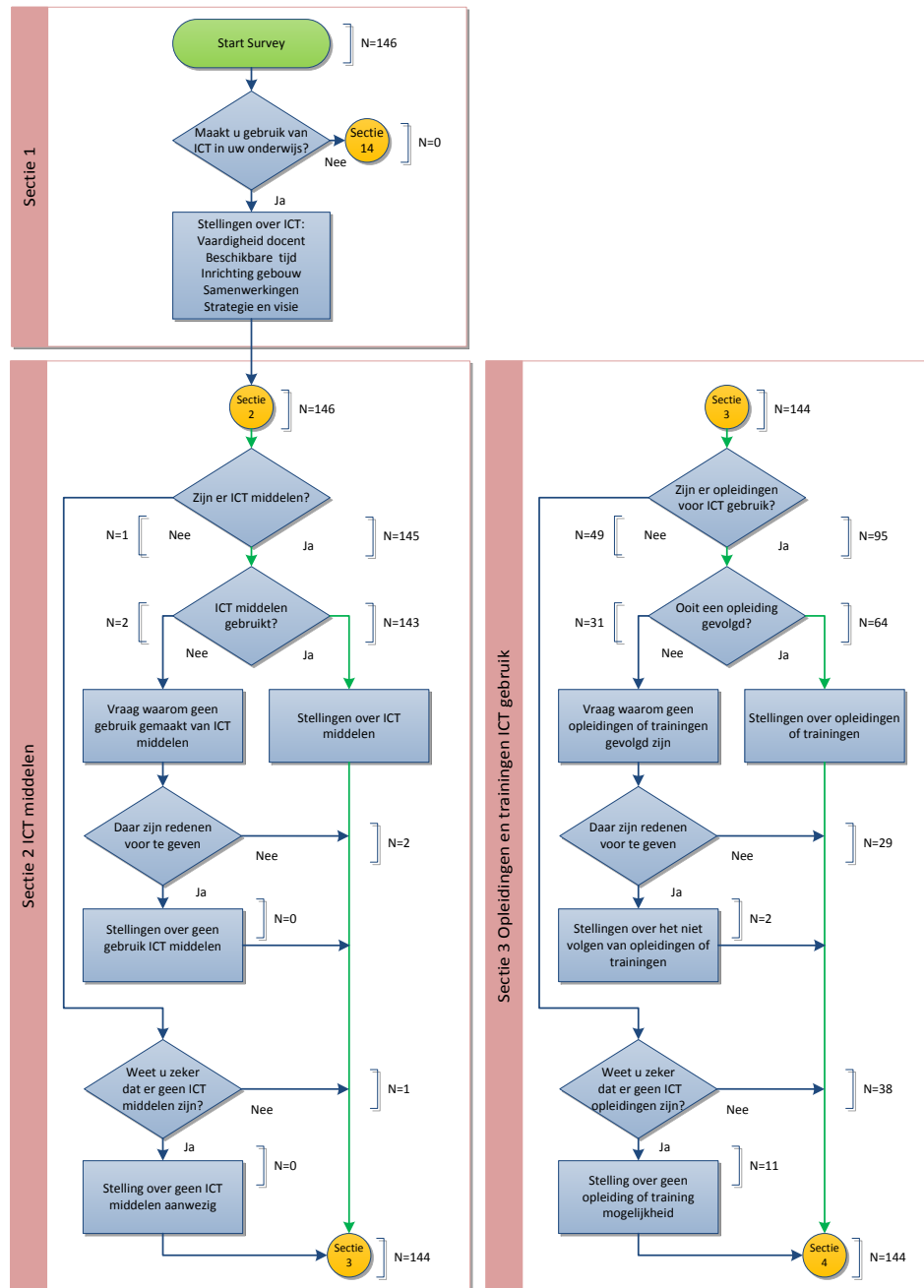
- Probeer een positieve benadering.
- Het management helpt mij of stimuleert mij om dit ook te doen. (gebruik maken van ICT)

Conclusie try-out sessie

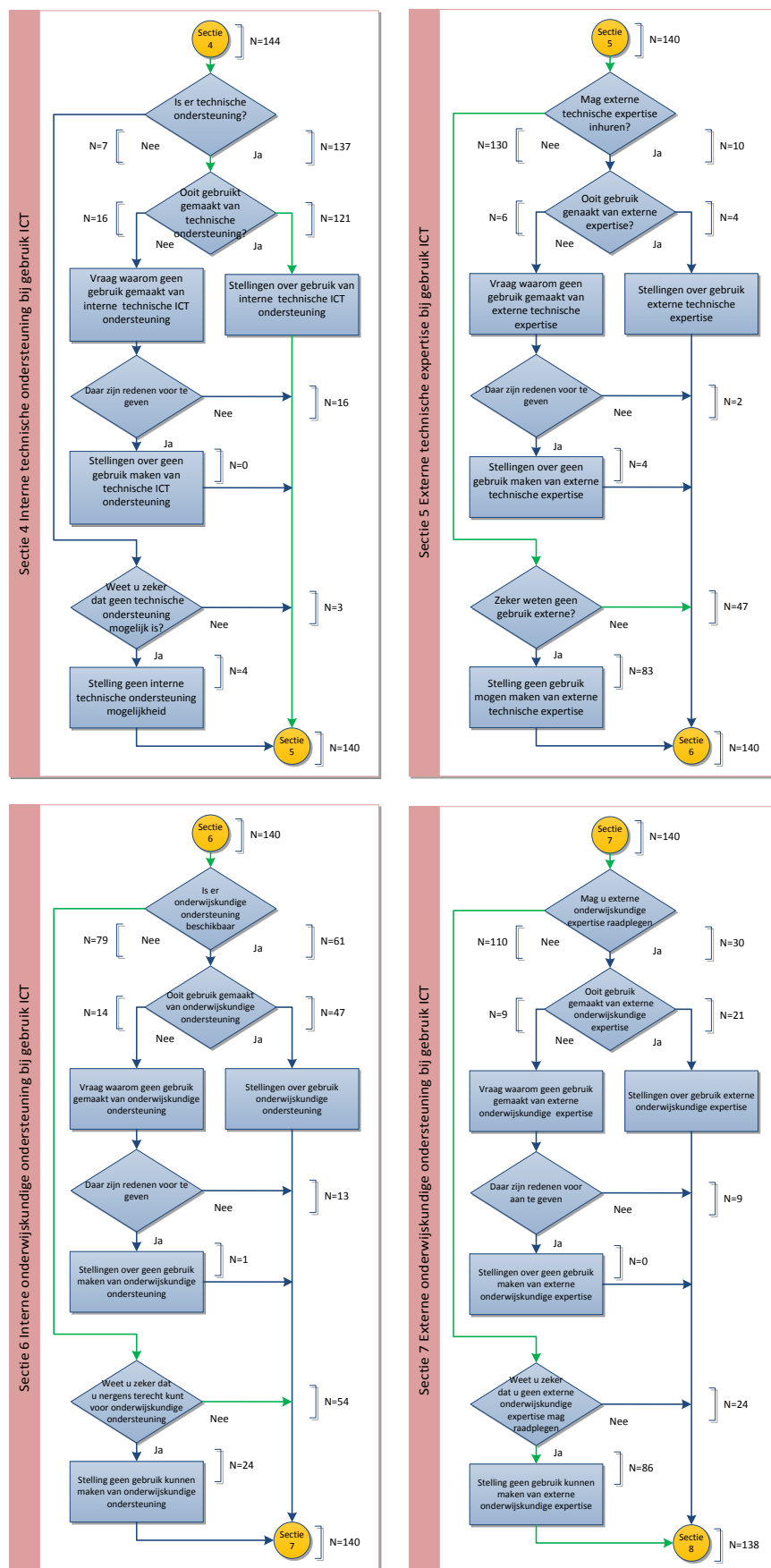
Het construct van de vragenlijst in de categorieën; mensen, middelen, structuur en cultuur is duidelijk en wordt als een vernieuwend beschouwt. Door te besluiten de vragen en stellingen onder te verdelen op onderwerp en niet op categorie doorloopt de respondent een logische lijn bij het beantwoorden van de vragenlijst. Het onderliggende construct van categorieën zal in de uitwerking en presentatie van de resultaten juist weer van belang zijn. Het is ook duidelijk geworden dat bij de inleiding van de vragenlijst het doel en de gebruikte begrippen voor de respondent helder moet zijn om de vragenlijst op een eenduidige manier te kunnen afnemen. Hierbij is het ook beter om direct aan te sluiten bij bestaande begrippen van de organisatie die het instrument gaat inzetten. Het expertpanel had ook moeite met de beantwoording van een aantal vragen en stellingen omdat ze niet wisten of bepaalde diensten of producten er wel waren of vonden dat deze niet van toepassing waren. De antwoordmogelijkheden van de vragen en stellingen zal worden uitgebreid met de optie; "weet ik niet of niet van toepassing".

Ook zal er gehoor gegeven worden om bij vragen over een ondersteunende dienst of product (middel) eerst te vragen of deze er is en daarna te vragen of hier gebruik van gemaakt is en wat dan de ervaring is van de respondent bij het afnemen van de dienst of gebruik van het product. Ook de toegankelijkheid en beschikbaarheid wordt van belang geacht. Bij de formulering van de vragen en stellingen is het advies deze in de zelfde vorm te zetten. In dit geval de positieve bevestigde vorm. Hierdoor hoeven de vragen achteraf niet worden omgezet in een zelfde vorm en wordt het voor de respondent ook minder verwarrend. Het aantal vragen blijft een belangrijk punt. Om te komen tot een valide data reductie moet de vragenlijst wel eerst in zijn volledigheid worden afgenomen bij een representatieve onderwijsorganisatie.

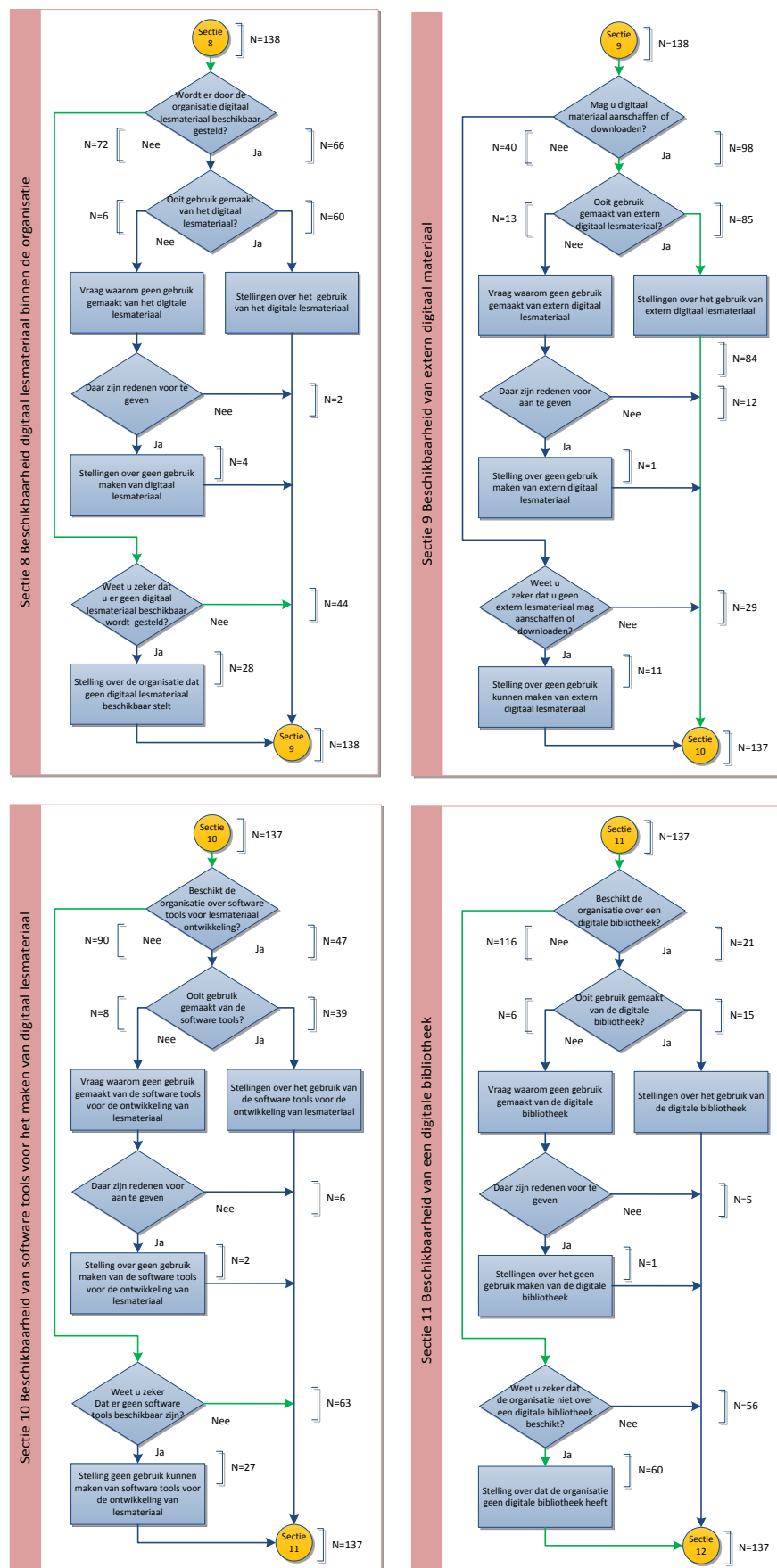
Appendix 6: Opbouw van de conditionele survey flowchart



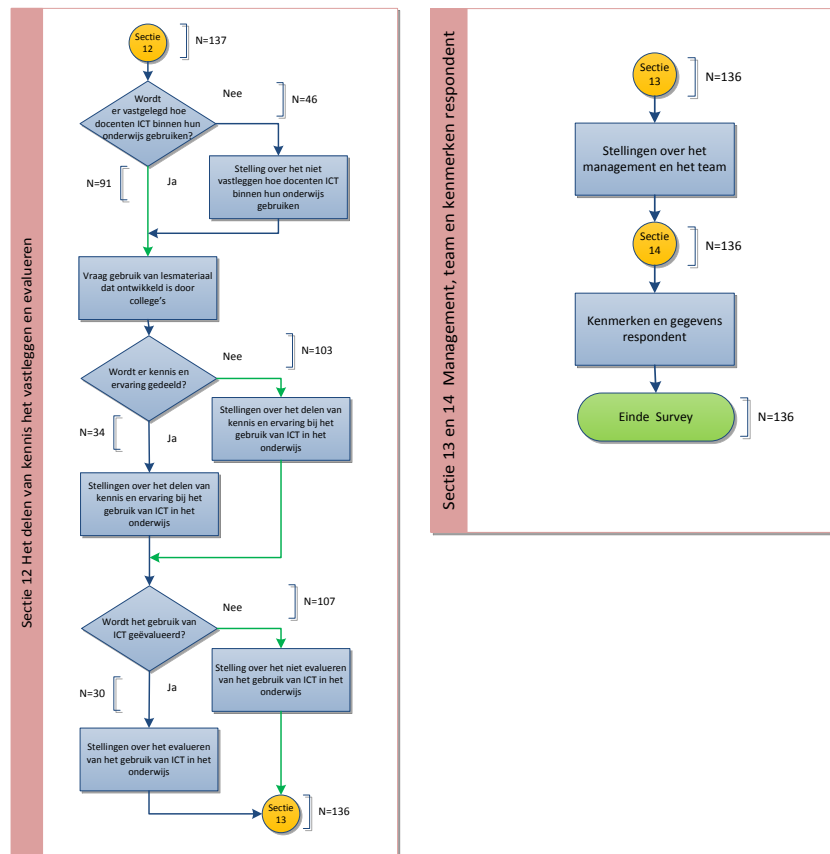
Figuur 23: Flowchart survey sectie 1,2,3



Figuur 24: Flowchart survey sectie 4,5,6,7



Figuur 25: Flowchart survey sectie 8,9,10,11



Figuur 26: Flowchart survey sectie 12,13

Appendix 7: Survey long

(1)*	Antwoord mogelijkheid
1	Ik maak <i>wel</i> gebruik van ICT binnen het onderwijs
2	Ik <i>oriënteer me</i> op het gebruik van ICT binnen het onderwijs
3	Ik maak <i>geen</i> gebruik en ik <i>oriënteer me</i> ook niet op het gebruik van ICT binnen het onderwijs
4	<i>Ik weet niet</i> of ik gebruik maak van ICT binnen het onderwijs

Likert +1	Antwoord mogelijkheid
1	Helemaal mee oneens
2	Mee oneens
3	Niet mee eens, niet mee oneens
4	Mee eens
5	Helemaal mee eens
6	Weet ik niet / Niet van toepassing

Sectie 1	Omschrijving: Visie & strategie, Primaire randvoorwaarde, Invloed van de organisatie	Type	Waarde
VAR001-Schakel	Gebruikt u ICT in het onderwijs zo ja hoe?	Ordinaal	(1)*
VAR002-Mensen	Ik heb voldoende kennis, inzicht en vaardigheden om ICT binnen mijn onderwijs te gebruiken.	Ordinaal	Likert+1
VAR003-Middelen	Ik krijg voldoende tijd om uit te proberen hoe ik ICT in mijn onderwijs kan gebruiken.	Ordinaal	Likert+1
VAR004-Middelen	Ons gebouw is zo ingericht, dat ik ICT gemakkelijk binnen mijn onderwijs kan gebruiken.	Ordinaal	Likert+1
VAR005-Structuur	Er zijn regelmatig bijeenkomsten om te overleggen hoe we ICT zo goed mogelijk binnen het onderwijs kunnen gebruiken.	Ordinaal	Likert+1
VAR006-Structuur	Van samenwerking met andere onderwijsinstellingen leer ik hoe ik ICT in mijn onderwijs kan gebruiken.	Ordinaal	Likert+1
VAR007-Visie & Strategie	Onze instelling heeft een duidelijke visie op onderwijs.	Ordinaal	Likert+1
VAR008-Visie & Strategie	Onze instelling heeft een duidelijke visie op de inzet van ICT in het onderwijs.	Ordinaal	Likert+1
VAR009-Visie & Strategie	Er is samenhang tussen de visie op onderwijs en de visie op ICT.	Ordinaal	Likert+1
VAR010-Visie & Strategie	De visie op ICT in het onderwijs is bij de docenten bekend.	Ordinaal	Likert+1
VAR011-Structuur	Bij de inzet van ICT in mijn onderwijs, laat ik mij leiden door wat het opleidingsmanagement van mij verwacht.	Ordinaal	Likert+1
VAR012-Structuur	Met mijn collega's maak ik afspraken over de inzet van ICT voor onze lessen.	Ordinaal	Likert+1
VAR013-Structuur	Ik bepaal voornamelijk zelf op welke manier ik ICT inzet in mijn onderwijs	Ordinaal	Likert+1
VAR014-Structuur	De manier waarop ik ICT in het onderwijs wil inzetten komt overeen met wat Uitholland van mij verwacht.	Ordinaal	Likert+1
VAR015-Structuur	Uitholland wil meer met ICT in het onderwijs dan ik wil.	Ordinaal	Likert+1
VAR016-Mensen	Ik wil meer met ICT in het onderwijs dan Uitholland van mij verwacht.	Ordinaal	Likert+1

Tabel 78: Variabelen sectie 1: Visie & strategie, Primaire randvoorwaarde, Invloed van de organisatie

	Visie en Strategie
	Mensen
	Middelen
	Structuur
	Cultuur
	Schakel variabelen
	Waarom vraag
	Controle vraag
	Feiten vraag

Tabel 79: Legenda variabele kleuren

Likert +1	Antwoord mogelijkheid
1	Helemaal mee oneens
2	Mee oneens
3	Niet mee eens, niet mee oneens
4	Mee eens
5	Helemaal mee eens
6	Weet ik niet / Niet van toepassing

(2)*	Antwoord mogelijkheid
1	Nooit nodig gehad
2	Nooit behoefte aan gehad
3	Is er nooit van gekomen
4	Daar zijn redenen voor aan te geven

Sectie 2	Omschrijving: ICT middelen	Type	Waarde
VAR017-Schakel	Zijn er binnen Uitholland ICT-middelen voor het ondersteunen en geven van uw onderwijs (computers/softwareapplicaties/internet etc.)?	Dichotoom	ja/nee
VAR018-Schakel	Hebt u ooit gebruik gemaakt van deze ICT-middelen?	Dichotoom	ja/nee
VAR019-Middelen	In de lesruimten zijn voldoende pc's, printers, beamers etc.	Ordinaal	Likert+1
VAR020-Middelen	In de docentenruimte zijn voldoende pc's, printers, beamers, etc.	Ordinaal	Likert+1
VAR021-Middelen	De beschikbare ICT-middelen werken goed.	Ordinaal	Likert+1
VAR022-Middelen	De beschikbare ICT-middelen zijn nieuw genoeg.	Ordinaal	Likert+1
VAR023-Middelen	In de lesruimtes is een internetverbinding die voldoet voor mijn lessen.	Ordinaal	Likert+1
VAR024-Middelen	In de docentruimtes is een goede toegang tot het internet.	Ordinaal	Likert+1
VAR025-Middelen	In de lesruimtes heb ik een goede toegang tot het netwerk van de opleiding.	Ordinaal	Likert+1
VAR026-Middelen	In de docentenkamers heb ik een goede toegang tot het netwerk van de opleiding.	Ordinaal	Likert+1
VAR027-Middelen	Thuis heb ik een goed toegang tot het netwerk van de opleiding.	Ordinaal	Likert+1
VAR028-Middelen	De beschikbare ICT-middelen helpen mij bij het geven van mijn lessen.	Ordinaal	Likert+1
VAR029-Middelen	De beschikbare ICT-middelen zijn gemakkelijk in het gebruik.	Ordinaal	Likert+1
VAR030-Middelen	Bij de beschikbare ICT-middelen zit voldoende documentatie om mij te helpen.	Ordinaal	Likert+1
VAR031-Middelen	Het beheer van de ICT-middelen houdt rekening met hoe ik ICT in het onderwijs wil gebruiken.	Ordinaal	Likert+1
VAR032-Middelen	Dankzij de ICT-middelen worden mijn lessen beter.	Ordinaal	Likert+1
VAR033-Middelen waarom vraag	Waarom hebt u geen gebruik gemaakt van de beschikbare ICT-middelen?	Nominaal	(2)*
VAR034-Middelen	In de lesruimtes zijn onvoldoende pc's, printers, beamers, etc.	Ordinaal	Likert+1
VAR035-Middelen	In de docentenruimte zijn onvoldoende pc's, printers, beamers, etc.	Ordinaal	Likert+1
VAR036-Middelen	De beschikbare ICT-middelen werken niet echt goed.	Ordinaal	Likert+1
VAR037-Middelen	De beschikbare ICT-middelen zijn niet nieuw genoeg.	Ordinaal	Likert+1
VAR038-Middelen	In de lesruimtes is geen internetverbinding die voldoet voor mijn lessen.	Ordinaal	Likert+1
VAR039-Middelen	In de docentruimtes is geen goede toegang tot het internet.	Ordinaal	Likert+1
VAR040-Middelen	In de lesruimtes heb ik geen goede toegang tot het netwerk van de opleiding.	Ordinaal	Likert+1
VAR041-Middelen	In de docentenkamers heb ik geen goede toegang tot het netwerk van de opleiding.	Ordinaal	Likert+1
VAR042-Middelen	Thuis heb ik geen goede toegang tot het netwerk van de opleiding.	Ordinaal	Likert+1
VAR043-Middelen	De beschikbare ICT-middelen helpen mij niet echt bij het geven van mijn lessen.	Ordinaal	Likert+1
VAR044-Middelen	De beschikbare ICT-middelen zijn niet echt gemakkelijk in het gebruik.	Ordinaal	Likert+1
VAR045-Middelen	Bij de beschikbare ICT-middelen zit onvoldoende documentatie om mij te helpen.	Ordinaal	Likert+1
VAR046-Middelen	Het beheer van de ICT-middelen wordt niet echt rekening gehouden met hoe ik ICT in het onderwijs wil gebruiken.	Ordinaal	Likert+1
VAR047-Middelen	De ICT-middelen maken mijn lessen niet echt beter.	Ordinaal	Likert+1
VAR048-Middelen controle vraag	Weet u zeker dat er geen ICT-middelen aanwezig zijn voor het ondersteunen en geven van uw onderwijs?	Dichotoom	ja/nee
VAR049-Middelen feit vraag	Het feit dat er binnen Uitholland geen ICT-middelen zijn voor het ondersteunen van mijn onderwijs, heeft een nadelige invloed op mijn onderwijs.	Ordinaal	Likert+1

Tabel 80: Variabelen sectie 2: ICT middelen

Likert +1	Antwoord mogelijkheid
1	Helemaal mee oneens
2	Mee oneens
3	Niet mee eens, niet mee oneens
4	Mee eens
5	Helemaal mee eens
6	Weet ik niet / Niet van toepassing

(2)*	Antwoord mogelijkheid
1	Nooit nodig gehad
2	Nooit behoefte aan gehad
3	Is er nooit van gekomen
4	Daar zijn redenen voor aan te geven

Sectie 3	Omschrijving: Opleidingen en trainingen	Type	Waarde
VAR050-Schakel	Kunt binnen of buiten Uitholland opleidingen en trainingen volgen op het gebied van ICT in uw onderwijs.	Dichotoom	ja/nee
VAR051-Schakel	Hebt u ooit een opleiding gevolgd?	Dichotoom	ja/nee
VAR052-Middelen	De opleidingen/trainingen helpen mij om ICT in mijn onderwijs te gebruiken.	Ordinaal	Likert+1
VAR053-Middelen	Voor het volgen van opleidingen is er voldoende tijd.	Ordinaal	Likert+1
VAR054-Middelen	Voor het volgen van opleidingen is er voldoende geld.	Ordinaal	Likert+1
VAR055-Cultuur	Het opleidingsmanagement stimuleert mij om opleidingen te volgen.	Ordinaal	Likert+1
VAR056-Cultuur	Mijn collega's stimuleren mij om opleidingen te volgen.	Ordinaal	Likert+1
VAR057-Middelen	Als ik een opleiding nodig heb, kan ik die voldoende snel volgen.	Ordinaal	Likert+1
VAR058-Middelen	De meeste opleidingen zijn in de buurt te volgen.	Ordinaal	Likert+1
VAR059-Middelen	De beschikbare opleidingen sluiten aan bij mijn lessen.	Ordinaal	Likert+1
VAR060-Middelen	De opleidingen maken mij beter.	Ordinaal	Likert+1
VAR061-Middelen	De opleidingen worden door vakbekwame docenten gegeven.	Ordinaal	Likert+1
VAR062-Middelen waarom vraag	Waarom hebt u geen gebruik gemaakt van opleidingen/trainingen:	Nominaal	(2)*
VAR063-Middelen	Voor mij hoeven opleidingen niet zo nodig.	Ordinaal	Likert+1
VAR064-Middelen	Er zit geen passende opleiding voor mij bij.	Ordinaal	Likert+1
VAR065-Middelen	Ik heb geen tijd om opleidingen te volgen.	Ordinaal	Likert+1
VAR066-Cultuur	Het opleidingsmanagement vindt het niet echt nodig.	Ordinaal	Likert+1
VAR067-Cultuur	Mijn collega's vinden het niet echt nodig.	Ordinaal	Likert+1
VAR068-Middelen	Er is niet voldoende geld voor het volgen van opleidingen.	Ordinaal	Likert+1
VAR069-Middelen	Het duurt te lang voordat ik aan de beurt ben.	Ordinaal	Likert+1
VAR070-Middelen	De opleidingen worden niet echt in de buurt gegeven.	Ordinaal	Likert+1
VAR071-Middelen	De opleidingen sluiten niet echt aan bij mijn lessituatie.	Ordinaal	Likert+1
VAR072-Middelen	Ik vind de opleidingen niet echt goed genoeg.	Ordinaal	Likert+1
VAR073-Middelen	De opleidingen maken mij niet echt beter.	Ordinaal	Likert+1
VAR074-Middelen Controle vraag	Weet u zeker dat binnen of buiten het Uitholland geen opleidingen/trainingen kunt volgen op het gebied van ICT in uw onderwijs?	Dichotoom	ja/nee
VAR075-Middelen feit vraag	Het feit dat er geen opleidingen gevolgd kunnen worden, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs	Ordinaal	Likert+1

Table 81: Variabelen sectie 3: Opleidingen en trainingen

Likert +1	Antwoord mogelijkheid
1	Helemaal mee oneens
2	Mee oneens
3	Niet mee eens, niet mee oneens
4	Mee eens
5	Helemaal mee eens
6	Weet ik niet / Niet van toepassing

(2)*	Antwoord mogelijkheid
1	Nooit nodig gehad
2	Nooit behoefte aan gehad
3	Is er nooit van gekomen
4	Daar zijn redenen voor aan te geven

Sectie 4	Omschrijving: technische ondersteuning	Type	Waarde
VAR076-Switch	Kunt u binnen Uitholland ergens terecht voor technische ondersteuning bij het gebruik van ICT in uw onderwijs?	Dichotoom	ja/nee
VAR077-Switch	Hebt u ooit gebruik gemaakt van de technische ondersteuning?	Dichotoom	ja/nee
VAR078-Resources Service kwaliteit	Als ik technische ondersteuning nodig heb, wordt daar voldoende aandacht aan besteed.	Ordinal	Likert+1
VAR079-Resources Service kwaliteit	Die technische ondersteuning helpt mij bij het gebruik van ICT in mijn onderwijs.	Ordinal	Likert+1
VAR080-Resources Service kwaliteit	De technische ondersteuning is goed bereikbaar.	Ordinal	Likert+1
VAR081-Resources Service kwaliteit	Deze technische ondersteuning is klantvriendelijk.	Ordinal	Likert+1
VAR082-Resources Service kwaliteit	Deze technische ondersteuning is van goede kwaliteit.	Ordinal	Likert+1
VAR083-Resources Service kwaliteit	De technische ondersteuning heeft prettige openingstijden.	Ordinal	Likert+1
VAR084-Resources Service kwaliteit	De technische ondersteuning komt de afspraken na.	Ordinal	Likert+1
VAR085-Resources Service kwaliteit	De medewerkers van de technische ondersteuning helpen mij goed.	Ordinal	Likert+1
VAR086-Resources Service kwaliteit	De medewerkers van de technische hebben goede ideeën.	Ordinal	Likert+1
VAR087-Resources Service kwaliteit	Dankzij de technische ondersteuning kan ik ICT beter inzetten in mijn lessen.	Ordinal	Likert+1
VAR088-Resources Service kwaliteit waarom vraag	Waarom hebt u geen gebruik gemaakt van de technische ondersteuning?	Nominaal	(2)*
VAR089-Resources Service kwaliteit	Als ik technische ondersteuning nodig heb, wordt daar onvoldoende aandacht aan besteed.	Ordinal	Likert+1
VAR090-Resources Service kwaliteit	De technische ondersteuning helpt mij niet echt bij het gebruik van ICT in mijn onderwijs.	Ordinal	Likert+1
VAR091-Resources Service kwaliteit	De technische ondersteuning is lastig bereikbaar.	Ordinal	Likert+1
VAR092-Resources Service kwaliteit	De technische ondersteuning is niet echt klantvriendelijk.	Ordinal	Likert+1
VAR093-Resources Service kwaliteit	De technische ondersteuning is niet echt van goede kwaliteit.	Ordinal	Likert+1
VAR094-Resources Service kwaliteit	De technische ondersteuning heeft lastige openingstijden.	Ordinal	Likert+1
VAR095-Resources Service kwaliteit	De technische ondersteuning komt de afspraken niet na.	Ordinal	Likert+1
VAR096-Resources Service kwaliteit	De medewerkers van de technische ondersteuning helpen mij niet echt.	Ordinal	Likert+1
VAR097-Resources Service kwaliteit	De medewerkers van de technische ondersteuning zijn niet echt vooruitstrevend genoeg.	Ordinal	Likert+1
VAR098-Resources Service kwaliteit	De technische ondersteuning maakt de inzet van ICT in mijn lessen niet echt beter.	Ordinal	Likert+1
VAR099-Resources Service kwaliteit controle vraag	Weet u zeker dat u binnen Uitholland nergens terecht kunt technische ondersteuning?	Dichotoom	ja/nee
VAR100-Resources Service kwaliteit feit vraag	Het feit dat u voor technische ondersteuning nergens terecht kan, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	Ordinal	Likert+1

Tabel 82: Variabelen sectie 4: Technische ondersteuning

Likert +1	Antwoord mogelijkheid
1	Helemaal mee oneens
2	Mee oneens
3	Niet mee eens, niet mee oneens
4	Mee eens
5	Helemaal mee eens
6	Weet ik niet / Niet van toepassing

(2)*	Antwoord mogelijkheid
1	Nooit nodig gehad
2	Nooit behoefte aan gehad
3	Is er nooit van gekomen
4	Daar zijn redenen voor aan te geven

Secctie 5	Omschrijving: Externe technische ondersteuning	Type	Waarde
VAR101-Switch	Mag u externe technische expertise inhuren?	Dichotoom	ja/nee
VAR102-Switch	Hebt u ooit gebruik gemaakt van technische externe expertise:	Dichotoom	ja/nee
VAR103-Resources Service kwaliteit	Als ik binnen het Zadkine niet kan worden geholpen, mag ik in voldoende mate een beroep doen op externe technische deskundigen.	Ordinal	Likert+1
VAR104-Resources Service kwaliteit	De inhuur van externe technische deskundigen helpt mij bij het gebruik van ICT in mijn onderwijs.	Ordinal	Likert+1
VAR105-Resources Service kwaliteit	De externe deskundigen zijn gemakkelijk te vinden.	Ordinal	Likert+1
VAR106-Resources Service kwaliteit	De externe technische deskundigen zijn klantvriendelijk	Ordinal	Likert+1
VAR107-Resources Service kwaliteit	De externe technische deskundige zijn van goede kwaliteit.	Ordinal	Likert+1
VAR108-Resources Service kwaliteit	De externe technische deskundigen zijn er als ik hen nodig heb.	Ordinal	Likert+1
VAR109-Resources Service kwaliteit	De externe technische deskundigen komen hun afspraken na.	Ordinal	Likert+1
VAR110-Resources Service kwaliteit	De externe technische deskundigen helpen mij goed.	Ordinal	Likert+1
VAR111-Resources Service kwaliteit	De externe technische deskundigen hebben goede ideeën.	Ordinal	Likert+1
VAR112-Resources Service kwaliteit	Dankzij de externe technische deskundigen kan ik ICT beter inzetten in mijn lessen.	Ordinal	Likert+1
VAR113-Resources Service kwaliteit waarom vraag	Waarom hebt u geen gebruik gemaakt van de externe technische expertise:	Nominaal	(2)*
VAR114-Resources Service kwaliteit	Als ik binnen het Zadkine niet kan worden geholpen, mag ik toch niet voldoende een beroep doen op externe technische deskundigen.	Ordinal	Likert+1
VAR115-Resources Service kwaliteit	De inhuur van externe technische deskundigen helpt mij niet bij het gebruik van ICT in mijn onderwijs.	Ordinal	Likert+1
VAR116-Resources Service kwaliteit	De externe deskundigen zijn moeilijk te vinden.	Ordinal	Likert+1
VAR117-Resources Service kwaliteit	De externe technische deskundigen zijn klantvriendelijk.	Ordinal	Likert+1
VAR118-Resources Service kwaliteit	De externe technische deskundige zijn niet van goede kwaliteit.	Ordinal	Likert+1
VAR119-Resources Service kwaliteit	De externe technische deskundigen zijn er niet als ik hen nodig heb.	Ordinal	Likert+1
VAR120-Resources Service kwaliteit	De externe technische deskundigen komen hun afspraken niet na.	Ordinal	Likert+1
VAR121-Resources Service kwaliteit	De externe technische deskundigen helpen mij niet goed.	Ordinal	Likert+1
VAR122-Resources Service kwaliteit	De externe technische deskundigen hebben geen goede ideeën.	Ordinal	Likert+1
VAR123-Resources Service kwaliteit	De externe technische deskundigen maken de inzet van ICT in mijn lessen niet beter.	Ordinal	Likert+1
VAR124-Resources Service kwaliteit controle vraag	Weet u zeker geen gebruik mag maken externe technische expertise?	Dichotoom	ja/nee
VAR125-Resources Service kwaliteit feit vraag	Het feit dat er geen externe technische deskundigen mag inhuren, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	Ordinal	Likert+1

Table 83: Variabelen sectie 5: Externe technische ondersteuning

Likert +1	Antwoord mogelijkheid
1	Helemaal mee oneens
2	Mee oneens
3	Niet mee eens, niet mee oneens
4	Mee eens
5	Helemaal mee eens
6	Weet ik niet / Niet van toepassing

(2)*	Antwoord mogelijkheid
1	Nooit nodig gehad
2	Nooit behoefte aan gehad
3	Is er nooit van gekomen
4	Daar zijn redenen voor aan te geven

Secctie 6	Omschrijving: Onderwijskundige ondersteuning	Type	Waarde
VAR126-Switch	Kunt u binnen uw instelling ergens terecht voor onderwijskundige ondersteuning bij het gebruik van ICT in uw onderwijs.	Dichotoom	ja/nee
VAR127-Switch	Hebt u ooit gebruik gemaakt van de onderwijskundige ondersteuning?	Dichotoom	ja/nee
VAR128-Resources Service kwaliteit	Als ik onderwijskundige ondersteuning nodig heb, wordt daar voldoende aandacht aan besteed.	Ordinal	Likert+1
VAR129-Resources Service kwaliteit	Die ondersteuning helpt mij bij het gebruik van ICT in mijn onderwijs.	Ordinal	Likert+1
VAR130-Resources Service kwaliteit	Die ondersteuning goed bereikbaar.	Ordinal	Likert+1
VAR131-Resources Service kwaliteit	De onderwijskundige ondersteuning is klantvriendelijk.	Ordinal	Likert+1
VAR132-Resources Service kwaliteit	De onderwijskundige ondersteuning is van goede kwaliteit.	Ordinal	Likert+1
VAR133-Resources Service kwaliteit	De onderwijskundige ondersteuning heeft prettige openingstijden.	Ordinal	Likert+1
VAR134-Resources Service kwaliteit	De onderwijskundige ondersteuning komt de afspraken na.	Ordinal	Likert+1
VAR135-Resources Service kwaliteit	De medewerkers van de onderwijskundige ondersteuning helpen mij goed.	Ordinal	Likert+1
VAR136-Resources Service kwaliteit	De medewerkers van de onderwijskundige ondersteuning hebben goede ideeën.	Ordinal	Likert+1
VAR137-Resources Service kwaliteit	Dankzij de onderwijskundige ondersteuning kan ik ICT beter inzetten in mijn lessen.	Ordinal	Likert+1
VAR138-Resources Service kwaliteit waarom vraag	Waarom hebt u geen gebruik gemaakt van de onderwijskundige ondersteuning?	Nominaal	(2)*
VAR139-Resources Service kwaliteit	Als ik onderwijskundige ondersteuning nodig heb, wordt daar onvoldoende aandacht aan besteed.	Ordinal	Likert+1
VAR140-Resources Service kwaliteit	De onderwijskundige ondersteuning helpt mij niet bij het gebruik van van ICT in mijn onderwijs.	Ordinal	Likert+1
VAR141-Resources Service kwaliteit	De onderwijskundige ondersteuning is lastig bereikbaar.	Ordinal	Likert+1
VAR142-Resources Service kwaliteit	De onderwijskundige ondersteuning is niet echt klantvriendelijk.	Ordinal	Likert+1
VAR143-Resources Service kwaliteit	De onderwijskundige ondersteuning is niet echt van goede kwaliteit.	Ordinal	Likert+1
VAR144-Resources Service kwaliteit	De onderwijskundige ondersteuning heeft lastige openingstijden.	Ordinal	Likert+1
VAR145-Resources Service kwaliteit	De onderwijskundige ondersteuning komt de afspraken niet na.	Ordinal	Likert+1
VAR146-Resources Service kwaliteit	De medewerkers van de onderwijskundige ondersteuning helpen mij niet echt.	Ordinal	Likert+1
VAR147-Resources Service kwaliteit	De medewerkers van de onderwijskundige ondersteuning zijn niet echt vooruitstrevend genoeg.	Ordinal	Likert+1
VAR148-Resources Service kwaliteit	De onderwijskundige ondersteuning maakt de inzet van ICT in mijn lessen niet echt beter.	Ordinal	Likert+1
VAR149-Resources Service kwaliteit controle vraag	Weet u zeker dat u nergens bij het Uitholland terecht kunt voor onderwijskundige ondersteuning bij het gebruik van ICT in uw onderwijs?	Dichotoom	ja/nee
VAR150-Resources Service kwaliteit feit vraag	Het feit dat ik voor onderwijskundige ondersteuning nergens terecht kan, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	Ordinal	Likert+1

Table 84: Variabelen sectie 6: Onderwijskundige ondersteuning

Likert +1	Antwoord mogelijkheid
1	Helemaal mee oneens
2	Mee oneens
3	Niet mee eens, niet mee oneens
4	Mee eens
5	Helemaal mee eens
6	Weet ik niet / Niet van toepassing

(2)*	Antwoord mogelijkheid
1	Nooit nodig gehad
2	Nooit behoefte aan gehad
3	Is er nooit van gekomen
4	Daar zijn redenen voor aan te geven

Secctie 7	Omschrijving: Externe onderwijskundige ondersteuning	Type	Waarde
VAR151-Switch	Mag u externe onderwijskundige expertise raadplegen of inhuren?	Dichotoom	ja/nee
VAR152-Switch	Hebt u ooit gebruik gemaakt van externe onderwijskundige deskundigen?	Dichotoom	ja/nee
VAR153-Resources Service kwaliteit	Als ik binnen Uitholland niet kan worden geholpen, mag ik in voldoende mate een beroep doen op externe onderwijskundige ondersteuning.	Ordinal	Likert+1
VAR154-Resources Service kwaliteit	De inhuren van externe onderwijskundigedeskundigen helpt mij bij het gebruik van ICT in mijn onderwijs.	Ordinal	Likert+1
VAR155-Resources Service kwaliteit	De externe onderwijskundige deskundigen zijn gemakkelijk te vinden.	Ordinal	Likert+1
VAR156-Resources Service kwaliteit	De externe onderwijskundige deskundigen zijn klantvriendelijk.	Ordinal	Likert+1
VAR157-Resources Service kwaliteit	De externe onderwijskundige deskundigen zijn van goede kwaliteit.	Ordinal	Likert+1
VAR158-Resources Service kwaliteit	De externe onderwijskundige deskundigen zijn er als ik hen nodig heb.	Ordinal	Likert+1
VAR159-Resources Service kwaliteit	De externe onderwijskundige deskundigen komen hun afspraken na.	Ordinal	Likert+1
VAR160-Resources Service kwaliteit	De externe onderwijskundige deskundigen helpen mij goed.	Ordinal	Likert+1
VAR161-Resources Service kwaliteit	De externe onderwijskundige deskundigen hebben goede ideeën.	Ordinal	Likert+1
VAR162-Resources Service kwaliteit	Dankzij de externe onderwijskundige deskundigen kan ik ICT beter inzetten in mijn lessen.	Ordinal	Likert+1
VAR163-Resources Service kwaliteit waarom vraag	Waarom hebt u geen gebruik gemaakt van de externe onderwijskundige ondersteuning?	Nominaal	(2)*
VAR164-Resources Service kwaliteit	De inhuren van externe onderwijskundige expertise kan mij niet echt helpen bij het gebruik van ICT in mijn onderwijs.	Ordinal	Likert+1
VAR165-Resources Service kwaliteit	De externe onderwijskundige expertise is lastig te vinden.	Ordinal	Likert+1
VAR166-Resources Service kwaliteit	De externe onderwijskundige niet echt klantvriendelijk	Ordinal	Likert+1
VAR167-Resources Service kwaliteit	De externe onderwijskundige expertise is niet echt van goede kwaliteit.	Ordinal	Likert+1
VAR168-Resources Service kwaliteit	De externe onderwijskundige expertise is er niet als ik hen nodig heb.	Ordinal	Likert+1
VAR169-Resources Service kwaliteit	De externe onderwijskundige expertise komt de afspraken na.	Ordinal	Likert+1
VAR170-Resources Service kwaliteit	De externe onderwijskundige expertise helpt mij niet echt goed.	Ordinal	Likert+1
VAR171-Resources Service kwaliteit	De externe onderwijskundige expertise heeft niet echt goede ideeën.	Ordinal	Likert+1
VAR172-Resources Service kwaliteit	De externe onderwijskundige expertise maakt de inzet van ICT in mijn lessen niet echt beter.	Ordinal	Likert+1
VAR173-Resources Service kwaliteit controle vraag	Weet u zeker dat u geen gebruik mag maken van externe onderwijskundige ondersteuning?	Dichotoom	ja/nee
VAR174-Resources Service kwaliteit feit vraag	Het feit dat er geen externe onderwijskundige ondersteuning mag inhuren, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	Ordinal	Likert+1

Table 85: Variabelen sectie 7: Externe onderwijskundige ondersteuning

Likert +1	Antwoord mogelijkheid
1	Helemaal mee oneens
2	Mee oneens
3	Niet mee eens, niet mee oneens
4	Mee eens
5	Helemaal mee eens
6	Weet ik niet / Niet van toepassing

(2)*	Antwoord mogelijkheid
1	Nooit nodig gehad
2	Nooit behoefte aan gehad
3	Is er nooit van gekomen
4	Daar zijn redenen voor aan te geven

Sectie 8	Omschrijving: Intern digitaal lesmateriaal	Type	Waarde
VAR175-Switch	Stelt Uitholland digitaal lesmateriaal beschikbaar voor uw onderwijs?	Dichotoom	ja/nee
VAR176-Switch	Heeft u ooit gebruik gemaakt van digitaal lesmateriaal?	Dichotoom	ja/nee
VAR177-Resources	Het beschikbare digitale lesmateriaal binnen Uitholland is gemakkelijk te vinden.	Ordinal	Likert+1
VAR178-Resources	Het is gemakkelijk om het beschikbare digitale lesmateriaal op te halen en in te zetten binnen mijn lessen.	Ordinal	Likert+1
VAR179-Resources	Er is voldoende digitaal lesmateriaal voor mijn lessen.	Ordinal	Likert+1
VAR180-Resources	Het beschikbare digitale lesmateriaal is van voldoende kwaliteit.	Ordinal	Likert+1
VAR181-Resources	Het opleidingsmanagement stimuleert mij om digitaal lesmateriaal in mijn lessen in te zetten.	Ordinal	Likert+1
VAR182-Resources	Mijn collega's stimuleren mij om digitaal lesmateriaal in mijn lessen in te zetten.	Ordinal	Likert+1
VAR183-Resources	Het digitale lesmateriaal is nuttig voor mijn lessen.	Ordinal	Likert+1
VAR184-Resources	Het digitale lesmateriaal maken mijn lessen beter.	Ordinal	Likert+1
VAR185-Resources waarom vraag	Waarom hebt u geen gebruik gemaakt van digitaal lesmateriaal?	Nominaal	(2)*
VAR186-Resources	Het beschikbare digitale lesmateriaal binnen Uitholland is moeilijk te vinden.	Ordinal	Likert+1
VAR187-Resources	Het is lastig het beschikbare digitale lesmateriaal op te halen en in te zetten binnen mijn lessen.	Ordinal	Likert+1
VAR188-Resources	Er is onvoldoende digitaal lesmateriaal voor mijn lessen.	Ordinal	Likert+1
VAR189-Resources	Het beschikbare digitale lesmateriaal is niet echt van voldoende kwaliteit.	Ordinal	Likert+1
VAR190-Resources	Het opleidingsmanagement stimuleert mij niet echt om digitaal lesmateriaal in te zetten.	Ordinal	Likert+1
VAR191-Resources	Mijn collega's stimuleren mij niet echt om digitaal lesmateriaal te gebruiken.	Ordinal	Likert+1
VAR192-Resources	Digitaal lesmateriaal is niet echt nuttig voor mijn lessen.	Ordinal	Likert+1
VAR193-Resources	Digitaal lesmateriaal maken mijn lessen niet echt beter.	Ordinal	Likert+1
VAR194-Resources controle vraag	Weet u zeker dat Uitholland geen digitaal lesmateriaal ter beschikking stelt?	Dichotoom	ja/nee
VAR195-Resources feit vraag	Het feit dat er geen digitaal lesmateriaal is, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	Ordinal	Likert+1

Table 86: Variabelen sectie 8: Intern digitaal lesmateriaal

Likert +1	Antwoord mogelijkheid
1	Helemaal mee oneens
2	Mee oneens
3	Niet mee eens, niet mee oneens
4	Mee eens
5	Helemaal mee eens
6	Weet ik niet / Niet van toepassing

(2)*	Antwoord mogelijkheid
1	Nooit nodig gehad
2	Nooit behoefte aan gehad
3	Is er nooit van gekomen
4	Daar zijn redenen voor aan te geven

Sectie 9	Omschrijving: Extern digitaal lesmateriaal	Type	Waarde
VAR196-Switch	Mag digitaal lesmateriaal aanschaffen of downloaden van buiten u opleiding?	Ordinal	Likert+1
VAR197-Switch	Hebt u ooit gebruik gemaakt van extern digitaal lesmateriaal?	Ordinal	Likert+1
VAR198-Resources	Uitholland staat het in voldoende mate toe om een beroep te doen op externe digitaal lesmateriaal aan te schaffen.	Ordinal	Likert+1
VAR199-Resources	Ik weet voldoende extern digitaal lesmateriaal voor mijn lessen te vinden.	Ordinal	Likert+1
VAR200-Resources	Het is gemakkelijk om de externe digitaal lesmiddelen op te halen en in te zetten binnen mijn lessen.	Ordinal	Likert+1
VAR201-Middelen	Het externe digitale lesmateriaal is van voldoende kwaliteit.	Ordinal	Likert+1
VAR202-Culture	Het opleidingsmanagement stimuleert mij om extern digitaal lesmateriaal in mijn lessen in te zetten.	Ordinal	Likert+1
VAR203-Culture	Mijn collega's stimuleren mij om extern digitaal lesmateriaal in mijn lessen in te zetten.	Ordinal	Likert+1
VAR204-Resources	Het externe digitale lesmateriaal is nuttig voor mijn onderwijs.	Ordinal	Likert+1
VAR205-Resources	Het externe digitale lesmateriaal maken mijn lessen beter.	Ordinal	Likert+1
VAR206-Resources waarom vraag	Waarom hebt u geen gebruik gemaakt van extern digitaal lesmateriaal?	Nominaal	(2)*
VAR207-Resources	Uitholland ontmoedigd het om een beroep te doen op extern digitaal lesmateriaal.	Ordinal	Likert+1
VAR208-Resources	Ik kan geen extern digitaal lesmateriaal voor mijn lessen vinden.	Ordinal	Likert+1
VAR209-Resources	Het is te moeilijk om de externe digitaal lesmateriaal op te halen en in te zetten binnen mijn lessen.	Ordinal	Likert+1
VAR210-Resources	Het externe digitale lesmateriaal is niet echt van voldoende kwaliteit.	Ordinal	Likert+1
VAR211-Culture	Het opleidingsmanagement stimuleert mij niet echt om extern digitaal lesmateriaal in te zetten.	Ordinal	Likert+1
VAR212-Culture	Mijn collega's stimuleren mij niet echt om extern digitaal lesmateriaal te gebruiken.	Ordinal	Likert+1
VAR213-Resources	Externe digitaal lesmateriaal is niet echt nuttig voor mijn lessen.	Ordinal	Likert+1
VAR214-Resources	Externe digitaal lesmateriaal maken mijn lessen niet echt beter.	Ordinal	Likert+1
VAR215-Resources controle vraag	Weet u zeker dat u geen digitaal lesmateriaal mag aanschaffen of downloaden buiten uw opleiding?	Dichotoom	ja/nee
VAR216-Resources feit vraag	Het feit dat ik geen gebruik kan maken van extern digitaal lesmateriaal, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	Ordinal	Likert+1

Table 87: Variabelen sectie 9: Extern digitaal lesmateriaal

Likert +1	Antwoord mogelijkheid
1	Helemaal mee oneens
2	Mee oneens
3	Niet mee eens, niet mee oneens
4	Mee eens
5	Helemaal mee eens
6	Weet ik niet / Niet van toepassing

(2)*	Antwoord mogelijkheid
1	Nooit nodig gehad
2	Nooit behoefte aan gehad
3	Is er nooit van gekomen
4	Daar zijn redenen voor aan te geven

Sectie 10	Omschrijving: Software ontwikkel tools	Type	Waarde
VAR217-Switch	Beschikt Uitholland over software tools waarmee u zelf digitaal onderwijs- en leermateriaal kunt maken?	Dichotoom	ja/nee
VAR218-Switch	Hebt u ooit zelf digitaal lesmateriaal gemaakt?	Dichotoom	ja/nee
VAR219-Resources	Als ik digitaal lesmateriaal wil maken kan ik gemakkelijk bij de software die daarvoor nodig is.	Ordinal	Likert+1
VAR220-Resources	Als ik de software nodig heb, doet die het ook.	Ordinal	Likert+1
VAR221-Resources	De software is gemakkelijk in gebruik.	Ordinal	Likert+1
VAR222-Resources	Met die software kan ik mijn ideeën vormgeven.	Ordinal	Likert+1
VAR223-Resources	Met de software is het mogelijk om kwalitatief goed digitaal lesmateriaal te maken.	Ordinal	Likert+1
VAR224-Culture	Binnen de opleiding is het vanzelfsprekend dat een docent zelf digitaal lesmateriaal maakt.	Ordinal	Likert+1
VAR225-Resources	Dankzij het zelf gemaakte digitale lesmateriaal worden mijn lessen beter.	Ordinal	Likert+1
VAR226-Resources waarom vraag	Waarom hebt u geen gebruik gemaakt van software om zelf digitaal leermateriaal te maken.	Nominaal	(2)*
VAR227-Resources	Als ik zelf digitaal lesmateriaal wil maken, is het lastig om de software te vinden die daarvoor nodig is.	Ordinal	Likert+1
VAR228-Resources	De software doet die het vaak niet.	Ordinal	Likert+1
VAR229-Resources	De software is moeilijk in gebruik.	Ordinal	Likert+1
VAR230-Resources	Met de beschikbare software kan ik mijn ideeën niet vormgeven.	Ordinal	Likert+1
VAR231-Resources	Met de software is het niet mogelijk om kwalitatief goed lesmateriaal te maken.	Ordinal	Likert+1
VAR232-Structure	Binnen de opleiding wordt het docenten afgeraden zelf digitaal lesmateriaal te maken.	Ordinal	Likert+1
VAR233-Resources	Het lesmateriaal dat ik met de beschikbare software kan maken, maakt mijn onderwijs niet echt beter.	Ordinal	Likert+1
VAR234-Resources controle vraag	Weet u zeker dat het Uitholland niet over software beschikt waarmee u zelf digitaal lesmateriaal kunt maken?	Dichotoom	ja/nee
VAR235-Resources feit vraag	Het feit dat Uitholland geen software heeft om zelf digitaal lesmateriaal te maken, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	Ordinal	Likert+1

Table 88: Variabelen sectie 10: Software ontwikkel tools

Likert +1	Antwoord mogelijkheid
1	Helemaal mee oneens
2	Mee oneens
3	Niet mee eens, niet mee oneens
4	Mee eens
5	Helemaal mee eens
6	Weet ik niet / Niet van toepassing

(2)*	Antwoord mogelijkheid
1	Nooit nodig gehad
2	Nooit behoefte aan gehad
3	Is er nooit van gekomen
4	Daar zijn redenen voor aan te geven

Sectie 11	Omschrijving: Digitale bibliotheek	Type	Waarde
VAR236-Switch	Beschikt Uitholland over een digitale bibliotheek (toegang tot digitale boeken, tijdschriften en onderwijs- en leermateriaal)?	Ordinal	Likert+1
VAR237-Switch	Hebt u ooit gebruik gemaakt van de digitale bibliotheek?	Ordinal	Likert+1
VAR238-Resources	De digitale bibliotheek heeft waarde voor mijn lessen.	Ordinal	Likert+1
VAR239-Resources	De digitale bibliotheek is goed bereikbaar	Ordinal	Likert+1
VAR240-Resources	De digitale bibliotheek heeft voor mijn vak voldoende materiaal.	Ordinal	Likert+1
VAR241-Resources	De digitale bibliotheek is afgestemd op de gebruikers.	Ordinal	Likert+1
VAR242-Resources	De digitale bibliotheek maakt mijn onderwijs beter.	Ordinal	Likert+1
VAR243-Resources	De digitale bibliotheek maakt het geven van mijn onderwijs gemakkelijker.	Ordinal	Likert+1
VAR244-Resources waarom vraag	Waarom hebt u geen gebruik gemaakt van de digitale bibliotheek:	Nominaal	(2)*
VAR245-Resources	De digitale bibliotheek heeft geen waarde voor mijn lessen.	Ordinal	Likert+1
VAR246-Resources	De digitale bibliotheek is niet echt goed bereikbaar.	Ordinal	Likert+1
VAR247-Resources	De digitale bibliotheek heeft voor mijn vak onvoldoende materiaal.	Ordinal	Likert+1
VAR248 Resources	De digitale bibliotheek is niet echt goed afgestemd op de gebruikers.	Ordinal	Likert+1
VAR249-Resources	De digitale bibliotheek maakt mijn onderwijs niet echt beter.	Ordinal	Likert+1
VAR250-Resources	De digitale bibliotheek maakt het geven van mijn onderwijs niet gemakkelijker.	Ordinal	Likert+1
VAR251-Resources controle vraag	Weet u zeker dat uw instelling niet over een digitale bibliotheek beschikt (toegang tot digitale boeken, tijdschriften en onderwijs- en leermateriaal)?	Dichotoom	ja/nee
VAR252-Resources feit vraag	Het feit dat Uitholland niet over een digitale bibliotheek beschikt, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	Ordinal	Likert+1

Table 89: Variabelen sectie 11: Digitale bibliotheek

Likert +1	Antwoord mogelijkheid
1	Helemaal mee oneens
2	Mee oneens
3	Niet mee eens, niet mee oneens
4	Mee eens
5	Helemaal mee eens
6	Weet ik niet / Niet van toepassing

Sectie 12	Omschrijving: Kwaliteit	Type	Waarde
VAR253-Structure Switch	Wordt binnen Uitholland vastgelegd hoe collega's ICT binnen hun onderwijs gebruiken, zodat docenten gebruik kunnen maken van elkaars ervaring?	Dichotoom	ja/nee
VAR254-Resources Switch	Maakt u binnen uw lessen wel eens gebruik van ICT-toepassingen die door collega's zijn bedacht?	Dichotoom	ja/nee
VAR255-Culture Switch	Wordt binnen Uitholland de kennis en ervaring met ICT in onderwijs met elkaar gedeeld?	Dichotoom	ja/nee
VAR256-Culture	Er wordt voldoende mate gebruikt gemaakt van elkaars kennis en ervaring bij de inzet van ICT in het onderwijs	Ordinal	Likert+1
VAR257-Resources	De praktijkvoorbeelden van collega's zijn belangrijk voor mijn lessen.	Ordinal	Likert+1
VAR258-Culture	De manier waarop wij kennis en ervaring delen, helpt mij bij het inzetten van ICT binnen mijn onderwijs.	Ordinal	Likert+1
VAR259-Structure feit vraag	Het feit dat er binnen Uitholland de ervaring van collega's niet wordt vastlegt, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	Ordinal	Likert+1
VAR260-Structure Switch	Zijn er binnen Uitholland standaarden en richtlijnen voor het gebruik van ICT binnen het onderwijs?	Dichotoom	ja/nee
VAR261-Structure	De standaarden en richtlijnen voor de inzet van ICT helpen mij bij het inzetten van ICT in mijn lessen.	Ordinal	Likert+1
VAR262-Structure feit vraag	Het feit dat Uitholland geen standaarden en richtlijnen heeft voor de inzet van ICT, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	Ordinal	Likert+1
VAR263-Structure Switch	Wordt de inzet van ICT binnen het onderwijs geëvalueerd?	Dichotoom	ja/nee
VAR264 Structure	De manier waarop het ICT-gebruik wordt geëvalueerd, helpt mij bij het inzetten van ICT in mijn lessen.	Ordinal	Likert+1
VAR265 Structure	Bij de beoordeling van mijn werk wordt ook gekeken naar mijn inzet van ICT in het onderwijs.	Ordinal	Likert+1
VAR266 Structure feit vraag	Het feit dat het ICT-gebruik binnen Uitholland niet wordt geëvalueerd, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	Ordinal	Likert+1

Table 90: Variabelen sectie 12: Kwaliteit

Likert +1	Antwoord mogelijkheid
1	Helemaal mee oneens
2	Mee oneens
3	Niet mee eens, niet mee oneens
4	Mee eens
5	Helemaal mee eens
6	Weet ik niet / Niet van toepassing

Sectie 13	Omschrijving: Management en team	Type	Waarde
VAR267-Culture	Het opleidingsmanagement stimuleert dat de docenten kennis en ervaring uitwisselen met betrekking tot het gebruik van ICT.	Ordinal	Likert+1
VAR268-Culture	De docenten worden betrokken bij de vraag hoe onze opleiding ICT binnen het onderwijs wil inzetten.	Ordinal	Likert+1
VAR269-Culture	Het opleidingsmanagement heeft een visie op de inzet van ICT binnen het onderwijs.	Ordinal	Likert+1
VAR270-Culture	Het opleidingsmanagement heeft een visie op het nut van ICT voor ons onderwijs.	Ordinal	Likert+1
VAR271-Culture	Het opleidingsmanagement geeft leiding aan de richting die we opgaan met de inzet van ICT in het onderwijs.	Ordinal	Likert+1
VAR272-Culture	Het opleidingsmanagement weet duidelijk te maken wat de waarde is van ICT in het onderwijs.	Ordinal	Likert+1
VAR273-Culture	Het opleidingsmanagement zorgt voor de juiste randvoorwaarden voor het gebruik van ICT binnen het onderwijs.	Ordinal	Likert+1
VAR274-Culture	Het opleidingsmanagement stimuleert de docenten in het gebruik van ICT binnen het onderwijs.	Ordinal	Likert+1
VAR275-Culture	Het opleidingsmanagement geeft het goede voorbeeld als het gaat om het gebruik van ICT.	Ordinal	Likert+1
VAR276-Culture	Het opleidingsmanagement toont betrokkenheid als het gaat om het gebruik van ICT binnen het onderwijs.	Ordinal	Likert+1
VAR277-Culture	Het opleidingsmanagement stimuleert feedback en waardeert kritiek als het gaat om het gebruik van ICT binnen het onderwijs.	Ordinal	Likert+1
VAR278-Culture	Het opleidingsmanagement moedigt experimenteren met ICT aan.	Ordinal	Likert+1
VAR279-Culture	Het opleidingsmanagement stimuleert dat collega's samenwerken.	Ordinal	Likert+1
VAR280-Culture	Het opleidingsmanagement verwacht dat medewerkers zich verder ontwikkelen.	Ordinal	Likert+1
VAR281-Culture	Het opleidingsmanagement verwacht dat medewerkers nieuwe dingen uitproberen.	Ordinal	Likert+1
VAR282-Culture	Creativiteit wordt door het opleidingsmanagement gewaardeerd.	Ordinal	Likert+1
VAR283-Culture	Binnen ons team kunnen collega's op elkaar terugvallen bij vragen over ICT.	Ordinal	Likert+1
VAR284-Culture	Binnen ons team weten we wat er met ICT mogelijk is binnen het onderwijs.	Ordinal	Likert+1
VAR285-Culture	Bij het gebruik van ICT in het onderwijs werken we binnen ons team samen.	Ordinal	Likert+1
VAR286-Culture	Binnen ons team is er een gezamenlijke visie het gebruik van ICT in het onderwijs.	Ordinal	Likert+1
VAR287-Culture	Binnen ons team betrekken we elkaar bij de plannen die we hebben voor het gebruik van ICT in het onderwijs.	Ordinal	Likert+1
VAR288-Culture	Ons team staat positief t.o.v. de inzet van ICT in het onderwijs.	Ordinal	Likert+1
VAR289-Culture	Ons team voelt zich betrokken bij het ICT-beleid van de instelling.	Ordinal	Likert+1
VAR290-Culture	Ons team staat positief tegenover veranderingen.	Ordinal	Likert+1
VAR291-Culture	Binnen ons team proberen we zoveel mogelijk om risico's te vermijden.	Ordinal	Likert+1
VAR292-Culture	Ons team probeert voorop te lopen met de inzet van nieuwe technologie in het onderwijs.	Ordinal	Likert+1
VAR293-Culture	Binnen ons team is er een drang tot vernieuwen.	Ordinal	Likert+1
VAR294-Culture	Andersdenkenden worden binnen ons team gezien als interessant, omdat ze ons scherp houden.	Ordinal	Likert+1
VAR295-Culture	Er is binnen ons team een grote bereidheid tot het zoeken van gemeenschappelijke oplossingen.	Ordinal	Likert+1

Table 91: Variabelen sectie 13: Management en team

Sectie 14	Omschrijving: Kenmerken	Type	Waarde
VAR296-Kenmerk	Hoeveel jaar werkt u binnen het onderwijs?	Ratio	(3)*
VAR297-Kenmerk	Bij welk Opleidingsdomein ligt u hoofdtak?	Nominaal	(4)*
VAR298-Kenmerk	Is ICT een onderdeel van het curriculum van uw vak(gebied)? Denk bijvoorbeeld aan vakgebieden als informatica, wiskunde, techniek etc.?	Dichotoom	ja/nee
VAR299-Kenmerk	Hoe lang maakt u binnen uw onderwijs gebruik van ICT.	Ratio	(5)*
VAR300-Kenmerk	Kruis aan welke van onderstaande uitspraken op u van toepassing is:	Dichotoom	(6)*
VAR301-Kenmerk	Kruis aan in welk(e) van onderstaande typering van internetgebruik u zichzelf het meest herkent:	Ordinal	(7)*
VAR302-Kenmerk	Wat is uw leeftijd?	Ratio	(8)*
VAR303-Kenmerk	Bent u een vrouw of een man?	Dichotoom	vrouw/man

Table 92: Variabelen sectie 14: Kenmerken

(3)*	Antwoord mogelijkheid	(4)*	Antwoord mogelijkheid
1	>5 jaar	1	Creativiteit en media
2	5 tot 9 jaar	2	Economie, management en recht
3	10 tot 14 jaar	3	Handel, commercie, zakelijke dienstverlening & ICT
4	15 tot 19 jaar	4	Haven, logistiek en veiligheid
5	20 tot 24 jaar	5	Horeca, bakkerij, voeding/food
6	25 > jaar	6	Mobiliteit & Maintenance
		7	Proces- en installatietechniek
		8	Sport en bewegen, kunst en Culture
		9	Vrije tijd en wellness
		10	Zorg, welzijn en gezondheid
(5)*	Antwoord mogelijkheid	(6)*	Antwoord mogelijkheid
1	minder dan 1 jaar	1	Ik heb alleen betaald werk in het onderwijs
	1 tot 2 jaar	2	Ik heb naast betaald werk in het onderwijs ook daarbuiten een betaalde baan
2	2 tot 3 jaar		
4	meer dan 3 jaar		
5	niet van toepassing		
(7)*	Antwoord mogelijkheid	(8)*	Antwoord mogelijkheid
1	Internet fanaat (intensief gebruik; PC gaat zelden uit)	1	< 25
2	Frequente surfer (een aantal keren per dag online; surfen terwijl bijvoorbeeld de tv aanstaat)	2	25 tot 34
3	Functionele gebruiker (handig hulpmiddel, handig om iets op te zoeken)	3	35 tot 44
4	Beperkte gebruiker (maak zeer weinig gebruik; soms hulp nodig om op internet iets te vinden)	4	45 tot 54
5	Maak geen gebruik van internet	5	55 tot 59
		6	60 >

Appendix 8: Variabelen onderzoek

Sectie 1	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR001	Gebruikt u ICT in het onderwijs zo ja hoe?	146	0	1,03	0,26	0,07	x	x	x	x		Schakel
VAR002	Ik heb voldoende kennis, inzicht en vaardigheden om ICT binnen mijn onderwijs te gebruiken.	146	0	3,99	0,98	0,95	-4,14	0,40	0,44	0,80	5 scoort hoog 51 top 4 = 57	Goed
VAR003	Ik krijg voldoende tijd om uit te proberen hoe ik ICT in mijn onderwijs kan gebruiken.	146	0	2,95	1,12	1,25	0,25	0,40	-2,84	0,80	Geen top 3= 24 2= 53	Goed
VAR004	Ons gebouw is zo ingericht, dat ik ICT gemakkelijk binnen mijn onderwijs kan gebruiken.	146	0	2,63	1,11	1,24	1,89	0,40	-1,73	0,80		Goed
VAR005	Er zijn regelmatig bijeenkomsten om te overleggen hoe we ICT zo goed mogelijk binnen het onderwijs kunnen gebruiken.	125	21	2,42	0,98	0,96	1,97	0,43	-1,49	0,86	Hoge 2=58 de rest laag ca 20	Goed
VAR006	Van samenwerking met andere (onderwijs-)instellingen leer ik hoe ik ICT in mijn onderwijs kan gebruiken.	119	27	2,70	1,17	1,37	0,72	0,44	-2,32	0,88	Dip in de top 3=25, 2=38	Goed
VAR007	Onze instelling heeft een duidelijke visie op onderwijs.	142	4	3,50	0,99	0,99	-3,23	0,41	-0,31	0,81	4=70 zeer hoog	Goed
VAR008	Onze instelling heeft een duidelijke visie op de inzet van ICT in het onderwijs.	142	4	2,69	1,09	1,18	1,68	0,41	-1,24	0,81		Goed
VAR009	Er is samenhang tussen de visie op onderwijs en de visie op ICT.	135	11	2,62	1,06	1,13	0,79	0,42	-1,85	0,83		Goed
VAR010	De visie op ICT in het onderwijs is bij de docenten bekend.	142	4	2,35	0,92	0,85	2,29	0,41	-1,45	0,81	2=71 de rest ca 20	Goed
VAR011	Bij de inzet van ICT in mijn onderwijs, laat ik mij leiden door wat het opleidingsmanagement van mij verwacht.	143	3	2,70	1,02	1,04	0,74	0,41	-1,80	0,81		Goed
VAR012	Met mijn collega's maak ik afspraken over de inzet van ICT voor onze lessen.	143	3	3,48	0,91	0,83	-2,30	0,41	-0,79	0,81	4=68, 5=13	Goed
VAR013	Ik bepaal voornamelijk zelf op welke manier ik ICT inzet in mijn onderwijs	146	0	4,03	0,76	0,59	-2,63	0,40	0,17	0,80	4=76, 3=25, hoge piek	Goed
VAR014	De manier waarop ik ICT in het onderwijs wil inzetten komt overeen met wat het Zadkine van mij verwacht.	112	34	3,43	0,94	0,88	-1,86	0,46	-0,92	0,91		Goed
VAR015	Het Zadkine wil meer met ICT in het onderwijs dan ik wil.	134	12	1,97	0,62	0,39	1,89	0,42	2,22	0,83	2=88 de rest ca 20 hoge piek	Goed
VAR016	Ik wil meer met ICT in het onderwijs dan het Zadkine van mij verwacht.	135	11	3,89	0,90	0,82	-3,67	0,42	0,68	0,83	Hoge piek 4=68	Goed

Table 93: Variabelen onderzoek sectie 1

Sectie 2a	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR017	Zijn er binnen ROC Uitholland ICT-Resources voor het ondersteunen en geven van uw onderwijs (computers/softwareapplicaties/internet etc.)?	146	0	1,01	0,08	0,01	x	x	x	x		Schakel
VAR018	Hebt u ooit gebruik gemaakt van deze ICT-middelen?	145	1	1,01	0,12	0,01	x	x	x	x		Schakel
VAR019	In de lesruimten zijn voldoende pc's, printers, beamers etc.	142	4	2,08	1,04	1,08	3,58	0,41	-1,10	0,81	1=49, 2=54 rest laag 19	Goed
VAR020	In de docentenruimte zijn voldoende pc's, printers, beamers, etc.	140	6	2,66	1,06	1,13	1,14	0,41	-2,56	0,81	dip in de top 3=24, 2=59	Goed
VAR021	De beschikbare ICT-middelen werken goed.	141	5	2,53	0,84	0,71	0,93	0,41	-0,58	0,81		Goed
VAR022	De beschikbare ICT-middelen zijn nieuw genoeg.	139	7	2,39	1,00	1,01	2,89	0,41	-0,28	0,82	2=62 hoog, 3=3 2	Goed
VAR023	In de lesruimtes is een internetverbinding die voldoet voor mijn lessen.	141	5	2,84	1,00	0,99	-0,94	0,41	-2,51	0,81	stomp 2,3,4, ca 40	Goed
VAR024	In de docentruimtes is een goede toegang tot het internet.	141	5	3,56	0,86	0,73	-5,33	0,41	3,34	0,81	hoge piek 4=81, 3=36	Afkeur op test
VAR025	In de lesruimtes heb ik een goede toegang tot het netwerk van de opleiding.	141	5	2,61	1,07	1,14	1,46	0,41	-2,43	0,81	dip 2=61, 3=23	Goed
VAR026	In de docentenkamers heb ik een goede toegang tot het netwerk van de opleiding.	140	6	3,71	0,74	0,55	-6,21	0,41	5,47	0,81	piek op 4=94	Afkeur op test
VAR027	Thuis heb ik een goed toegang tot het netwerk van de opleiding.	138	8	2,83	1,23	1,52	-0,32	0,41	-3,16	0,82	dip 3=19, 2=39, 4=49	Goed
VAR028	De beschikbaren ICT-middelen helpen mij bij het geven van mijn lessen.	139	7	3,57	0,87	0,75	-3,17	0,41	0,46	0,82	piek op 4=73	Goed
VAR029	De beschikbare ICT-middelen zijn gemakkelijk in het gebruik.	140	6	3,37	0,88	0,78	-3,31	0,41	-0,68	0,81	piek op 4=72	Goed
VAR030	Bij de beschikbare ICT-middelen zit voldoende documentatie om mij te helpen.	124	22	2,62	1,02	1,05	0,59	0,43	-2,42	0,86	dip 3=28, 2=28, 4=31	Goed
VAR031	Het beheer van de ICT-middelen houdt rekening met hoe ik ICT in het onderwijs wil gebruiken.	136	10	2,56	1,00	1,00	0,40	0,42	-2,18	0,83	piekje 2=47, 3=40	Goed
VAR032	Dankzij de ICT-middelen worden mijn lessen beter.	138	8	3,64	0,84	0,71	-3,16	0,41	0,43	0,82	piek 4=76, 3=31	Goed

Table 94: Variabelen onderzoek sectie 2a

Sectie 2b	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR033	Waarom hebt u geen gebruik gemaakt van de beschikbare ICT-middelen?	2	144	3,00	0,00	0,00	x	x	x	x		Waarom vraag
VAR034	In de lesruimtes zijn onvoldoende pc's, printers, beamers, etc	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR035	In de docentenruimte zijn onvoldoende pc's, printers, beamers, etc.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR036	De beschikbare ICT-middelen werken niet echt goed.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR037	De beschikbare ICT-middelen zijn niet nieuw genoeg.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR038	In de lesruimtes is geen internetverbinding die voldoet voor mijn lessen.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR039	In de docentruimtes is geen goede toegang tot het internet.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR040	In de lesruimtes heb ik geen goede toegang tot het netwerk van de opleiding.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR041	In de docentenkamers heb ik geen goede toegang tot het netwerk van de opleiding.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR042	Thuis heb ik geen goede toegang tot het netwerk van de opleiding.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR043	De beschikbare ICT-middelen helpen mij niet echt bij het geven van mijn lessen.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR044	De beschikbare ICT-middelen zijn niet echt gemakkelijk in het gebruik.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR045	Bij de beschikbare ICT-middelen zit onvoldoende documentatie om mij te helpen.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR046	Het beheer van de ICT-middelen wordt niet echt rekening gehouden met hoe ik ICT in het onderwijs wil gebruiken.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR047	De ICT-middelen maken mijn lessen niet echt beter.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR048	Weet u zeker dat er geen ICT-middelen aanwezig zijn voor het ondersteunen en geven van uw onderwijs?	1	145	2,00	x	x	x	x	x	x		Controle vraag
VAR049	Het feit dat er binnen het Zadkine geen ICT-middelen zijn voor het ondersteunen van mijn onderwijs, heeft een nadelige invloed op mijn onderwijs.	0	146	x	x	x	x	x	x	x		Afkeur op aantal

Table 95: Variabelen onderzoek sectie 2b

Sectie 3a	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR050	Kunt binnen of buiten ROC Uitholland opleidingen/trainingen volgen op het gebied van ICT in uw onderwijs.	144	2	1,34	0,48	0,23	x	x	x	x		Schakel
VAR051	Hebt u ooit een opleiding gevolgd?	95	51	1,33	0,47	0,22	x	x	x	x		Schakel
VAR052	De opleidingen/trainingen helpen mij om ICT in mijn onderwijs te gebruiken.	63	83	4,00	0,67	0,45	-2,18	0,60	2,32	1,19	piek 4=41, 5=12	Afkeur op test
VAR053	Voor het volgen van opleidingen is er voldoende tijd.	64	82	2,73	0,96	0,93	-0,32	0,60	-1,75	1,18		Goed
VAR054	Voor het volgen van opleidingen is er voldoende geld.	40	106	2,75	0,81	0,65	-0,31	0,75	-0,61	1,47		Goed
VAR055	Het opleidingsmanagement stimuleert mij om opleidingen te volgen.	64	82	2,98	0,81	0,65	-0,53	0,60	-1,66	1,18		Goed
VAR056	Mijn collega's stimuleren mij om opleidingen te volgen.	63	83	3,29	0,87	0,76	-2,49	0,60	-0,15	1,19	4=30, 5=1	Goed
VAR057	Als ik een opleiding nodig heb, kan ik die voldoende snel volgen.	60	86	3,13	0,81	0,66	-0,18	0,62	-1,74	1,22		Goed
VAR058	De meeste opleidingen zijn in de buurt te volgen.	59	87	3,46	0,75	0,56	-1,56	0,62	-0,59	1,23		Goed
VAR059	De beschikbare opleidingen sluiten aan bij mijn lessen.	58	88	3,71	0,70	0,49	-1,50	0,63	0,58	1,24		Goed
VAR060	De opleidingen maken mij beter.	63	83	3,89	0,63	0,39	-2,45	0,60	3,00	1,19	piek 4=44, 5=7	Afkeur op test
VAR061	De opleidingen worden door vakbekwame docenten gegeven.	60	86	3,78	0,52	0,27	-3,11	0,62	2,80	1,22	piek 4=44, 5=2	Afkeur op test

Table 96: Variabelen onderzoek sectie 3a

Sectie 3b	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR062	Waarom hebt u geen gebruik gemaakt van opleidingen/trainingen:	31	115	2,19	1,08	1,16	x	x	x	x		Waarom vraag
VAR063	Voor mij hoeven opleidingen niet zo nodig.	2	144	1,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR064	Er zit geen passende opleiding voor mij bij.	2	144	1,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR065	Ik heb geen tijd om opleidingen te volgen.	2	144	2,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR066	Het opleidingsmanagement vindt het niet echt nodig.	2	144	2,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR067	Mijn collega's vinden het niet echt nodig.	2	144	2,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR068	Er is niet voldoende geld voor het volgen van opleidingen.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR069	Het duurt te lang voordat ik aan de beurt ben.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR070	De opleidingen worden niet echt in de buurt gegeven.	2	144	3,50	0,71	0,50	x	x	x	x		Afkeur op aantal
VAR071	De opleidingen sluiten niet echt aan bij mijn lessituatie.	2	144	2,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR072	Ik vind de opleidingen niet echt goed genoeg.	1	145	1,00	x	x	x	x	x	x		Afkeur op aantal
VAR073	De opleidingen maken mij niet echt beter.	1	145	1,00	x	x	x	x	x	x		Afkeur op aantal
VAR074	Weet u zeker dat binnen of buiten het Zadkine geen opleidingen/ trainingen kunt volgen op het gebied van ICT in uw onderwijs?	49	97	1,78	0,42	0,18	x	x	x	x		Controle vraag
VAR075	Het feit dat er geen opleidingen gevolgd kunnen worden, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs	11	135	3,45	1,21	1,47	x	x	x	x		Feit vraag

Table 97: Variabelen onderzoek sectie 3b

Sectie 4a	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR076	Kunt u binnen het Zadkine ergens terecht voor technische ondersteuning bij het gebruik van ICT in uw onderwijs?	144	2	1,05	0,22	0,05	21,00	0,40	40,41	0,80		Schakel
VAR077	Hebt u ooit gebruik gemaakt van de technische ondersteuning?	137	9	1,12	0,32	0,10	11,65	0,41	9,43	0,82		Schakel
VAR078	Als ik technische ondersteuning nodig heb, wordt daar voldoende aandacht aan besteed.	121	25	3,30	1,13	1,28	-1,97	0,44	-1,27	0,87	piekje 4=45, 5=15	Goed
VAR079	Die technische ondersteuning helpt mij bij het gebruik van ICT in mijn onderwijs.	120	26	3,44	0,91	0,82	-3,26	0,44	-0,04	0,88	Piek 4=63, 5=7	Goed
VAR080	De technische ondersteuning is goed bereikbaar.	120	26	2,66	1,07	1,15	0,82	0,44	-1,83	0,88		Goed
VAR081	Deze technische ondersteuning is klantvriendelijk.	120	26	3,25	0,99	0,98	-2,13	0,44	-0,94	0,88	piek 4=50, 5=7	Goed
VAR082	Deze technische ondersteuning is van goede kwaliteit.	119	27	3,23	0,94	0,89	-1,84	0,44	-0,67	0,88		Goed
VAR083	De technische ondersteuning heeft prettige openingstijden.	104	42	2,73	1,11	1,23	0,13	0,47	-2,23	0,94	dip 3=24, 2=33, 4=29	Goed
VAR084	De technische ondersteuning komt de afspraken na.	118	28	3,43	0,81	0,66	-1,63	0,45	-0,23	0,88		Goed
VAR085	De medewerkers van de technische ondersteuning helpen mij goed.	119	27	3,48	0,95	0,90	-2,20	0,44	-0,90	0,88	piek 4=57, 5=12	Goed
VAR086	De medewerkers van de technische hebben goede ideeën.	103	43	3,25	0,93	0,86	-0,31	0,48	-0,97	0,94		Goed
VAR087	Dankzij de technische ondersteuning kan ik ICT beter inzetten in mijn lessen.	117	29	3,30	0,92	0,85	-1,63	0,45	-0,19	0,89		Goed

Table 98: Variabelen onderzoek sectie 4a

Sectie 4b	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR088	Waarom hebt u geen gebruik gemaakt van de technische ondersteuning:	16	130	1,50	0,63	0,40	x	x	x	x		Waarom vraag
VAR089	Als ik technische ondersteuning nodig heb, wordt daar onvoldoende aandacht aan besteed.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR090	De technische ondersteuning helpt mij niet echt bij het gebruik van ICT in mijn onderwijs.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR091	De technische ondersteuning is lastig bereikbaar.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR092	De technische ondersteuning is niet echt klantvriendelijk.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR093	De technische ondersteuning is niet echt van goede kwaliteit.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR094	De technische ondersteuning heeft lastige openingstijden.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR095	De technische ondersteuning komt de afspraken niet na.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR096	De medewerkers van de technische ondersteuning helpen mij niet echt.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR097	De medewerkers van de technische ondersteuning zijn niet echt vooruitstrevend genoeg.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR098	De technische ondersteuning maakt de inzet van ICT in mijn lessen niet echt beter.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR099	Weet u zeker dat u binnen het Zadkine nergens terecht kunt technische ondersteuning?	7	139	1,43	0,53	0,29	x	x	x	x		Controle vraag
VAR100	Het feit dat u voor technische ondersteuning nergens terecht kan, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	4	142	4,50	0,58	0,33	x	x	x	x		Feit vraag

Table 99: Variabelen onderzoek sectie 4b

Sectie 5a	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR101	Mag u externe technische expertise inhuren?	140	6	1,93	0,26	0,07	x	x	x	x		Schakel
VAR102	Hebt u ooit gebruik gemaakt van technische externe expertise:	10	136	1,60	0,52	0,27	x	x	x	x		Schakel
VAR103	Als ik binnen het Zadkine niet kan worden geholpen, mag ik in voldoende mate een beroep doen op externe technische deskundigen.	4	142	3,50	0,58	0,33	x	x	x	x		Afkeur op aantal
VAR104	De inhuur van externe technische deskundigen helpt mij bij het gebruik van ICT in mijn onderwijs.	3	143	4,33	0,58	0,33	x	x	x	x		Afkeur op aantal
VAR105	De externe deskundigen zijn gemakkelijk te vinden.	3	143	3,67	0,58	0,33	x	x	x	x		Afkeur op aantal
VAR106	De externe technische deskundigen zijn klantvriendelijk	3	143	4,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR107	De externe technische deskundige zijn van goede kwaliteit.	3	143	4,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR108	De externe technische deskundigen zijn er als ik hen nodig heb.	3	143	3,67	0,58	0,33	x	x	x	x		Afkeur op aantal
VAR109	De externe technische deskundigen komen hun afspraken na.	3	143	4,33	0,58	0,33	x	x	x	x		Afkeur op aantal
VAR110	De externe technische deskundigen helpen mij goed.	3	143	4,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR111	De externe technische deskundigen hebben goede ideeën.	3	143	3,67	0,58	0,33	x	x	x	x		Afkeur op aantal
VAR112	Dankzij de externe technische deskundigen kan ik ICT beter inzetten in mijn lessen.	3	143	4,00	0,00	0,00	x	x	x	x		Afkeur op aantal

Table 100: Variabelen onderzoek sectie 5a

Sectie 5b	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR113	Waarom hebt u geen gebruik gemaakt van de externe technische expertise?	6	140	2,67	1,21	1,47	x	x	x	x		Waarom vraag
VAR114	Als ik binnen het Zadkine niet kan worden geholpen, mag ik toch niet voldoende een beroep doen op externe technische deskundigen.	2	144	2,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR115	De inhuur van externe technische deskundigen helpt mij niet bij het gebruik van ICT in mijn onderwijs.	2	144	2,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR116	De externe deskundigen zijn moelijk te vinden.	2	144	4,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR117	De externe technische deskundigen zijn klantvriendelijk.	2	144	2,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR118	De externe technische deskundige zijn niet van goede kwaliteit.	2	144	2,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR119	De externe technische deskundigen zijn er niet als ik hen nodig heb.	2	144	4,50	0,71	0,50	x	x	x	x		Afkeur op aantal
VAR120	De externe technische deskundigen komen hun afspraken niet na.	2	144	2,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR121	De externe technische deskundigen helpen mij niet goed.	2	144	2,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR122	De externe technische deskundigen hebben geen goede ideeën.	2	144	2,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR123	De externe technische deskundigen maken de inzet van ICT in mijn lessen niet beter.	2	144	2,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR124	Weet u zeker geen gebruik mag maken externe technische expertise?	130	16	1,36	0,48	0,23	x	x	x	x		Controle vraag
VAR125	Het feit dat er geen externe technische deskundigen mag inhuren, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	78	68	3,42	1,06	1,13	-1,69	0,54	-0,59	1,08		Feit vraag

Table 101: Variabelen onderzoek sectie 5b

Sectie 6a	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR126	Kunt u binnen uw instelling ergens terecht voor onderwijskundige ondersteuning bij het gebruik van ICT in uw onderwijs.	140	6	1,56	0,50	0,25	x	x	x	x		Schakel
VAR127	Hebt u ooit gebruik gemaakt van de onderwijskundige ondersteuning?	61	85	1,23	0,42	0,18	x	x	x	x		Schakel
VAR128	Als ik onderwijskundige ondersteuning nodig heb, wordt daar voldoende aandacht aan besteed.	47	99	3,57	0,74	0,55	-2,20	0,69	0,17	1,36	piek 4=28, 5=2	Goed
VAR129	Die ondersteuning helpt mij bij het gebruik van ICT in mijn onderwijs.	46	100	3,72	0,58	0,34	-1,66	0,70	0,98	1,38		Goed
VAR130	Die ondersteuning goed bereikbaar.	47	99	2,87	0,82	0,68	1,41	0,69	-0,99	1,36		Goed
VAR131	De onderwijskundige ondersteuning is klantvriendelijk.	47	99	3,68	0,56	0,31	-2,24	0,69	0,76	1,36	piek 4=31, 5=1	Goed
VAR132	De onderwijskundige ondersteuning is van goede kwaliteit.	46	100	3,65	0,64	0,41	-3,25	0,70	1,51	1,38	piek 4=31, 5=1	Goed
VAR133	De onderwijskundige ondersteuning heeft prettige openingstijden.	39	107	3,00	0,83	0,68	1,56	0,76	0,05	1,48		Goed
VAR134	De onderwijskundige ondersteuning komt de afspraken na.	46	100	3,72	0,62	0,39	-2,58	0,70	1,79	1,38	piek 4=31, 5=2	Goed
VAR135	De medewerkers van de onderwijskundige ondersteuning helpen mij goed.	46	100	3,78	0,59	0,35	0,25	0,70	-0,46	1,38		Goed
VAR136	De medewerkers van de onderwijskundige ondersteuning hebben goede ideeën.	45	101	3,73	0,65	0,43	-0,51	0,71	0,20	1,39		Goed
VAR137	Dankzij de onderwijskundige ondersteuning kan ik ICT beter inzetten in mijn lessen.	46	100	3,72	0,69	0,47	-3,64	0,70	6,23	1,38	piek 4=29, 5=3	Afkeur op test

Table 102: Variabelen onderzoek sectie 6a

Sectie 6b	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR138	Waarom hebt u geen gebruik gemaakt van de onderwijskundige ondersteuning?	14	132	2,29	0,91	0,84	0,07	1,19	-0,57	2,31		Waarom vraag
VAR139	Als ik onderwijskundige ondersteuning nodig heb, wordt daar onvoldoende aandacht aan besteed.	1	145	4,00	x	x	x	x	x	x		Afkeur op aantal
VAR140	De onderwijskundige ondersteuning helpt mij niet bij het gebruik van van ICT in mijn onderwijs.	1	145	4,00	x	x	x	x	x	x		Afkeur op aantal
VAR141	De onderwijskundige ondersteuning is lastig bereikbaar.	1	145	4,00	x	x	x	x	x	x		Afkeur op aantal
VAR142	De onderwijskundige ondersteuning is niet echt klantvriendelijk.	1	145	2,00	x	x	x	x	x	x		Afkeur op aantal
VAR143	De onderwijskundige ondersteuning is niet echt van goede kwaliteit.	1	145	3,00	x	x	x	x	x	x		Afkeur op aantal
VAR144	De onderwijskundige ondersteuning heeft lastige openingstijden.	1	145	4,00	x	x	x	x	x	x		Afkeur op aantal
VAR145	De onderwijskundige ondersteuning komt de afspraken niet na.	1	145	2,00	x	x	x	x	x	x		Afkeur op aantal
VAR146	De medewerkers van de onderwijskundige ondersteuning helpen mij niet echt.	1	145	4,00	x	x	x	x	x	x		Afkeur op aantal
VAR147	De medewerkers van de onderwijskundige ondersteuning zijn niet echt vooruitstrevend genoeg.	1	145	4,00	x	x	x	x	x	x		Afkeur op aantal
VAR148	De onderwijskundige ondersteuning maakt de inzet van ICT in mijn lessen niet echt beter.	1	145	3,00	x	x	x	x	x	x		Afkeur op aantal
VAR149	Weet u zeker dat u nergens bij het Zadkine terecht kunt voor onderwijskundige ondersteuning bij het gebruik van ICT in uw onderwijs?	79	67	1,70	0,46	0,21	x	x	x	x		Controle vraag
VAR150	Het feit dat ik voor onderwijskundige ondersteuning nergens terecht kan, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	23	123	4,00	0,80	0,64	-1,22	0,96	0,40	1,87		Goed

Table 103: Variabelen onderzoek sectie 6b

Sectie 7a	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR151	Mag u externe onderwijskundige expertise raadplegen of inhuren?	140	6	1,79	0,41	0,17	-6,87	0,41	-0,05	0,81		Schakel
VAR152	Hebt u ooit gebruik gemaakt van externe onderwijskundige deskundigen?	30	116	1,30	0,47	0,22	2,15	0,85	-1,49	1,67		Schakel
VAR153	Als ik binnen het Zadkine niet kan worden geholpen, mag ik in voldoende mate een beroep doen op externe onderwijskundige ondersteuning.	20	126	3,40	0,60	0,36	-0,77	1,02	-0,57	1,98		Afkeur op aantal
VAR154	De inhuur van externe onderwijskundigedeskundigen helpt mij bij het gebruik van ICT in mijn onderwijs.	21	125	3,81	0,51	0,26	-5,64	1,00	8,15	1,94		Afkeur op aantal
VAR155	De externe onderwijskundige deskundigen zijn gemakkelijk te vinden.	19	127	2,63	0,50	0,25	-1,13	1,05	-1,83	2,03		Afkeur op aantal
VAR156	De externe onderwijskundige deskundigen zijn klantvriendelijk.	20	126	3,55	0,51	0,26	-0,43	1,02	-2,20	1,98		Afkeur op aantal
VAR157	De externe onderwijskundige deskundigen zijn van goede kwaliteit.	19	127	3,84	0,37	0,14	-3,90	1,05	2,38	2,03		Afkeur op aantal
VAR158	De externe onderwijskundige deskundigen zijn er als ik hen nodig heb.	19	127	2,58	0,84	0,70	0,68	1,05	-0,47	2,03		Afkeur op aantal
VAR159	De externe onderwijskundige deskundigen komen hun afspraken na.	19	127	3,79	0,42	0,18	-2,95	1,05	0,41	2,03		Afkeur op aantal
VAR160	De externe onderwijkundige deskundigen helpen mij goed.	20	126	3,85	0,37	0,13	-4,15	1,02	2,80	1,98		Afkeur op aantal
VAR161	De externe onderwijskundige deskundigen hebben goede ideeën.	20	126	3,85	0,37	0,13	-4,15	1,02	2,80	1,98		Afkeur op aantal
VAR162	Dankzij de externe onderwijskndige deskundigen kan ik ICT beter inzetten in mijn lessen.	19	127	4,26	0,56	0,32	0,11	1,05	-0,17	2,03		Afkeur op aantal

Table 104: Variabelen onderzoek sectie 7a

Sectie 7b	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR163	Waarom hebt u geen gebruik gemaakt van de externe onderwijskundige ondersteuning?	9	137	1,89	0,33	0,11	-4,18	1,43	6,43	2,80		Afkeur op aantal
VAR164	De inhuur van externe onderwijskundige expertise kan mij niet echt helpen bij het gebruik van ICT in mijn onderwijs.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR165	De externe onderwijskundige expertise is lastig te vinden.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR166	De externe onderwijskundige niet echt klantvriendelijk	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR167	De externe onderwijskundig expertise is niet echt van goede kwaliteit.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR168	De externe onderwijskundige expertise is er niet als ik hen nodig heb.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR169	De externe onderwijskundige expertise komt de afspraken na.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR170	De externe onderwijskundige expertise helpt mij niet echt goed.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR171	De externe onderwijskundige expertise heeft niet echt goede ideeën.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR172	De externe onderwijskundige expertise maakt de inzet van ICT in mijn lessen niet echt beter.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR173	Weet u zeker dat u geen gebruik mag maken van externe onderwijskundige ondersteuning?	110	36	1,22	0,41	0,17	x	x	x	x		Controle vraag
VAR174	Het feit dat er geen externe onderwijskundige ondersteuning mag inhuren, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	63	83	3,27	1,02	1,04	-0,33	0,60	-1,00	1,19		Feit vraag Goed

Table 105: Variabelen onderzoek sectie 7b

Sectie 8a	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR175	Stelt het Zadkine digitaal lesmateriaal beschikbaar voor uw onderwijs?	138	8	1,52	0,50	0,25	x	x	x	x		Schakel
VAR176	Heeft u ooit gebruik gemaakt van digitaal lesmateriaal?	66	80	1,09	0,29	0,08	x	x	x	x		Schakel
VAR177	Het beschikbare digitale lesmateriaal binnen UitHolland is gemakkelijk te vinden.	60	86	3,03	0,94	0,88	-1,05	0,62	-2,10	1,22	dip 3=14, 2=19, 4=25	Goed
VAR178	Het is gemakkelijk om het beschikbare digitale lesmateriaal op te halen en in te zetten binnen mijn lessen.	60	86	3,03	1,04	1,08	-0,22	0,62	-2,25	1,22	dip 3=8, 2=23, 3=25	Goed
VAR179	Er is voldoende digitaal lesmateriaal voor mijn lessen.	59	87	2,85	0,85	0,72	0,97	0,62	-2,53	1,23	dip 3=16, 2=26	Goed
VAR180	Het beschikbare digitale lesmateriaal is van voldoende kwaliteit.	57	89	3,47	0,71	0,50	-2,15	0,63	-0,43	1,25	4=31, 5=1	Goed
VAR181	Het opleidingsmanagement stimuleert mij om digitaal lesmateriaal in mijn lessen in te zetten.	57	89	2,93	0,88	0,78	0,44	0,63	-1,52	1,25		Goed
VAR182	Mijn collega's stimuleren mij om digitaal lesmateriaal in mijn lessen in te zetten.	58	88	3,52	0,80	0,64	-3,24	0,63	1,39	1,24	piek 4=34, 5=2	Goed
VAR183	Het digitale lesmateriaal is nuttig voor mijn lessen.	59	87	4,00	0,56	0,31	0,00	0,62	0,67	1,23		Goed
VAR184	Het digitale lesmateriaal maken mijn lessen beter.	59	87	3,85	0,58	0,34	0,05	0,62	-0,16	1,23		Goed

Table 106: Variabelen onderzoek sectie 8a

Sectie 8b	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR185	Waarom hebt u geen gebruik gemaakt van digitaal lesmateriaal?	6	140	3,00	1,55	2,40	x	x	x	x		Waarom vraag
VAR186	Het beschikbare digitale lesmateriaal binnen het Zadkine is moeilijk te vinden.	4	142	4,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR187	Het is lastig het beschikbare digitale lesmateriaal op te halen en in te zetten binnen mijn lessen.	4	142	3,75	0,50	0,25	x	x	x	x		Afkeur op aantal
VAR188	Er is onvoldoende digitaal lesmateriaal voor mijn lessen.	4	142	4,25	0,96	0,92	x	x	x	x		Afkeur op aantal
VAR189	Het beschikbare digitale lesmateriaal is niet echt van voldoende kwaliteit.	3	143	3,00	1,00	1,00	x	x	x	x		Afkeur op aantal
VAR190	Het opleidingsmanagement stimuleert mij niet echt om digitaal lesmateriaal in te zetten.	4	142	3,25	0,96	0,92	x	x	x	x		Afkeur op aantal
VAR191	Mijn collega's stimuleren mij niet echt om digitaal lesmateriaal te gebruiken.	4	142	2,50	1,00	1,00	x	x	x	x		Afkeur op aantal
VAR192	Digitaal lesmateriaal is niet echt nuttig voor mijn lessen.	4	142	2,75	0,96	0,92	x	x	x	x		Afkeur op aantal
VAR193	Digitaal lesmateriaal maken mijn lessen niet echt beter.	4	142	2,50	1,00	1,00	x	x	x	x		Afkeur op aantal
VAR194	Weet u zeker dat het zadkine geen digitaal lesmateriaal ter beschikking stelt?	72	74	1,61	0,49	0,24	x	x	x	x		Controle vraag
VAR195	Het feit dat er geen digitaal lesmateriaal is, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	26	120	3,42	1,24	1,53	-1,08	0,91	-0,86	1,77		Feit vraag Goed

Table 107: Variabelen onderzoek sectie 8b

Sectie 9a	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR196	Mag digitaal lesmateriaal aanschaffen of downloaden van buiten u opleiding?	138	8	1,29	0,46	0,21	x	x	x	x		Schakel
VAR197	Hebt u ooit gebruik gemaakt van extern digitaal lesmateriaal?	98	48	1,13	0,34	0,12	x	x	x	x		Schakel
VAR198	Het ROC Uitholland staat het in voldoende mate toe om een beroep te doen op externe digitaal lesmateriaal aan te schaffen.	81	65	3,81	0,67	0,45	-5,73	0,53	8,09	1,06	hoge piek 4=59	Afkeur op test
VAR199	Ik weet voldoende extern digitaal lesmateriaal voor mijn lessen te vinden.	84	62	3,76	0,82	0,67	-1,85	0,53	-0,10	1,04		Goed
VAR200	Het is gemakkelijk om de externe digitaal lesmiddelen op te halen en in te zetten binnen mijn lessen.	85	61	3,29	0,91	0,83	-0,53	0,52	-2,05	1,03	piek 4=36, 5=5	Goed
VAR201	Het externe digitale lesmateriaal is van voldoende kwaliteit.	85	61	3,85	0,45	0,20	-5,58	0,52	7,19	1,03	Zeer hoge piek 4=69	Afkeur op test
VAR202	Het opleidingsmanagement stimuleert mij om extern digitaal lesmateriaal in mijn lessen in te zetten.	81	65	2,65	0,76	0,58	-0,07	0,53	-0,67	1,06		Goed
VAR203	Mijn collega's stimuleren mij om extern digitaal lesmateriaal in mijn lessen in te zetten.	80	66	3,61	0,70	0,49	-3,20	0,54	0,72	1,06	hoge piek 4=50, 5=3	Goed
VAR204	Het externe digitale lesmateriaal is nuttig voor mijn onderwijs.	83	63	4,14	0,42	0,17	3,63	0,53	3,13	1,05	1=0, 2=0, 4=67	Afkeur op test
VAR205	Het externe digitale lesmateriaal maken mijn lessen beter.	83	63	4,07	0,49	0,24	0,70	0,53	2,37	1,05	1=0, 2=0, 4=63,	Goed

Table 108: Variabelen onderzoek sectie 9a

Sectie 9b	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR206	Waarom hebt u geen gebruik gemaakt van extern digitaal lesmateriaal?	13	133	2,00	1,16	1,33	x	x	x	x		Waarom vraag
VAR207	Het Zadkine ontmoedigd het om een beroep te doen op extern digitaal lesmateriaal.	1	145	2,00	x	x	x	x	x	x		Afkeur op aantal
VAR208	Ik kan geen extern digitaal lesmateriaal voor mijn lessen vinden.	1	145	3,00	x	x	x	x	x	x		Afkeur op aantal
VAR209	Het is te moeilijk om de externe digitaal lesmateriaal op te halen en in te zetten binnen mijn lessen.	1	145	4,00	x	x	x	x	x	x		Afkeur op aantal
VAR210	Het externe digitale lesmateriaal is niet echt van voldoende kwaliteit.	1	145	4,00	x	x	x	x	x	x		Afkeur op aantal
VAR211	Het opleidingsmanagement stimuleert mij niet echt om extern digitaal lesmateriaal in te zetten.	1	145	4,00	x	x	x	x	x	x		Afkeur op aantal
VAR212	Mijn collega's stimuleren mij niet echt om extern digitaal lesmateriaal te gebruiken.	1	145	3,00	x	x	x	x	x	x		Afkeur op aantal
VAR213	Externe digitaal lesmateriaal is niet echt nuttig voor mijn lessen.	1	145	2,00	x	x	x	x	x	x		Afkeur op aantal
VAR214	Externe digitaal lesmateriaal maken mijn lessen niet echt beter.	1	145	4,00	x	x	x	x	x	x		Afkeur op aantal
VAR215	Weet u zeker dat u geen digitaal lesmateriaal mag aanschaffen of downloaden buiten uw opleiding?	40	106	1,73	0,45	0,20	x	x	x	x		Controle vraag
VAR216	Het feit dat ik geen gebruik kan maken van extern digitaal lesmateriaal, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	11	135	3,55	0,82	0,67	x	x	x	x		Feit vraag

Table 109: Variabelen onderzoek sectie 9b

Sectie 10a	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR217	Beschikt het Zadkine over software tools waarmee u zelf digitaal onderwijs- en leermateriaal kunt maken?	137	9	1,66	0,48	0,23	x	x	x	x		Schakel
VAR218	Hebt u ooit zelf digitaal lesmateriaal gemaakt?	47	99	1,17	0,38	0,14	x	x	x	x		Schakel
VAR219	Als ik digitaal lesmateriaal wil maken kan ik gemakkelijk bij de software die daarvoor nodig is.	38	108	3,58	0,72	0,52	-2,54	0,77	0,46	1,50	piek 4=24, 5=1	Goed
VAR220	Als ik de software nodig heb, doet die het ook.	39	107	3,44	0,85	0,73	-1,93	0,76	0,86	1,48		Goed
VAR221	De software is gemakkelijk in gebruik.	39	107	3,46	0,72	0,52	-2,58	0,76	-0,48	1,48	piek 4=23, 5=0	Goed
VAR222	Met die software kan ik mijn ideeën vormgeven.	39	107	3,62	0,63	0,40	-2,08	0,76	0,67	1,48	piek 4=24, 5=1	Goed
VAR223	Met de software is het mogelijk om kwalitatief goed digitaal lesmateriaal te maken.	38	108	3,68	0,70	0,49	-1,20	0,77	0,50	1,50		Goed
VAR224	Binnen de opleiding is vanzelfsprekend dat een docent zelf digitaal lesmateriaal maakt.	35	111	3,14	1,17	1,36	-0,15	0,80	-1,42	1,56		Goed
VAR225	Dankzij het zelf gemaakte digitale lesmateriaal worden mijn lessen beter.	39	107	4,15	0,49	0,24	1,05	0,76	1,20	1,48	1=0,2=0	Goed

Table 110: Variabelen onderzoek sectie 10a

Sectie 10b	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR226	Waarom hebt u geen gebruik gemaakt van software om zelf digitaal leermateriaal te maken.	8	138	2,50	1,31	1,71	x	x	x	x		Waarom vraag
VAR227	Als ik zelf digitaal lesmateriaal wil maken, is het lastig om de software te vinden die daarvoor nodig is.	2	144	3,50	0,71	0,50	x	x	x	x		Afkeur op aantal
VAR228	De software doet die het vaak niet.	2	144	3,50	0,71	0,50	x	x	x	x		Afkeur op aantal
VAR229	De software is moeilijk in gebruik.	2	144	3,50	0,71	0,50	x	x	x	x		Afkeur op aantal
VAR230	Met de beschikbare software kan ik mijn ideeën niet vormgeven.	2	144	4,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR231	Met de software is het niet mogelijk om kwalitatief goed lesmateriaal te maken.	2	144	3,50	0,71	0,50	x	x	x	x		Afkeur op aantal
VAR232	Binnen de opleiding wordt het docenten afgeraden zelf digitaal lesmateriaal te maken.	2	144	2,00	0,00	0,00	x	x	x	x		Afkeur op aantal
VAR233	Het lesmateriaal dat ik met de beschikbare software kan maken, maakt mijn onderwijs niet echt beter.	2	144	3,00	1,41	2,00	x	x	x	x		Afkeur op aantal
VAR234	Weet u zeker dat het Zadkine niet over software beschikt waarmee u zelf digitaal lesmateriaal kunt maken?	90	56	1,70	0,46	0,21	x	x	x	x		Controle vraag
VAR235	Het feit dat het Zadkine geen software heeft om zelf digitaal lesmateriaal te maken, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	27	119	3,89	0,85	0,72	x	x	x	x		Feit vraag

Table 111: Variabelen onderzoek sectie 10b

Sectie 11	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR236	Beschikt het Zadkine over een digitale bibliotheek (toegang tot digitale boeken, tijdschriften en onderwijs- en leermateriaal)?	137	9	1,85	0,36	0,13	x	x	x	x		Schakel
VAR237	Hebt u ooit gebruik gemaakt van de digitale bibliotheek?	21	125	1,29	0,46	0,21	2,04	1,00	-1,09	1,94		Schakel
VAR238	De digitale bibliotheek heeft waarde voor mijn lessen.	15	131	3,60	0,83	0,69	x	x	x	x		Goed
VAR239	De digitale bibliotheek is goed bereikbaar	15	131	3,20	0,68	0,46	x	x	x	x		Goed
VAR240	De digitale bibliotheek heeft voor mijn vak voldoende materiaal.	14	132	2,79	0,80	0,64	x	x	x	x		Goed
VAR241	De digitale bibliotheek is afgestemd op de gebruikers.	14	132	3,29	0,73	0,53	x	x	x	x		Goed
VAR242	De digitale bibliotheek maakt mijn onderwijs beter.	15	131	3,20	1,01	1,03	x	x	x	x		Goed
VAR243	De digitale bibliotheek maakt het geven van mijn onderwijs gemakkelijker.	15	131	3,40	0,83	0,69	x	x	x	x		Goed
VAR244	Waarom hebt u geen gebruik gemaakt van de digitale bibliotheek:	6	140	2,83	0,75	0,57	x	x	x	x		Waarom vraag
VAR245	De digitale bibliotheek heeft geen waarde voor mijn lessen.	1	145	3,00	x	x	x	x	x	x		Afkeur op aantal
VAR246	De digitale bibliotheek is niet echt goed bereikbaar.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR247	De digitale bibliotheek heeft voor mijn vak onvoldoende materiaal.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR248	De digitale bibliotheek is niet echt goed afgestemd op de gebruikers.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR249	De digitale bibliotheek maakt mijn onderwijs niet echt beter.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR250	De digitale bibliotheek maakt het geven van mijn onderwijs niet gemakkelijker.	0	146	x	x	x	x	x	x	x		Afkeur op aantal
VAR251	Weet u zeker dat uw instelling niet over een digitale bibliotheek beschikt (toegang tot digitale boeken, tijdschriften en onderwijs- en leermateriaal)?	116	30	1,48	0,50	0,25	x	x	x	x		Controle vraag
VAR252	Het feit dat het Zadkine niet over een digitale bibliotheek beschikt, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	59	87	3,95	0,71	0,50	-1,73	0,62	1,20	1,23		Feit vraag

Table 112: Variabelen onderzoek sectie 11

Sectie 12	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR253	Wordt binnen het Zadkine vastgelegd hoe collega's ICT binnen hun onderwijs gebruiken, zodat docenten gebruik kunnen maken van elkaars ervaring?	137	9	1,77	0,43	0,18	x	x	x	x		Schakel
VAR254	Maakt u binnen uw lessen wel eens gebruik van ICT-toepassingen die door collega's zijn bedacht?	137	9	1,45	0,50	0,25	x	x	x	x		Schakel
VAR255	Wordt binnen het Zadkine de kennis en ervaring met ICT in onderwijs met elkaar gedeeld?	137	9	1,34	0,47	0,22	3,40	0,41	-3,72	0,82		Schakel
VAR256	Er wordt voldoende mate gebruikt gemaakt van elkaars kennis en ervaring met ICT.	90	56	2,91	0,89	0,80	-0,44	0,51	-2,37	1,01	vlakke top 2,3,4	Goed
VAR257	De praktijkvoorbeelden van collega's zijn belangrijk voor mijn lessen.	88	58	3,90	0,50	0,25	-0,76	0,51	1,69	1,02		Goed
VAR258	De manier waarop wij kennis en ervaring delen, helpt mij bij het inzetten van ICT binnen mijn onderwijs.	88	58	3,60	0,80	0,63	-3,25	0,51	1,48	1,02	piek 4=51,5=6	Goed
VAR259	Het feit dat er binnen het Zadkine de ervaring van collega's niet wordt vastlegt, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	101	45	3,87	0,70	0,49	-0,70	0,48	-0,34	0,95		Feit vraag
VAR260	Zijn er binnen het Zadkine standaarden en richtlijnen voor het gebruik van ICT binnen het onderwijs?	137	9	1,75	0,43	0,19	-5,69	0,41	-1,51	0,82		Schakel
VAR261	De standaarden en richtlijnen voor de inzet van ICT helpen mij bij het inzetten van ICT in mijn lessen.	33	113	3,00	0,87	0,75	0,00	0,82	-0,11	1,60		Goed
VAR262	Het feit dat het Zadkine geen standaarden en richtlijnen heeft voor de inzet van ICT, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	85	61	3,55	0,87	0,75	-1,29	0,52	0,01	1,03		Feit vraag
VAR263	Wordt de inzet van ICT binnen het onderwijs geëvalueerd?	137	9	1,78	0,42	0,17	-6,64	0,41	-0,28	0,82		Schakel
VAR264	De manier waarop het ICT-gebruik wordt geëvalueerd, helpt mij bij het inzetten van ICT in mijn lessen.	29	117	3,24	0,87	0,76	-1,18	0,87	-1,80	1,69		Goed
VAR265	Bij de beoordeling van mijn werk wordt ook gekeken naar mijn inzet van ICT in het onderwijs.	26	120	2,27	1,12	1,24	2,83	0,91	1,46	1,77	piek 2=15, 1=5	Afkeur aantal
VAR266	Het feit dat het ICT-gebruik binnen het Zadkine niet wordt geëvalueerd, heeft een nadelige invloed op de inzet van ICT in mijn onderwijs.	90	56	3,83	0,71	0,50	-2,09	0,51	1,15	1,01	piek 4=55, 3=19	Feit vraag

Table 113: Variabelen onderzoek sectie 12

Sectie 13a	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR267	Het opleidingsmanagement stimuleert dat de docenten kennis en ervaring uitwisselen met betrekking tot het gebruik van ICT.	136	10	2,65	0,95	0,90	0,86	0,42	-1,51	0,83		Goed
VAR268	De docenten worden betrokken bij de vraag hoe onze opleiding ICT binnen het onderwijs wil inzetten.	136	10	2,65	0,96	0,93	0,02	0,42	-2,47	0,83	piek 2=50, 1=15	Goed
VAR269	Het opleidingsmanagement heeft een visie op de inzet van ICT binnen het onderwijs.	136	10	2,57	0,93	0,87	1,37	0,42	-1,12	0,83		Goed
VAR270	Het opleidingsmanagement heeft een visie op het nut van ICT voor ons onderwijs.	136	10	2,72	0,88	0,78	0,28	0,42	-1,53	0,83		Goed
VAR271	Het opleidingsmanagement geeft leiding aan de richting die we opgaan met de inzet van ICT in het onderwijs.	136	10	2,52	0,83	0,70	1,16	0,42	-0,43	0,83		Goed
VAR272	Het opleidingsmanagement weet duidelijk te maken wat de waarde is van ICT in het onderwijs.	136	10	2,68	0,85	0,72	0,09	0,42	-0,88	0,83		Goed
VAR273	Het opleidingsmanagement zorgt voor de juiste randvoorwaarden voor het gebruik van ICT binnen het onderwijs.	136	10	2,43	0,96	0,93	0,78	0,42	-1,68	0,83		Goed
VAR274	Het opleidingsmanagement stimuleert de docenten in het gebruik van ICT binnen het onderwijs.	136	10	2,76	1,01	1,01	-0,21	0,42	-2,21	0,83	piek 2=56, 1=14	Goed
VAR275	Het opleidingsmanagement geeft het goede voorbeeld als het gaat om het gebruik van ICT.	136	10	2,32	0,85	0,72	1,08	0,42	-1,23	0,83		Goed
VAR276	Het opleidingsmanagement toont betrokkenheid als het gaat om het gebruik van ICT binnen het onderwijs.	136	10	2,62	0,93	0,86	0,49	0,42	-1,66	0,83		Goed
VAR277	Het opleidingsmanagement stimuleert feedback en waardeert kritiek als het gaat om het gebruik van ICT binnen het onderwijs.	136	10	2,54	0,84	0,71	1,07	0,42	-1,47	0,83		Goed
VAR278	Het opleidingsmanagement moedigt experimenteren met ICT aan.	136	10	2,90	0,90	0,82	-0,18	0,42	-1,18	0,83		Goed
VAR279	Het opleidingsmanagement stimuleert dat collega's samenwerken.	136	10	3,51	0,91	0,83	-3,52	0,42	1,50	0,83	piek 4=65, 5=13	Goed
VAR280	Het opleidingsmanagement verwacht dat medewerkers zich verder ontwikkelen.	136	10	3,84	0,72	0,52	-5,69	0,42	7,49	0,83	hoge piek 4=61,6	Afkeur op test
VAR281	Het opleidingsmanagement verwacht dat medewerkers nieuwe dingen uitproberen.	136	10	3,20	0,81	0,65	-2,23	0,42	0,66	0,83	piek 3=64, 2=18	Goed

Table 114: Variabelen onderzoek sectie 13a

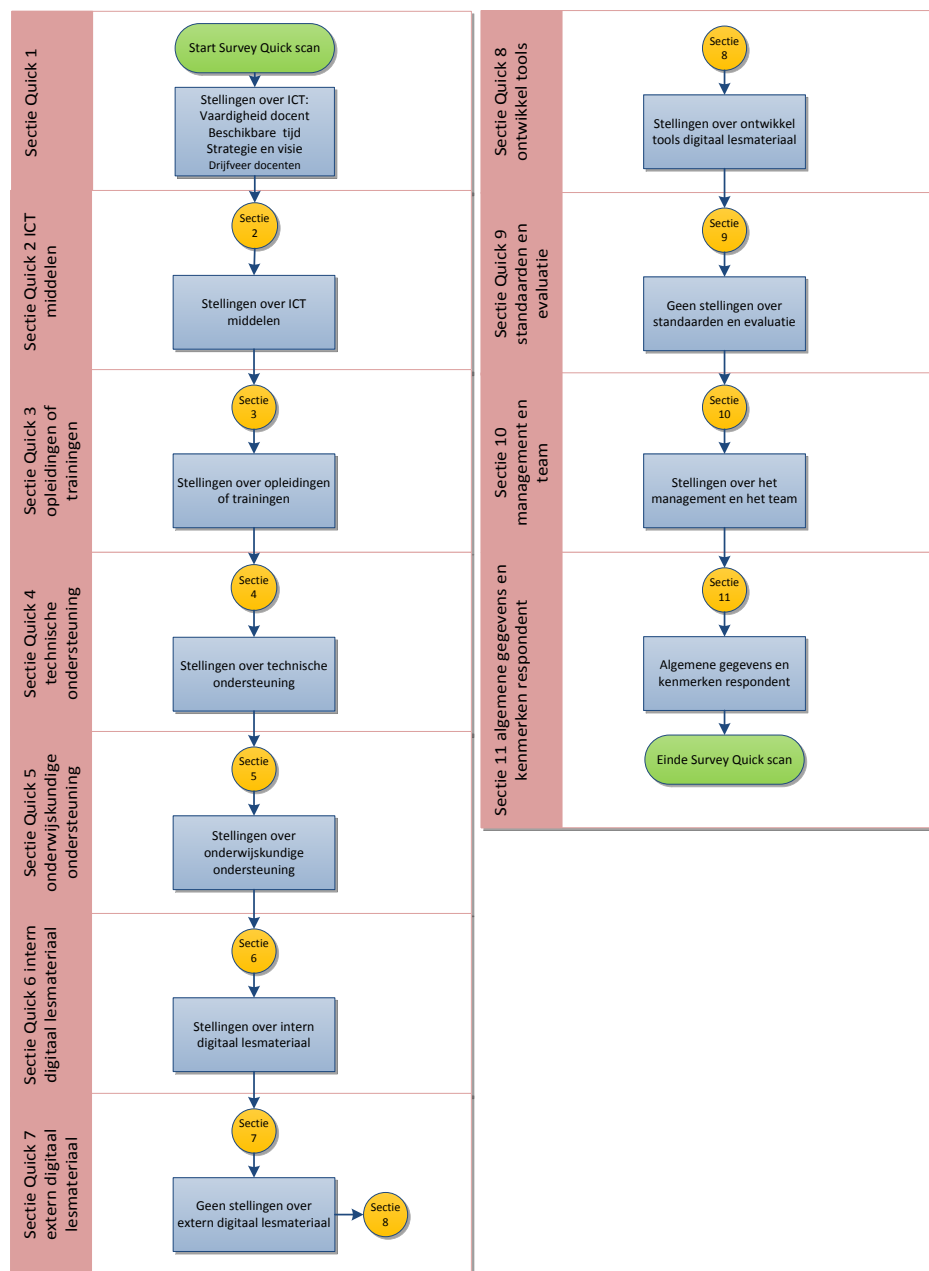
Sectie 13b	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR282	Creativiteit wordt door het opleidingsmanagement gewaardeerd.	136	10	3,25	0,89	0,80	-2,79	0,42	-0,39	0,83	piek 4=58, 5=4	Goed
VAR283	Binnen ons team kunnen collega's op elkaar terugvallen bij vragen over ICT.	136	10	3,72	0,81	0,66	-4,17	0,42	1,81	0,83	hoge piek 4=83, 5=15	Goed
VAR284	Binnen ons team weten we wat er met ICT mogelijk is binnen het onderwijs.	136	10	3,26	0,97	0,95	-0,71	0,42	-2,25	0,83	vlak 2=3=35, 4=54	Goed
VAR285	Bij het gebruik van ICT in het onderwijs werken we binnen ons team samen.	136	10	3,33	0,96	0,92	-1,20	0,42	-0,81	0,83		Goed
VAR286	Binnen ons team is er een gezamenlijke visie het gebruik van ICT in het onderwijs.	136	10	2,79	0,95	0,91	1,04	0,42	-1,46	0,83		Goed
VAR287	Binnen ons team betrekken we elkaar bij de plannen die we hebben voor het gebruik van ICT in het onderwijs.	136	10	3,17	0,94	0,88	-1,66	0,42	-0,87	0,83		Goed
VAR288	Ons team staat positief t.o.v. de inzet van ICT in het onderwijs.	136	10	3,81	0,77	0,60	-3,00	0,42	2,07	0,83	hoge piek 4=76, 5=21	Afkeur op test
VAR289	Ons team voelt zich betrokken bij het ICT-beleid van de instelling.	136	10	2,63	0,93	0,87	2,34	0,42	0,10	0,83	2=56, 3=17	Goed
VAR290	Ons team staat positief tegenover veranderingen.	136	10	3,51	0,72	0,52	-3,03	0,42	1,18	0,83	piek 4=71, 5=5	Goed
VAR291	Binnen ons team proberen we zoveel mogelijk om risico's te vermijden.	136	10	2,85	0,80	0,64	1,80	0,42	-2,59	0,83	piek 2=54	Goed
VAR292	Ons team probeert voorop te lopen met de inzet van nieuwe technologie in het onderwijs.	136	10	2,91	0,91	0,84	-0,28	0,42	-1,36	0,83		Goed
VAR293	Binnen ons team is er een drang tot vernieuwen.	136	10	3,16	0,87	0,76	-0,89	0,42	-1,03	0,83		Goed
VAR294	Anders denkenden worden binnen ons team gezien als interessant, omdat ze ons scherp houden.	136	10	3,43	0,72	0,51	-3,58	0,42	2,15	0,83	4=66, 5=3	Afkeur op test
VAR295	Er is binnen ons team een grote bereidheid tot het zoeken van gemeenschappelijke oplossingen.	136	10	3,59	0,75	0,56	-3,32	0,42	1,54	0,83	piek 4=76, 5=8	Goed

Table 115: Variabelen onderzoek sectie 13b

Sectie 14	Omschrijving	N	Mis	Gem	Std. dev	Var	Std. Skew (1,96)	Range Skew	Std. Kurt (1,96)	Range Kurt	Verdeling	Opm.
VAR296	Hoeveel jaar werkt u binnen het onderwijs?	136	10	3,24	1,35	1,83	x	x	x	x		Goed
VAR297	Bij welk Opleidingsdomein ligt u hoofdtak?	136	10	6,68	3,14	9,88	x	x	x	x		Goed
VAR298	Is ICT een onderdeel van het curriculum van uw vak(gebied)? Denk bijvoorbeeld aan vakgebieden als informatica, wiskunde, techniek etc.?	136	10	1,70	0,46	0,21	x	x	x	x		Goed
VAR299	Hoe lang maakt u binnen uw onderwijs gebruik van ICT.	136	10	3,80	0,64	0,41	x	x	x	x		Goed
VAR300	Kruis aan welke van onderstaande uitspraken op u van toepassing is:	136	10	1,08	0,27	0,07	x	x	x	x		Goed
VAR301	Kruis aan in welk(e) van onderstaande typering van internetgebruik u zichzelf het meest herkent:	136	10	2,15	0,78	0,62	x	x	x	x		Goed
VAR302	Wat is uw leeftijd?	136	10	3,18	1,06	1,12	x	x	x	x		Goed
VAR303	Bent u een vrouw of een man?	136	10	1,60	0,49	0,24	x	x	x	x		Goed

Table 116: Variabelen onderzoek sectie 14

Appendix 9: Opbouw van de Quick Scan flowchart



Figuur 17: Flowchart Quick Scan

Appendix 10: Variables Quick scan

The Quick Scan.

Likert +1	Answer options
1	Strongly disagree
2	Disagree
3	Neither agree nor disagree
4	Agree
5	Strongly agree
6	I don't know/ doesn't apply

Section 1S	Vision & strategy, Primary preconditions, Influence of the organization	component	Type	Value
VAR001-People	I get enough time to try out how I can use ICT in my teaching. I have sufficient knowledge and skills to use ICT in my teaching.	Primary preconditions	Ordinal	Likert+1
VAR002-Resource	I get enough time to try out how I can use ICT in my teaching.	Primary preconditions	Ordinal	Likert+1
VAR003-Structure	There are regular meetings to discuss how we can use ICT in the best possible way within our education.	Primary preconditions	Ordinal	Likert+1
VAR004-Visie & Strategie	Our organization has a clear vision on education.	Vision & strategy	Ordinal	Likert+1
VAR005-Vision & strategy	Our organization has a clear vision on the use of ICT in education.	Vision & strategy	Ordinal	Likert+1
VAR006-Vision & strategy	There is cohesion between the vision on education and the vision on the use of ICT.	Vision & strategy	Ordinal	Likert+1
VAR007-Vision & strategy	The vision on ICT in education is known to the teachers.	Vision & strategy	Ordinal	Likert+1
VAR008-Structure	By the use of ICT in my teaching, I let guide me what management expects from me.	Influence of the organization	Ordinal	Likert+1
VAR009-People	I decide myself how to use ICT in my education.	Added variable	Ordinal	Likert+1
VAR010-Structure	I use ICT in my education in a way that corresponds to what the organization of me expects.	Influence of the organization	Ordinal	Likert+1
VAR011-Structure	I want more with ICT in education than the organization expects of me.	Added variable	Ordinal	Likert+1

Table 117: Variabelen Quick scan sectie 1

Section 2S	Omschrijving: ICT Resource	component	Type	Value
VAR012-Resource	In the classrooms are a sufficient number of PCs, printers, projectors etc.	ICT Resources	Ordinal	Likert+1
VAR013-Resource	In the teachers room are a sufficient number of PCs, printers, projectors etc.	ICT Resources	Ordinal	Likert+1
VAR014-Resource	The available ICT resources are in good order.	ICT Resources	Ordinal	Likert+1
VAR015-Resource	The available ICT resources are new enough.	ICT Resources	Ordinal	Likert+1
VAR016-Resource	The internet connection in the classrooms is good enough for my education.	ICT Resources	Ordinal	Likert+1
VAR017-Resource	In the classroom I have a good access to the network of my department.	ICT Resources	Ordinal	Likert+1
VAR018-Resource	The available ICT resources are helping me by my lessons.	ICT Resources	Ordinal	Likert+1
VAR019-Resource	Management of the ICT resources takes into account how I want to use ICT in education.	ICT Resources	Ordinal	Likert+1

Table 118: Variabelen Quick scan sectie 2

Likert +1	Answer options
1	Strongly disagree
2	Disagree
3	Neither agree nor disagree
4	Agree
5	Strongly agree
6	I don't know/ doesn't apply

Section 3S	Education and training	Component	Type	Value
<i>VAR020-Resource</i>	To follow a training there is enough time available.	Education and training	Ordinal	Likert+1
<i>VAR021-Resource</i>	To follow a training there is enough money available.	Education and training	Ordinal	Likert+1
<i>VAR022-Culture</i>	My colleagues encourage me to follow training.	Education and training	Ordinal	Likert+1
<i>VAR023-Resource</i>	The available training is in line with my lessons.	Education and training	Ordinal	Likert+1

Table 119: Variabelen Quick scan sectie

Section 4S	Technical support	Component	Type	Value
<i>VAR024-Resource Serve quality</i>	ICT support gives me enough attention	Technical support	Ordinal	Likert+1
<i>VAR025-Resource Serve quality</i>	The ICT support helps to use ICT more effectively	Technical support	Ordinal	Likert+1

Table 43: Variabelen Quick scan sectie 4

Section 5S	Educational support	Component	Type	Value
<i>VAR026-Resource Serve quality</i>	The educational support is of high quality	Educational support	Ordinal	Likert+1
<i>VAR027-Resource Serve quality</i>	The educational support helps me to use ICT in education more effectively	Educational support	Ordinal	Likert+1

Table 120: Variabelen Quick scan sectie 5

Section 6S	Internal digital material	Component	Type	Value
<i>VAR028-Resource</i>	The available internal digital material is easy to find.	Accessibility internal digital material	Ordinal	Likert+1
<i>VAR029-Resource</i>	The available internal digital material is easy to get and use in my lessons.	Accessibility internal digital material	Ordinal	Likert+1
<i>VAR030-Cultuur</i>	The management encourage me to use internal digital material	Encouragement internal digital material	Ordinal	Likert+1
<i>VAR031-Cultuur</i>	Colleagues encourage me to use internal digital material	Encouragement internal digital material	Ordinal	Likert+1

Table 121: Variabelen Quick scan sectie 6

Section 7S	External digital material	Component	Type	Value
<i>VAR032-Resource</i>	The available external digital material is easy to find.	Accessibility external digital material	Ordinal	Likert+1
<i>VAR033-Resource</i>	The available external digital material is easy to get and use in my lessons.	Accessibility external digital material	Ordinal	Likert+1
<i>VAR034-Cultuur</i>	The management encourage me to use external digital material.	Encouragement external digital material	Ordinal	Likert+1
<i>VAR035-Cultuur</i>	Colleagues encourage me to use external digital material.	Encouragement external digital material	Ordinal	Likert+1

Table 123: Variabelen Quick scan sectie 7

Section 8S	Tools	Component	Type	Waarde
VAR0S36-Resource	The software tool is easy to use	Tools	Ordinal	Likert+1
VAR037-Resource	With the tool I can realise my ideas	Tools	Ordinal	Likert+1
VAR038-Resource	With the software tool I'm able to make material of high quality	Tools	Ordinal	Likert+1

Table 124: Variabelen Quick scan sectie 8

Likert +1	Answer options
1	Strongly disagree
2	Disagree
3	Neither agree nor disagree
4	Agree
5	Strongly agree
6	I don't know/ doesn't apply

Section 9S	Quality	Component	Type	Waarde
VAR039-Cultuur	We make sufficiently use of each other's knowledge and experience in the use of ICT	x	Ordinal	Likert+1
VAR040-Resource	Case studies of colleagues are important for my lessons	x	Ordinal	Likert+1
VAR041-Cultuur	The way we share knowledge and experience, helps me for the use of ICT	x	Ordinal	Likert+1
VAR042-Structure	The standards and guidelines for the use of ICT are helping me	x	Ordinal	Likert+1
VAR043-Structure	The way we evaluate the use of ICT, helps me in using ICT in my lessons	x	Ordinal	Likert+1

Table 128: Variabelen Quick scan sectie 9

Section 10S	Management en Team	Component	Type	Value
VAR044-Cultuur	The management makes the purpose of the use of ICT clear	Management	Ordinal	Likert+1
VAR045-Cultuur	The management encourage teachers in the use of ICT	Management	Ordinal	Likert+1
VAR046-Cultuur	The team knows what is possible with ICT in education	Team	Ordinal	Likert+1
VAR047-Cultuur	The team members working together on the use of ICT	Team	Ordinal	Likert+1

Table 44: Variabelen Quick scan sectie 10

Section 11S	Characteristics	Type	Value
VAR048	How many years do you work in education?	Ratio	(3)*
VAR049	With is your main department?	Nominal	(4)*
VAR050	Is ICT part of your curriculum?	Dichotom	Yes/No
VAR051	How long do you use ICT?	Ratio	(5)*
VAR052	With statement is adequate?	Dichotom	(6)*
VAR053	With type of internet user are you?	Ordinal	(7)*
VAR054	Your age?	Ratio	(8)*
VAR055	Gender male/female?	Dichotom	Female/Male

Table 45: Variabelen Quick scan sectie 11

(3)*	Answer options	(4)*	Answer options
1	>5 year	1	Department
2	5 to 9 years	2	Department
3	10 to 14 years	3	Department
4	15 to 19 years	4	Department
5	20 to 24 years	5	Department
6	25 > years	6	Department
		7	Department
		8	Department
		9	Department
		10	Department
(5)*	Answer options	(6)*	Answer options
1	Less than 1 year	1	I work only in education
2	1 to 2 years	2	I have also other work
3	2 to 3 years		
4	More than 3 years		
5	Do not apply		

(7)*	Answer options	(8)*	
1	Internet freak	1	< 25
2	Frequent surfer	2	25 to 34
3	Functionel user	3	35 to 44
4	Basic user	4	45 to 54
5	Don't use internet	5	55 to 59
		6	60 >

Quick Scan Dutch

Likert +1	Antwoord mogelijkheid
1	Helemaal mee oneens
2	Mee oneens
3	Niet mee eens, niet mee oneens
4	Mee eens
5	Helemaal mee eens
6	Weet ik niet / Niet van toepassing

Sectie 1S	Omschrijving: Visie & Strategie, Primaire randvoorwaarden, Invloed van de organisatie	component	Type	Waarde
VAR001-Mensen	Ik heb voldoende kennis, inzicht en vaardigheden om ICT binnen mijn onderwijs te gebruiken.	Primaire randvoorwaarden	Ordinaal	Likert+1
VAR002-Middelen	Ik krijg voldoende tijd om uit te proberen hoe ik ICT in mijn onderwijs kan gebruiken.	Primaire randvoorwaarden	Ordinaal	Likert+1
VAR003-Structuur	Er zijn regelmatig bijeenkomsten om te overleggen hoe we ICT zo goed mogelijk binnen het onderwijs kunnen gebruiken.	Primaire randvoorwaarden	Ordinaal	Likert+1
VAR004-Visie & Strategie	Onze instelling heeft een duidelijke visie op onderwijs.	Visie & strategie	Ordinaal	Likert+1
VAR005-Visie & Strategie	Onze instelling heeft een duidelijke visie op de inzet van ICT in het onderwijs.	Visie & strategie	Ordinaal	Likert+1
VAR006-Visie & Strategie	Er is samenhang tussen de visie op onderwijs en de visie op ICT.	Visie & strategie	Ordinaal	Likert+1
VAR007-Visie & Strategie	De visie op ICT in het onderwijs is bij de docenten bekend.	Visie & strategie	Ordinaal	Likert+1
VAR008-Structuur	Bij de inzet van ICT in mijn onderwijs, laat ik mij leiden door wat het opleidingsmanagement van mij verwacht.	Invloed van de organisatie	Ordinaal	Likert+1
VAR009-Mensen	Ik bepaal voornamelijk zelf op welke manier ik ICT inzet in mijn onderwijs.	Toevoeging variabele	Ordinaal	Likert+1
VAR010-Structuur	De manier waarop ik ICT in het onderwijs wil inzetten komt overeen met wat de organisatie van mij verwacht	Invloed van de organisatie	Ordinaal	Likert+1
VAR011-Structuur	Ik wil meer met ICT in het onderwijs dan de organisatie van mij verwacht.	Toevoeging variabele	Ordinaal	Likert+1

Tabel 131: Variabelen Quick scan sectie 1

Sectie 2S	Omschrijving: ICT middelen	component	Type	Waarde
VAR012-Middelen	In de lesruimten zijn voldoende pc's, printers, beamers etc.	ICT middelen	Ordinaal	Likert+1
VAR013-Middelen	In de docentenruimte zijn voldoende pc's, printers, beamers, etc.	ICT middelen	Ordinaal	Likert+1
VAR014-Middelen	De beschikbare ICT-middelen werken goed.	ICT middelen	Ordinaal	Likert+1
VAR015-Middelen	De beschikbare ICT-middelen zijn nieuw genoeg.	ICT middelen	Ordinaal	Likert+1
VAR016-Middelen	In de lesruimtes is een internetverbinding die voldoet voor mijn lessen.	ICT middelen	Ordinaal	Likert+1
VAR017-Middelen	In de lesruimtes heb ik een goede toegang tot het netwerk van de opleiding.	ICT middelen	Ordinaal	Likert+1
VAR018-Middelen	De beschikbare ICT-middelen helpen mij bij het geven van mijn lessen.	ICT middelen	Ordinaal	Likert+1
VAR019-Middelen	Het beheer van de ICT-middelen houdt rekening met hoe ik ICT in het onderwijs wil gebruiken.	ICT middelen	Ordinaal	Likert+1

Tabel 132: Variabelen Quick scan sectie 2

Likert +1	Antwoord mogelijkheid
1	Helemaal mee oneens
2	Mee oneens
3	Niet mee eens, niet mee oneens
4	Mee eens
5	Helemaal mee eens
6	Weet ik niet / Niet van toepassing

Sectie 3S	Omschrijving: Opleidingen en trainingen	Component	Type	Waarde
<i>VAR020-Middelen</i>	Voor het volgen van opleidingen is er voldoende tijd.	Opleiding en trainingen	Ordinaal	Likert+1
<i>VAR021-Middelen</i>	Voor het volgen van opleidingen is er voldoende geld.	Opleiding en trainingen	Ordinaal	Likert+1
<i>VAR022-Cultuur</i>	Mijn collega's stimuleren mij om opleidingen te volgen.	Opleiding en trainingen	Ordinaal	Likert+1
<i>VAR023-Middelen</i>	De beschikbare opleidingen sluiten aan bij mijn lessen.	Opleiding en trainingen	Ordinaal	Likert+1

Tabel 133: Variabelen Quick scan sectie

Sectie 4S	Omschrijving: Technische ondersteuning	Component	Type	Waarde
<i>VAR024-Middelen Service kwaliteit</i>	Als ik technische ondersteuning nodig heb, wordt daar voldoende aandacht aan besteed.	Technische ondersteuning	Ordinaal	Likert+1
<i>VAR025-Middelen Service kwaliteit</i>	Die technische ondersteuning helpt mij bij het gebruik van ICT in mijn onderwijs.	Technische ondersteuning	Ordinaal	Likert+1

Tabel 134: Variabelen Quick scan sectie 4

Sectie 5S	Omschrijving: Onderwijskundige ondersteuning	Component	Type	Waarde
<i>VAR026-Middelen Service kwaliteit</i>	De onderwijskundige ondersteuning is van goede kwaliteit.	Onderwijskundige ondersteuning	Ordinaal	Likert+1
<i>VAR027-Middelen Service kwaliteit</i>	De medewerkers van de onderwijskundige ondersteuning helpen mij goed.	Onderwijskundige ondersteuning	Ordinaal	Likert+1

Tabel 135: Variabelen Quick scan sectie 5

Sectie 6S	Omschrijving: Intern digitaal lesmateriaal	Component	Type	Waarde
<i>VAR028-Middelen</i>	Het beschikbare digitale lesmateriaal binnen de organisatie is gemakkelijk te vinden.	Toegankelijkheid intern digitaal materiaal	Ordinaal	Likert+1
<i>VAR029-Middelen</i>	Het is gemakkelijk om het beschikbare digitale lesmateriaal op te halen en in te zetten binnen mijn lessen.	Toegankelijkheid intern digitaal materiaal	Ordinaal	Likert+1
<i>VAR030-Cultuur</i>	Het opleidingsmanagement stimuleert mij om digitaal lesmateriaal in mijn lessen in te zetten.	Stimulering intern digitaal materiaal	Ordinaal	Likert+1
<i>VAR031-Cultuur</i>	Mijn collega's stimuleren mij om digitaal lesmateriaal in mijn lessen in te zetten.	Stimulering intern digitaal materiaal	Ordinaal	Likert+1

Tabel 136: Variabelen Quick scan sectie 6

Sectie 7S	Omschrijving: Extern digitaal lesmateriaal	Component	Type	Waarde
<i>VAR032-Middelen</i>	Ik weet voldoende extern digitaal lesmateriaal voor mijn lessen te vinden.	Toegankelijkheid extern digitaal materiaal	Ordinaal	Likert+1
<i>VAR033-Middelen</i>	Het is gemakkelijk om de externe digitaal lesmiddelen op te halen en in te zetten binnen mijn lessen.	Toegankelijkheid extern digitaal materiaal	Ordinaal	Likert+1
<i>VAR034-Cultuur</i>	Het opleidingsmanagement stimuleert mij om extern digitaal lesmateriaal in mijn lessen in te zetten.	Stimulering extern digitaal materiaal	Ordinaal	Likert+1
<i>VAR035-Cultuur</i>	Mijn collega's stimuleren mij om extern digitaal lesmateriaal in mijn lessen in te zetten.	Stimulering extern digitaal materiaal	Ordinaal	Likert+1

Tabel 137: Variabelen Quick scan sectie 7

Likert +1	Antwoord mogelijkheid
1	Helemaal mee oneens
2	Mee oneens
3	Niet mee eens, niet mee oneens
4	Mee eens
5	Helemaal mee eens
6	Weet ik niet / Niet van toepassing

Sectie 8S	Omschrijving: software ontwikkel tools	Component	Type	Waarde
VAR0S36-Middelen	De software is gemakkelijk in gebruik.	Ontwikkel tools	Ordinaal	Likert+1
VAR0S37-Middelen	Met die software kan ik mijn ideeën vormgeven.	Ontwikkel tools	Ordinaal	Likert+1
VAR0S38-Middelen	Met de software is het mogelijk om kwalitatief goed digitaal lesmateriaal te maken.	Ontwikkel tools	Ordinaal	Likert+1

Tabel 138: Variabelen Quick scan sectie 8

Sectie 9S	Omschrijving: Kwaliteit	Component	Type	Waarde
VAR0S39-Cultuur	Er wordt voldoende mate gebruikt gemaakt van elkaars kennis en ervaring bij de inzet van ICT in het onderwijs		Ordinaal	Likert+1
VAR0S40-Middelen	De praktijkvoorbeelden van collega's zijn belangrijk voor mijn lessen.		Ordinaal	Likert+1
VAR0S41-Cultuur	De manier waarop wij kennis en ervaring delen, helpt mij bij het inzetten van ICT binnen mijn onderwijs.		Ordinaal	Likert+1
VAR0S42-Structuur	De standaarden en richtlijnen voor de inzet van ICT helpen mij bij het inzetten van ICT in mijn lessen.		Ordinaal	Likert+1
VAR0S43-Structuur	De manier waarop het ICT-gebruik wordt geëvalueerd, helpt mij bij het inzetten van ICT in mijn lessen.		Ordinaal	Likert+1

Tabel 139: Variabelen Quick scan sectie 9

Sectie 10S	Omschrijving: Management en Team	Component	Type	Waarde
VAR0S44-Cultuur	Het opleidingsmanagement weet duidelijk te maken wat de waarde is van ICT in het onderwijs.	Management	Ordinaal	Likert+1
VAR0S45-Cultuur	Het opleidingsmanagement stimuleert de docenten in het gebruik van ICT binnen het onderwijs.	Management	Ordinaal	Likert+1
VAR0S46-Cultuur	Binnen ons team weten we wat er met ICT mogelijk is binnen het onderwijs.	Team	Ordinaal	Likert+1
VAR0S47-Cultuur	Bij het gebruik van ICT in het onderwijs werken we binnen ons team samen.	Team	Ordinaal	Likert+1

Tabel 140: Variabelen Quick scan sectie 10

Sectie 11S	Omschrijving: Kenmerken	Type	Waarde
VAR0S48-Kenmerk	Hoeveel jaar werkt u binnen het onderwijs?	Ratio	(3)*
VAR0S49-Kenmerk	Bij welk Opleidings-domein ligt u hoofdtak?	Nominaal	(4)*
VAR0S50-Kenmerk	Is ICT een onderdeel van het curriculum van uw vak(gebied)? Denk bijvoorbeeld aan vakgebieden als informatica, wiskunde, techniek etc.?	Dichotoom	ja/nee
VAR0S51-Kenmerk	Hoe lang maakt u binnen uw onderwijs gebruik van ICT.	Ratio	(5)*
VAR0S52-Kenmerk	Kruis aan welke van onderstaande uitspraken op u van toepassing is:	Dichotoom	(6)*
VAR0S53-Kenmerk	Kruis aan in welk(e) van onderstaande typering van internetgebruik u zichzelf het meest herkent:	Ordinaal	(7)*
VAR0S54-Kenmerk	Wat is uw leeftijd?	Ratio	(8)*
VAR0S55-Kenmerk	Bent u een vrouw of een man?	Dichotoom	vrouw/man

Tabel 141: Variabelen Quick scan sectie 11

(3)*	Antwoord mogelijkheid	(4)*	Antwoord mogelijkheid
1	>5 jaar	1	Creativiteit en media
2	5 tot 9 jaar	2	Economie, management en recht
3	10 tot 14 jaar	3	Handel, commercie, zakelijke dienstverlening & ICT
4	15 tot 19 jaar	4	Haven, logistiek en veiligheid
5	20 tot 24 jaar	5	Horeca, bakkerij, voeding/food
6	25 > jaar	6	Mobiliteit & Maintenance
		7	Proces- en installatietechniek
		8	Sport en bewegen, kunst en cultuur
		9	Vrije tijd en wellness
		10	Zorg, welzijn en gezondheid
(5)*	Antwoord mogelijkheid	(6)*	Antwoord mogelijkheid
1	minder dan 1 jaar	1	Ik heb alleen betaald werk in het onderwijs
2	1 tot 2 jaar	2	Ik heb naast betaald werk in het onderwijs ook daarbuiten een betaalde baan
3	2 tot 3 jaar		
4	meer dan 3 jaar		
5	niet van toepassing		

(7)*	Antwoord mogelijkheid
1	Internet fanaat (intensief gebruik; PC gaat zelden uit)
2	Frequente surfer (een aantal keren per dag online; surfen terwijl bijvoorbeeld de tv aanstaat)
3	Functionele gebruiker (handig hulpmiddel, handig om iets op te zoeken)
4	Beperkte gebruiker (maak zeer weinig gebruik; soms hulp nodig om op internet iets te vinden)
5	Maak geen gebruik van internet

(8)*	
1	< 25
2	25 tot 34
3	35 tot 44
4	45 tot 54
5	55 tot 59
6	60 >

Appendix 11: Data reductie per sectie

Sectie 1	Vision & strategy, primaire randvoorwaarden, invloed organisatie	Iteratie 1							Iteratie 2							Iteratie 3						
		Com	C1	C2	C3	α1	α2	α3	Com	C1	C2	C3	α1	α2	α3	Com	C1	C2	C3	α1	α2	α3
VAR002 Mensen	Ik heb voldoende kennis, inzicht en vaardigheden om ICT binnen mijn onderwijs te gebruiken.	,548	,145	,522	-,478	X	,673	X	,643	,234	,601	-,507	X	,673	X	,668	,246	,655	-,446	X	,638	X
VAR003 Middelen	Ik krijg voldoende tijd om uit te proberen hoe ik ICT in mijn onderwijs kan gebruiken.	,617	,179	,704	-,140	X	,616	X	,606	,184	,714	-,041	X	,616	X	,633	,200	,726	,023	X	,579	X
VAR004 Middelen	Ons gebouw is zo ingericht, dat ik ICT gemakkelijk binnen mijn onderwijs kan gebruiken.	,271	,300	,277	,188	,718	X	X	,294	,231	,236	,324	,718	X	X	,304	,232	,227	,353	X	X	X
VAR005 Structuur	Er zijn regelmatig bijeenkomsten om te overleggen hoe we ICT zo goed mogelijk binnen het onderwijs kunnen gebruiken.	,603	-,075	,770	,220	X	,616	X	,598	-,081	,733	,267	X	,616	X	,582	-,053	,696	,313	X	,583	X
VAR006 Structuur	Van samenwerking met andere (onderwijs-)instellingen leer ik hoe ik ICT in mijn onderwijs kan gebruiken.	,576	-,132	,789	,027	X	,665	X	,582	-,112	,781	,059	X	,665	X	,547	-,080	,744	,102	X	,668	X
VAR007 Visie & Strategie	Onze instelling heeft een duidelijke visie op onderwijs.	,558	,745	,041	-,113	,638	X	X	,580	,763	,067	-,108	,638	X	X	X	,926	-,052	,007	,628	X	X
VAR008 Visie & Strategie	Onze instelling heeft een duidelijke visie op de inzet van ICT in het onderwijs.	,843	,943	-,066	-,045	,547	X	X	,843	,931	-,053	,001	,547	X	X	X	,886	-,046	,030	,538	X	X
VAR009 Visie & Strategie	Er is samenhang tussen de visie op onderwijs en de visie op ICT.	,786	,898	-,036	-,010	,552	X	X	,789	,886	-,029	,031	,552	X	X	X	,760	,091	-,086	,522	X	X
VAR010 Visie &	De visie op ICT in het onderwijs is bij de docenten bekend.	,629	,746	,136	-,027	,608	X	X	,636	,745	,143	,011	,608	X	X	,641	,749	,143	,029	,600	X	X
VAR011 Structuur	Bij de inzet van ICT in mijn onderwijs, laat ik mij leiden door wat het opleidingsmanagement van mij verwacht.	,673	,165	,200	,739	X	X	-,010	,661	,086	,090	,772	X	X	,272	,669	,087	,050	,785	X	X	,272
VAR012 Structuur	Met mijn collega's maak ik afspraken over de inzet van ICT voor onze lessen.	,271	,244	,385	,050	X	,665	X	,268	,210	,365	,157	,832	,665	X							
VAR013 Structuur	Ik bepaal voornamelijk zelf op welke manier ik ICT inzet in mijn onderwijs	,228	,109	,126	-,457	X	X	,608														
VAR014 Structuur	De manier waarop ik ICT in het onderwijs wil inzetten komt overeen met wat Uitholland van mij verwacht.	,602	,329	,288	,542	X	X	-,092	,632	,249	,198	,635	X	X	,464	,651	,252	,172	,661	X	X	,464
VAR015 Structuur	Uitholland wil meer met ICT in het onderwijs dan ik wil.	,408	-,043	,116	,638	X	X	,262	,391	-,105	,022	,644	X	X	,661	,403	-,109	-,001	,655	,464	X	,661
VAR016 Mensen	Ik wil meer met ICT in het onderwijs dan Uitholland van mij verwacht.	,398	-,460	,291	-,350	,832	X	X	,382	-,422	,329	-,328	X	X	X	,384	-,413	,353	-,305	,885	X	X
	Cronbach's Alpha																			,718	,683	,608
	Cronbach's Alpha Based on Standardized Items																			,701	,686	,600

Table 142: Sectie 1: Visie & Strategie,

Sectie 1	Visie & Strategie, primaire randvoorwaarden, invloed organisatie	Iteratie 4							Iteratie 5							Iteratie 6						
VAR	Omschrijving	Com	C1	C2	C3	α1	α2	α3	Com	C1	C2	C3	α1	α2	α3	Com	C1	C2	C3	α1	α2	α3
VAR002 Mensen	Ik heb voldoende kennis, inzicht en vaardigheden om ICT binnen mijn onderwijs te gebruiken.	,669	,235	,648	-,434	X	,638	X	,641	,208	,612	-,466	X	,638	X	,703	,226	,615	-,527	X	,638	X
VAR003 Middelen	Ik krijg voldoende tijd om uit te proberen hoe ik ICT in mijn onderwijs kan gebruiken.	,600	,217	,705	-,024	X	,579	X	,632	,160	,735	-,094	X	,579	X	,643	,175	,734	-,130	X	,579	X
VAR004 Middelen	Ons gebouw is zo ingericht, dat ik ICT gemakkelijk binnen mijn onderwijs kan gebruiken.																					
VAR005 Structuur	Er zijn regelmatig bijeenkomsten om te overleggen hoe we ICT zo goed mogelijk binnen het onderwijs kunnen gebruiken.	,611	-,035	,714	,332	X	,583	X	,681	-,119	,813	,222	X	,583	X	,694	-,121	,810	,248	X	,583	X
VAR006 Structuur	Van samenwerking met andere (onderwijs-)instellingen leer ik hoe ik ICT in mijn onderwijs kan gebruiken.	,575	-,077	,759	,134	X	,668	X	,516	-,080	,727	,094	X	,668	X	,518	-,079	,726	,105	X	,668	X
VAR007 Visie & Startegie	Onze instelling heeft een duidelijke visie op onderwijs.	,587	,754	,103	-,079	,628	x	X	,600	,768	,040	-,041	,904	X	X	,589	,755	,039	,002	,904	X	X
VAR008 Visie & Strategie	Onze instelling heeft een duidelijke visie op de inzet van ICT in het onderwijs.	,837	,925	-,045	-,008	,538	X	X	,854	,944	-,111	,045	,822	X	X	,860	,953	-,111	,014	,822	X	X
VAR009 Visie & Strategie	Er is samenhang tussen de visie op onderwijs en de visie op ICT.	,786	,882	-,027	,039	,522	X	X	,820	,911	-,103	,097	,818	X	X	,821	,911	-,104	,099	,818	X	X
VAR010 Visie & Strategie	De visie op ICT in het onderwijs is bij de docenten bekend.	,656	,749	,166	,051	,600	X	X	,649	,736	,145	,060	,875	X	X	,649	,737	,144	,065	,875	X	X
VAR011 Structuur	Bij de inzet van ICT in mijn onderwijs, laat ik mij leiden door wat het opleidingsmanagement van mij verwacht.	,699	,118	,082	,794	X	X	,272	,717	,141	,083	,797	X	X	X	,761	,139	,079	,826	X	X	X
VAR012 Structuur	Met mijn collega's maak ik afspraken over de inzet van ICT voor onze lessen.																					
VAR013 Structuur	Ik bepaal voornamelijk zelf op welke manier ik ICT inzet in mijn onderwijs																					
VAR014 Structuur	De manier waarop ik ICT in het onderwijs wil inzetten komt overeen met wat Uitholland van mij verwacht.	,639	,283	,189	,645	X	X	,464	,634	,281	,206	,632	X	X	X	,707	,269	,200	,693	X	X	X
VAR015 Structuur	Uitholland wil meer met ICT in het onderwijs dan ik wil.	,415	-,083	,021	,659	X	X	,661	,468	-,026	-,023	,689										
VAR016 Mensen	Ik wil meer met ICT in het onderwijs dan Uitholland van mij verwacht.	,386	-,426	,339	-,296	,885	X	X														
	Cronbach's Alpha					,718	,683	,608					,890	,683	,661					,890	,683	,661
	Cronbach's Alpha Based on Standardized Items					,701	,686	,600					,888	,686	,662					,888	,686	,662

Table 143: Sectie 1: Visie & Strategie, primaire randvoorwaarden, invloed organisatie iteratie 4,5,6

Sectie 1	Visie & Strategie, primaire randvoorwaarden, invloed organisatie	Iteratie 7						
		Com	C1	C2	C3	α1	α2	α3
VAR	Omschrijving							
VAR002 Mensen	Ik heb voldoende kennis, inzicht en vaardigheden om ICT binnen mijn onderwijs te gebruiken.	,655	,123	,707	-,389	X	,668	X
VAR003 Middelen	Ik krijg voldoende tijd om uit te proberen hoe ik ICT in mijn onderwijs kan gebruiken.	,775	,140	,830	,001	X	,304	X
VAR004 Middelen	Ons gebouw is zo ingericht, dat ik ICT gemakkelijk binnen mijn onderwijs kan gebruiken.							
VAR005 Structuur	Er zijn regelmatig bijeenkomsten om te overleggen hoe we ICT zo goed mogelijk binnen het onderwijs kunnen gebruiken.	,680	-,134	,750	,376	X	,641	X
VAR006 Structuur	Van samenwerking met andere (onderwijs-)instellingen leer ik hoe ik ICT in mijn onderwijs kan gebruiken.							
VAR007 Visie & Strategie	Onze instelling heeft een duidelijke visie op onderwijs.	,587	,743	,023	,058	,904	X	X
VAR008 Visie & Strategie	Onze instelling heeft een duidelijke visie op de inzet van ICT in het onderwijs.	,864	,943	-,044	-,008	,822	X	X
VAR009 Visie & Strategie	Er is samenhang tussen de visie op onderwijs en de visie op ICT.	,856	,938	-,088	,034	,818	X	X
VAR010 Visie & Strategie	De visie op ICT in het onderwijs is bij de docenten bekend.	,672	,740	,171	,053	,875	X	X
VAR011 Structuur	Bij de inzet van ICT in mijn onderwijs, laat ik mij leiden door wat het opleidingsmanagement van mij verwacht.	,768	,089	-,074	,855	X	X	X
VAR012 Structuur	Met mijn collega's maak ik afspraken over de inzet van ICT voor onze lessen.							
VAR013 Structuur	Ik bepaal voornamelijk zelf op welke manier ik ICT inzet in mijn onderwijs							
VAR014 Structuur	De manier waarop ik ICT in het onderwijs wil inzetten komt overeen met wat Uitholland van mij verwacht.	,706	,176	,119	,756	X	X	X
VAR015 Structuur	Uitholland wil meer met ICT in het onderwijs dan ik wil.							
VAR016 Mensen	Ik wil meer met ICT in het onderwijs dan Uitholland van mij verwacht.							
Cronbach's Alpha						,890	,661	,661
Cronbach's Alpha Based on Standardized Items						,888	,655	,662
Component 1: Visie & Strategie		C1						
Component 2: Primaire randvoorwaarden, tijd, kennis, overleg		C2						
Component 3: Invloed organisatie		C3						
Extra variabelen VAR013, VAR015: Bepalende actor								

Table 144: Sectie 1: Visie & Strategie, primaire randvoorwaarden, invloed organisatie iteratie 7

Sectie 2	ICT middelen	Iteratie 1			Iteratie 2			Iteratie 3			Iteratie 4			Iteratie 5		
VAR	Omschrijving	Com	C1	α 1	Com	C1	α 1	Com	C1	α 1	Com	C1	α 1	Com	C1	α 1
VAR019 Middelen	In de lesruimten zijn voldoende pc's, printers, beamers etc.	,423	,651	,770	,456	,676	,826	,470	,686	,826	,502	,709	,818	,520	,721	,807
VAR020 Middelen	In de docentenruimte zijn voldoende pc's, printers, beamers, etc.	,372	,610	,773	,396	,630	,832	,424	,651	,832	,436	,660	,826	,443	,665	,818
VAR021 Middelen	De beschikbare ICT-middelen werken goed.	,432	,657	,766	,466	,683	,827	,458	,677	,829	,455	,674	,824	,459	,678	,815
VAR022 Middelen	De beschikbare ICT-middelen zijn nieuw genoeg.	,423	,651	,765	,463	,681	,827	,476	,690	,827	,468	,684	,823	,459	,677	,815
VAR023 Middelen	In de lesruimtes is een internetverbinding die voldoet voor mijn lessen.	,370	,608	,773	,341	,584	,835	,353	,594	,836	,373	,610	,830	,387	,622	,822
VAR025 Middelen	In de lesruimtes heb ik een goede toegang tot het netwerk van de opleiding.	,474	,689	,759	,470	,686	,825	,488	,698	,825	,489	,699	,820	,512	,715	,809
VAR027 Middelen	Thuis heb ik een goed toegang tot het netwerk van de opleiding.	,001	-,030	,829												
VAR028 Middelen	De beschikbaren ICT-middelen helpen mij bij het geven van mijn lessen.	,507	,712	,760	,516	,718	,824	,521	,722	,824	,472	,687	,822	,474	,688	,813
VAR029 Middelen	De beschikbare ICT-middelen zijn gemakkelijk in het gebruik.	,345	,588	,770	,376	,613	,832	,316	,562	,838	,330	,575	,834			
VAR030 Middelen	Bij de beschikbare ICT-middelen zit voldoende documentatie om mij te helpen.	,161	,401	,786	,207	,455	,845									
VAR031 Middelen	Het beheer van de ICT-middelen houdt rekening met hoe ik ICT in het onderwijs wil gebruiken.	,400	,632	,766	,429	,655	,828	,426	,652	,830	,461	,679	,823	,462	,680	,814
VAR032 Middelen	Dankzij de ICT-middelen worden mijn lessen beter.	,248	,498	,777	,258	,508	,840	,285	,534	,841						
Cronbach's Alpha				,790			,844			,845			,841			,834
Cronbach's Alpha Based on Standardized Items				,805			,846			,846			,842			,835
Component 1: ICT middelen																

Table 145: Sectie 2: ICT middelen iteratie 1,2,3,4,5

VAR024	In de docentruimtes is een goede toegang tot het internet.	Afkeur
VAR026	In de docentenkamers heb ik een goede toegang tot het netwerk van de opleiding.	Afkeur

Sectie 3	Opleidingen en trainingen	Iteratie 1			Iteratie 2			Iteratie 3			Iteratie 4		
VAR	Omschrijving	Com	C1	$\alpha 1$	Com	C1	$\alpha 1$	Com	C1	$\alpha 1$	Com	C1	$\alpha 1$
VAR053 Middelen	Voor het volgen van opleidingen is er voldoende tijd.	,534	,731	,588	,559	,748	,587	,546	,739	,593	,602	,776	,546
VAR054 Middelen	Voor het volgen van opleidingen is er voldoende geld.	,440	,663	,608	,463	,681	,616	,435	,659	,624	,411	,641	,635
VAR055 Cultuur	Het opleidingsmanagement stimuleert mij om opleidingen te volgen.	,301	,549	,631	,312	,558	,649	,301	,549	,666			
VAR056 Cultuur	Mijn collega's stimuleren mij om opleidingen te volgen.	,380	,616	,621	,393	,627	,633	,495	,704	,606	,516	,718	,595
VAR057 Middelen	Als ik een opleiding nodig heb, kan ik die voldoende snel volgen.	,263	,513	,633	,244	,494	,667						
VAR058 Middelen	De meeste opleidingen zijn in de buurt te volgen.	,059	,242	,679									
VAR059 Middelen	De beschikbare opleidingen sluiten aan bij mijn lessen.	,380	,616	,603	,335	,579	,643	,412	,642	,632	,471	,687	,610
Cronbach's Alpha				,661			,675			,676			,666
Cronbach's Alpha Based on Standardized Items				,654			,673			,675			,664
Component 1: Opleiding en trainingen													

Table 146: Sectie 3: Opleidingen en trainingen iteratie 1,2,3,4

VAR052	De opleidingen/trainingen helpen mij om ICT in mijn onderwijs te gebruiken.	Afkeur
VAR060	De opleidingen maken mij beter.	Afkeur
VAR061	De opleidingen worden door vakbekwame docenten gegeven.	Afkeur

Sectie 4	Technische ondersteuning	Iteratie 1			Iteratie 2			Iteratie 3			Iteratie 4			Iteratie 5		
VAR	Omschrijving	Com	C1	α 1	Com	C1	α 1	Com	C1	α 1	Com	C1	α 1	Com	C1	α 1
VAR078 Middelen Service	Als ik technische ondersteuning nodig heb, wordt daar voldoende aandacht aan besteed.	,843	,918	,938	,851	,923	,936	,817	,904	,925	,824	,908	,921	,836	,914	,795
VAR079 Middelen Service	Die technische ondersteuning helpt mij bij het gebruik van ICT in mijn onderwijs.	,703	,839	,942	,727	,853	,941	,746	,864	,929	,754	,868	,925	,770	,877	,735
VAR080 Middelen Service	De technische ondersteuning is goed bereikbaar.	,660	,813	,943	,631	,794	,945	,594	,770	,937						
VAR081 Middelen Service	Deze technische ondersteuning is klantvriendelijk.	,626	,791	,944	,647	,805	,943	,660	,812	,933	,644	,802	,933			
VAR082 Middelen Service	Deze technische ondersteuning is van goede kwaliteit.	,795	,892	,939	,790	,889	,938	,797	,893	,926	,796	,892	,922	,786	,886	,690
VAR083 Middelen Service	De technische ondersteuning heeft prettige openingstijden.	,520	,721	,948												
VAR084 Middelen Service	De technische ondersteuning komt de afspraken na.	,685	,828	,943	,719	,848	,941	,637	,798	,934	,652	,808	,932	,648	,805	,574
VAR085 Middelen Service	De medewerkers van de technische ondersteuning helpen mij goed.	,826	,909	,938	,828	,910	,937	,786	,887	,926	,793	,890	,923	,811	,900	,725
VAR086 Middelen Service	De medewerkers van de technische hebben goede ideeën.	,633	,796	,944	,571	,755	,946									
VAR087 Middelen Service	Dankzij de technische ondersteuning kan ik ICT beter inzetten in mijn lessen.	,624	,790	,945	,639	,799	,944	,623	,790	,935	,651	,807	,932	,671	,819	,578
	Cronbach's Alpha			,948			,947			,939			,937			,933
	Cronbach's Alpha Based on Standardized Items			,950			,949			,940			,938			,934

Table 147: Sectie 4: Technische ondersteuning iteratie 1,2,3,4,5

Sectie 4	Technische ondersteuning	Iteratie 6			Iteratie 7			Iteratie 8			Iteratie 9		
VAR	Omschrijving	Com	C1	α 1	Com	C1	α 1	Com	C1	α 1	Com	C1	α 1
VAR078 Middelen Service	Als ik technische ondersteuning nodig heb, wordt daar voldoende aandacht aan besteed.	,831	,911	,910	,859	,280	,899	,884	,940	,850	,917	,958	X
VAR079 Middelen Service	Die technische ondersteuning helpt mij bij het gebruik van ICT in mijn onderwijs.	,803	,896	,912	,828	,275	,906	,858	,926	,868	,917	,958	X
VAR080 Middelen Service	De technische ondersteuning is goed bereikbaar.												
VAR081 Middelen Service	Deze technische ondersteuning is klantvriendelijk.												
VAR082 Middelen Service	Deze technische ondersteuning is van goede kwaliteit.	,793	,891	,913	,806	,272	,911						
VAR083 Middelen Service	De technische ondersteuning heeft prettige openingstijden.												
VAR084 Middelen Service	De technische ondersteuning komt de afspraken na.												
VAR085 Middelen Service	De medewerkers van de technische ondersteuning helpen mij goed.	,812	,901	,910	,814	,273	,908	,821	,906	,893			
VAR086 Middelen Service	De medewerkers van de technische hebben goede ideeën.												
VAR087 Middelen Service	Dankzij de technische ondersteuning kan ik ICT beter inzetten in mijn lessen.	,697	,835	,927									
Cronbach's Alpha				,931			,928			,911			,899
Cronbach's Alpha Based on Standardized Items				,932			,930			,915			,909
Component 1: Technische ondersteuning													

Table 148: Sectie 4: Technische ondersteuning iteratie 6,7,8,9

Sectie 6		Iteratie 1			Iteratie 2			Iteratie 3			Iteratie 4			Iteratie 5			Iteratie 6			Iteratie 7			Iteratie 8		
VAR	Omschrijving	Com	C1	α1	Com	C1	α1	Com	C1	α1	Com	C1	α1	Com	C1	α1	Com	C1	α1	Com	C1	α1	Com	C1	α1
VAR128 Middelen Service	Als ik onderwijskundige ondersteuning nodig heb, wordt daar voldoende aandacht aan besteed.	,655	,809	,854	,668	,817	,857	,645	,803	,854	,621	,788	,905	,706	,840	,903	,782	,885	,874	,776	,881	,866			
VAR129 Middelen Service	Die ondersteuning helpt mij bij het gebruik van ICT in mijn onderwijs.	,574	,757	,865	,585	,765	,869	,631	,794	,862	,695	,834	,894	,700	,836	,901									
VAR130 Middelen Service	Die ondersteuning goed bereikbaar.	,353	,594	,876	,373	,610	,880																		
VAR131 Middelen Service	De onderwijskundige ondersteuning is klantvriendelijk.	,253	,503	,882																					
VAR132 Middelen Service	De onderwijskundige ondersteuning is van goede kwaliteit.	,781	,884	,851	,782	,884	,854	,813	,901	,843	,848	,921	,905	,855	,925	,873	,800	,894	,864	,844	,919	,793	,884	,940	X
VAR133 Middelen Service	De onderwijskundige ondersteuning heeft prettige openingstijden.	,374	,611	,874	,400	,633	,877	,304	,552	,899															
VAR134 Middelen Service	De onderwijskundige ondersteuning komt de afspraken na.	,587	,766	,864	,577	,760	,869	,623	,789	,860	,656	,810	,894	,723	,850	,894	,751	,866	,878						
VAR135 Middelen Service	De medewerkers van de onderwijskundige ondersteuning helpen mij goed.	,742	,862	,854	,733	,856	,857	,738	,859	,850	,758	,871	,886	,754	,869	,891	,777	,882	,874	,818	,905	,827	,884	,940	X
VAR136 Middelen Service	De medewerkers van de onderwijskundige ondersteuning hebben goede ideeën.	,498	,706	,871	,488	,698	,877	,543	,737	,871	,618	,786	,903												
Cronbach's Alpha				,879			,882			,880			,910			,912			,901			,878			,866
Cronbach's Alpha Based on Standardized Items				,886			,892			,891			,913			,915			,905			,885			,868
Component 1: Onderwijskundige ondersteuning																									

Table 149: Sectie 6: Onderwijskundige ondersteuning iteratie 1,2,3,4,5,6,7,8

VAR137	Dankzij de onderwijskundige ondersteuning kan ik ICT beter inzetten in mijn lessen.	Afkeur
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Sectie 8	Intern digitaal lesmateriaal	Iteratie 1					Iteratie 2				Iteratie 3				Iteratie 4				Iteratie 5			
VAR	Omschrijving	Com	C1	C2	α1	α2	Com	C1	C2	α1	Com	C1	C2	α1	Com	C1	C2	α1	Com	C1	C2	α1
VAR177 Middelen	Het beschikbare digitale lesmateriaal binnen Uitholland is gemakkelijk te vinden.	,616	,822	-,031	,772	X	,635	,800	-,135	,726	,659	,812	-,067	,714	,790	,891	-,101	,614	,845	,859	-,329	X
VAR178 Middelen	Het is gemakkelijk om het beschikbare digitale lesmateriaal op te halen en in te zetten binnen mijn lessen.	,669	,789	-,196	,753	X	,647	,805	-,005	,734	,723	,841	,088	,696	,732	,844	,088	,702	,829	,897	-,156	X
VAR179 Middelen	Er is voldoende digitaal lesmateriaal voor mijn lessen.	,661	,812	,008	,762	X	,640	,798	,022	,743	,653	,802	,063	,751	,616	,784	,017	,796				
VAR180 Middelen	Het beschikbare digitale lesmateriaal is van voldoende kwaliteit.	,421	,532	,303	,807	X																
VAR181 Cultuur	Het opleidingsmanagement stimuleert mij om digitaal lesmateriaal in mijn lessen in te zetten.	,712	,188	,796	x		,716	,164	,813	X	,731	,183	,827	X	,730	,200	,814	X	,700	,459	,699	X
VAR182 Cultuur	Mijn collega's stimuleren mij om digitaal lesmateriaal in mijn lessen in te zetten.	,744	-,203	,868	x		,729	-,197	,852	X	,759	-,169	,862	X	,774	-,171	,877	X	,743	,118	,854	X
VAR183 Middelen	Het digitale lesmateriaal is nuttig voor mijn lessen.	,429	,563	,263	,808	X	,493	,579	,340	,795												
VAR184 Middelen	Het digitale lesmateriaal maken mijn lessen beter.	,597	,781	-,122	,781	X	,599	,778	-,064	,767	,564	,751	-,069	,793								
	Cronbach's Alpha				,812	,547				,795				,795				,787				,791
	Cronbach's Alpha Based on Standardized Items				,817	,548				,803				,800				,788				,794
	Component 1: Toegankelijkheid intern digital materiaal																					
	Component 2: Stimulatie gebruik intern digitaal materiaal																					

Table 150: Sectie 8: Intern digitaal lesmateriaal iteratie 1,2,3,4,5

Sectie 9	Extern digitaal lesmateriaal	Iteratie 1					Iteratie 2				
VAR	Omschrijving	Com	C1	C2	$\alpha 1$	$\alpha 2$	Com	C1	C2	$\alpha 1$	$\alpha 2$
VAR199 Middelen	Ik weet voldoende extern digitaal lesmateriaal voor mijn lessen te vinden.	,586	,761	-,085	,284	X	,700	,836	-,008	X	
VAR200 Middelen	Het is gemakkelijk om de externe digitaal lesmiddelen op te halen en in te zetten binnen mijn lessen.	,652	,795	-,141	,294	X	,737	,857	-,077	X	
VAR202 Cultuur	Het opleidingsmanagement stimuleert mij om extern digitaal lesmateriaal in mijn lessen in te zetten.	,612	-,260	,739	x	X	,655	-,252	,781		X
VAR203 Cultuur	Mijn collega's stimuleren mij om extern digitaal lesmateriaal in mijn lessen in te zetten.	,716	,230	,813	x	X	,689	,153	,808		X
VAR205 Middelen	Het externe digitale lesmateriaal maken mijn lessen beter.	,437	,612	,245	,657						
	Cronbach's Alpha				,571	,415				,658	,415
	Cronbach's Alpha Based on Standardized Items				,557	,416				,660	,416
	Component 1: Toegankelijkheid extern digital materiaal										
	Component 2: Stimulatie gebruik extern digitaal materiaal										

Table 151: Sectie 9: Extern digitaal lesmateriaal iteratie 1,2

VAR198	Uitholland staat het in voldoende mate toe om een beroep te doen op externe digitaal lesmateriaal aan te schaffen.	Afkeur
VAR201	Het externe digitale lesmateriaal is van voldoende kwaliteit.	Afkeur
VAR204	Het externe digitale lesmateriaal is nuttig voor mijn onderwijs.	Afkeur

Sectie 10	Ontwikkel tools	Iteratie 1			Iteratie 2			Iteratie 3			Iteratie 4			Iteratie 5		
VAR	Omschrijving	Com	C1	α 1	Com	C1	α 1	Com	C1	α 1	Com	C1	α 1	Com	C1	α 1
VAR219 Middelen	Als ik digitaal lesmateriaal wil maken kan ik gemakkelijk bij de software die daarvoor nodig is.	,074	,272	,716												
VAR220 Middelen	Als ik de software nodig heb, doet die het ook.	,163	,403	,687	,156	,395	,745									
VAR221 Middelen	De software is gemakkelijk in gebruik.	,512	,715	,640	,531	,729	,666	,521	,722	,698	,681	,791	,625	,670	,670	,683
VAR222 Middelen	Met die software kan ik mijn ideeën vormgeven.	,540	,735	,638	,572	,756	,656	,550	,742	,690	,677	,798	,637	,627	,627	,724
VAR223 Middelen	Met de software is het mogelijk om kwalitatief goed digitaal lesmateriaal te maken.	,691	,831	,611	,688	,829	,638	,738	,859	,635	,644	,830	,689	,730	,730	,616
VAR224 Cultuur	Binnen de opleiding is vanzelfsprekend dat een docent zelf digitaal lesmateriaal maakt.	,475	,689	,676	,535	,731	,669	,541	,736	,720	,778	,698	,487			
VAR225 Middelen	Dankzij het zelf gemaakte digitale lesmateriaal worden mijn lessen beter.	,270	,520	,677	,229	,479	,718	,257	,507	,747						
Cronbach's Alpha				,698			,723			,745			,747			,759
Cronbach's Alpha Based on Standardized Items				,717			,739			,761			,785			,759
Component 1: Ontwikkel tools																

Table 152: Sectie 10: Ontwikkel tools iteratie 1,2,3,4,5

Sectie 12	Kwaliteit
VAR	Omschrijving
VAR256 Cultuur	Er wordt voldoende mate gebruikt gemaakt van elkaars kennis en ervaring bij de inzet van ICT in het onderwijs
VAR257 Middelen	De praktijkvoorbeelden van collega's zijn belangrijk voor mijn lessen.
VAR258 Cultuur	De manier waarop wij kennis en ervaring delen, helpt mij bij het inzetten van ICT binnen mijn onderwijs.
VAR261 Structuur	De standaarden en richtlijnen voor de inzet van ICT helpen mij bij het inzetten van ICT in mijn lessen.
VAR264 Structuur	De manier waarop het ICT-gebruik wordt geëvalueerd, helpt mij bij het inzetten van ICT in mijn lessen.

Table 153: Sectie 12: Kwaliteit

VAR265 Structuur	Bij de beoordeling van mijn werk wordt ook gekeken naar mijn inzet van ICT in het onderwijs.	Afkeur
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Sectie 13a	Management en Team	Iteratie 1					Iteratie 2			Iteratie 3			Iteratie 4			Iteratie 5		
VAR	Omschrijving	Com	C1	C2	α_1	α_2	Com	C1	C2	Com	C1	C2	Com	C1	C2	Com	C1	C2
VAR267 Cultuur	Het opleidingsmanagement stimuleert dat de docenten kennis en ervaring uitwisselen met betrekking tot het gebruik van ICT.	,576	,743	,060	,932	X	,577	,741	,053	,580	,740	,063	,586	,745	,060	,592	,745	,071
VAR268 Cultuur	De docenten worden betrokken bij de vraag hoe onze opleiding ICT binnen het onderwijs wil inzetten.	,512	,681	,113	,934	X	,512	,674	,109	,519	,675	,118	,524	,680	,115	,534	,683	,126
VAR269 Cultuur	Het opleidingsmanagement heeft een visie op de inzet van ICT binnen het onderwijs.	,574	,763	-,025	,933	X	,570	,763	-,026	,577	,764	-,015	,584	,769	-,018	,592	,771	-,006
VAR270 Cultuur	Het opleidingsmanagement heeft een visie op het nut van ICT voor ons onderwijs.	,535	,745	-,071	,933	X	,532	,749	-,074	,534	,748	-,064	,533	,747	-,065	,541	,750	-,053
VAR271 Cultuur	Het opleidingsmanagement geeft leiding aan de richting die we opgaan met de inzet van ICT in het onderwijs.	,618	,806	-,122	,933	X	,610	,810	-,122	,617	,812	-,111	,619	,814	-,112	,621	,812	-,100
VAR272 Cultuur	Het opleidingsmanagement weet duidelijk te maken wat de waarde is van ICT in het onderwijs.	,749	,878	-,061	,930	X	,750	,886	-,072	,752	,884	-,061	,754	,886	-,062	,748	,878	-,051
VAR273 Cultuur	Het opleidingsmanagement zorgt voor de juiste randvoorwaarden voor het gebruik van ICT binnen het onderwijs.	,331	,520	,154	,938	X	,332	,511	,151	,334	,510	,158	,333	,508	,158			
VAR274 Cultuur	Het opleidingsmanagement stimuleert de docenten in het gebruik van ICT binnen het onderwijs.	,661	,812	,002	,931	X	,669	,824	-,020	,679	,827	-,008	,693	,836	-,013	,686	,829	-,002
VAR275 Cultuur	Het opleidingsmanagement geeft het goede voorbeeld als het gaat om het gebruik van ICT.	,647	,815	-,053	,931	X	,652	,827	-,070	,662	,830	-,058	,669	,835	-,061	,660	,826	-,051
VAR276 Cultuur	Het opleidingsmanagement toont betrokkenheid als het gaat om het gebruik van ICT binnen het onderwijs.	,701	,852	-,077	,930	X	,706	,864	-,093	,713	,866	-,081	,716	,868	-,083	,710	,861	-,072
VAR277 Cultuur	Het opleidingsmanagement stimuleert feedback en waardeert kritiek als het gaat om het gebruik van ICT binnen het onderwijs.	,621	,800	-,060	,932	X	,619	,804	-,065	,617	,801	-,056	,611	,796	-,054	,617	,797	-,042
VAR278 Cultuur	Het opleidingsmanagement moedigt experimenteren met ICT aan.	,641	,794	,026	,931	X	,645	,799	,011	,641	,794	,020	,645	,797	,019	,647	,795	,030
VAR279 Cultuur	Het opleidingsmanagement stimuleert dat collega's samenwerken.	,436	,614	,139	,935	X	,439	,613	,123	,422	,599	,127	,411	,588	,132	,411	,585	,141
VAR281 Cultuur	Het opleidingsmanagement verwacht dat medewerkers nieuwe dingen uitproberen.	,328	,576	-,014	,937	X	,324	,573	-,011	,304	,554	-,010						
VAR282 Cultuur	Creativiteit wordt door het opleidingsmanagement gewaardeerd.	,307	,497	,155	,938	X	,307	,483	,160									
VAR283 Cultuur	Binnen ons team kunnen collega's op elkaar terugvallen bij vragen over ICT.	,347	,143	,539		,831	,348	,101	,551	,347	,096	,552	,347	,094	,553	,346	,091	,555
VAR284 Cultuur	Binnen ons team weten we wat er met ICT mogelijk is binnen het onderwijs.	,650	,181	,744		,804	,660	,119	,767	,660	,115	,770	,660	,119	,768	,660	,115	,770

Table 154: Sectie 13a: Management en team iteratie 1,2,3,4,5

Sectie 13b	Management en Team	Iteratie 1					Iteratie 2			Iteratie 3			Iteratie 4			Iteratie 5		
VAR	Omschrijving	Com	C1	C2	$\alpha 1$	$\alpha 2$	Com	C1	C2	Com	C1	C2	Com	C1	C2	Com	C1	C2
VAR285 Cultuur	Bij het gebruik van ICT in het onderwijs werken we binnen ons team samen.	,584	,280	,648	X	,814	,586	,231	,661	,582	,224	,664	,583	,226	,663	,589	,228	,668
VAR286 Cultuur	Binnen ons team is er een gezamenlijke visie het gebruik van ICT in het onderwijs.	,636	,295	,675	X	,806	,647	,237	,698	,648	,233	,702	,647	,229	,704	,642	,221	,707
VAR287 Cultuur	Binnen ons team betrekken we elkaar bij de plannen die we hebben voor het gebruik van ICT in het onderwijs.	,592	,206	,694	X	,809	,601	,148	,716	,600	,143	,719	,601	,148	,717	,601	,145	,720
VAR289 Cultuur	Ons team voelt zich betrokken bij het ICT-beleid van de instelling.	,335	,484	,224	,938		,335	,475	,214	,338	,474	,221	,336	,472	,222	,349	,479	,231
VAR290 Cultuur	Ons team staat positief tegenover veranderingen.	,364	-,089	,618	X	,837	,343	-,124	,612	,346	-,119	,614	,346	-,117	,613	,347	-,116	,613
VAR291 Cultuur	Binnen ons team proberen we zoveel mogelijk om risico's te vermijden.	,088	,191	-,276	X	,878												
VAR292 Cultuur	Ons team probeert voorop te lopen met de inzet van nieuwe technologie in het onderwijs.	,664	,076	,794	X	,805	,676	,009	,819	,681	,010	,822	,682	,006	,824	,679	,000	,824
VAR293 Cultuur	Binnen ons team is er een drang tot vernieuwen.	,516	-,093	,734	X	,825	,510	-,147	,746	,510	-,150	,746	,508	-,147	,744	,508	-,150	,743
VAR295 Cultuur	Er is binnen ons team een grote bereidheid tot het zoeken van gemeenschappelijke oplossingen.	,331	-,057	,586	X	,835	,333	-,103	,601	,331	-,108	,600	,333	-,112	,602	,333	-,114	,601
	Cronbach's Alpha				,937	,841												
	Cronbach's Alpha Based on Standardized Items				,938	,831												

Table 155: Sectie 13b: Management en team iteratie 1,2,3,4,5

Sectie 13a	Management en Team	Iteratie 6			Iteratie 7			Iteratie 8			Iteratie 9			Iteratie 10		
VAR	Omschrijving	Com	C1	C2	Com	C1	C2	Com	C1	C2	Com	C1	C2	Com	C1	C2
VAR267 Cultuur	Het opleidingsmanagement stimuleert dat de docenten kennis en ervaring uitwisselen met betrekking tot het gebruik van ICT.	,591	,737	,085	,592	,734	,086	,604	,737	,099	,601	,732	,109	,601	,730	,114
VAR268 Cultuur	De docenten worden betrokken bij de vraag hoe onze opleiding ICT binnen het onderwijs wil inzetten.	,534	,680	,126	,534	,675	,127	,527	,668	,135	,538	,672	,146	,534	,683	,119
VAR269 Cultuur	Het opleidingsmanagement heeft een visie op de inzet van ICT binnen het onderwijs.	,590	,768	,002	,591	,768	,001	,584	,761	,010	,589	,761	,021	,590	,761	,019
VAR270 Cultuur	Het opleidingsmanagement heeft een visie op het nut van ICT voor ons onderwijs.	,538	,746	-,043	,537	,745	-,036	,526	,735	-,029	,532	,735	-,019	,533	,739	-,031
VAR271 Cultuur	Het opleidingsmanagement geeft leiding aan de richting die we opgaan met de inzet van ICT in het onderwijs.	,618	,811	-,091	,614	,808	-,080	,618	,807	-,068	,635	,814	-,055	,634	,811	-,047
VAR272 Cultuur	Het opleidingsmanagement weet duidelijk te maken wat de waarde is van ICT in het onderwijs.	,750	,882	-,055	,752	,886	-,058	,757	,884	-,045	,758	,881	-,033	,756	,875	-,016
VAR273 Cultuur	Het opleidingsmanagement zorgt voor de juiste randvoorwaarden voor het gebruik van ICT binnen het onderwijs.															
VAR274 Cultuur	Het opleidingsmanagement stimuleert de docenten in het gebruik van ICT binnen het onderwijs.	,689	,833	-,009	,692	,837	-,016	,698	,836	-,003	,697	,832	,009	,696	,827	,020
VAR275 Cultuur	Het opleidingsmanagement geeft het goede voorbeeld als het gaat om het gebruik van ICT.	,662	,829	-,053	,662	,831	-,052	,658	,824	-,042	,669	,827	-,030	,670	,831	-,041
VAR276 Cultuur	Het opleidingsmanagement toont betrokkenheid als het gaat om het gebruik van ICT binnen het onderwijs.	,715	,868	-,081	,719	,875	-,089	,728	,876	-,075	,725	,871	-,063	,724	,869	-,060
VAR277 Cultuur	Het opleidingsmanagement stimuleert feedback en waardeert kritiek als het gaat om het gebruik van ICT binnen het onderwijs.	,618	,799	-,042	,619	,801	-,044	,620	,798	-,032	,626	,798	-,021	,626	,798	-,022
VAR278 Cultuur	Het opleidingsmanagement moedigt experimenteren met ICT aan.	,649	,797	,024	,649	,797	,023	,652	,795	,035	,633	,780	,044	,633	,780	,044
VAR279 Cultuur	Het opleidingsmanagement stimuleert dat collega's samenwerken.	,410	,580	,143	,411	,568	,158	,422	,572	,169						
VAR281 Cultuur	Het opleidingsmanagement verwacht dat medewerkers nieuwe dingen uitproberen.															
VAR282 Cultuur	Creativiteit wordt door het opleidingsmanagement gewaardeerd.															
VAR283 Cultuur	Binnen ons team kunnen collega's op elkaar terugvallen bij vragen over ICT.	,358	,067	,573	,380	,033	,604	,380	,031	,605	,373	,017	,605			
VAR284 Cultuur	Binnen ons team weten we wat er met ICT mogelijk is binnen het onderwijs.	,682	,082	,795	,714	,040	,830	,713	,037	,831	,713	,033	,833	,685	,047	,811

Table 156: Sectie 13a: Management en team iteratie 6,7,8,9,10

Sectie 13b	Management en Team	Iteratie 6			Iteratie 7			Iteratie 8			Iteratie 9			Iteratie 10		
VAR	Omschrijving	Com	C1	C2	Com	C1	C2	Com	C1	C2	Com	C1	C2	Com	C1	C2
VAR285 Cultuur	Bij het gebruik van ICT in het onderwijs werken we binnen ons team samen.	,627	,189	,710	,668	,144	,755	,670	,143	,758	,665	,134	,761	,659	,143	,753
VAR286 Cultuur	Binnen ons team is er een gezamenlijke visie het gebruik van ICT in het onderwijs.	,641	,198	,714	,661	,162	,741	,662	,161	,744	,661	,156	,747	,672	,159	,753
VAR287 Cultuur	Binnen ons team betrekken we elkaar bij de plannen die we hebben voor het gebruik van ICT in het onderwijs.	,637	,108	,756	,661	,068	,786	,661	,066	,788	,665	,067	,791	,656	,076	,782
VAR289 Cultuur	Ons team voelt zich betrokken bij het ICT-beleid van de instelling.	,344	,481	,214	,338	,488	,188									
VAR290 Cultuur	Ons team staat positief tegenover veranderingen.	,314	-,119	,587												
VAR291 Cultuur	Binnen ons team proberen we zoveel mogelijk om risico's te vermijden.															
VAR292 Cultuur	Ons team probeert voorop te lopen met de inzet van nieuwe technologie in het onderwijs.	,691	-,030	,840	,672	-,055	,838	,674	-,055	,839	,680	-,051	,840	,724	-,056	,868
VAR293 Cultuur	Binnen ons team is er een drang tot vernieuwen.	,487	-,165	,733	,432	-,170	,698	,432	-,171	,697	,435	-,166	,696	,494	-,179	,742
VAR295 Cultuur	Er is binnen ons team een grote bereidheid tot het zoeken van gemeenschappelijke oplossingen.															
	Cronbach's Alpha															
	Cronbach's Alpha Based on Standardized Items															

Table 157: Sectie 13b: Management en team iteratie 6,7,8,9,10

Sectie 13a	Management en Team	Iteratie 11			Iteratie 12			Iteratie 13			Iteratie 14			Iteratie 15		
VAR	Omschrijving	Com	C1	C2	Com	C1	C2	Com	C1	C2	Com	C1	C2	Com	C1	C2
VAR267 Cultuur	Het opleidingsmanagement stimuleert dat de docenten kennis en ervaring uitwisselen met betrekking tot het gebruik van ICT.	,603	,741	,083	,610	,748	,077	,607	,743	,083	,595	,730	,096			
VAR268 Cultuur	De docenten worden betrokken bij de vraag hoe onze opleiding ICT binnen het onderwijs wil inzetten.	,534	,665	,139	,544	,676	,132	,540	,670	,139						
VAR269 Cultuur	Het opleidingsmanagement heeft een visie op de inzet van ICT binnen het onderwijs.	,589	,760	,020	,540	,717	,042									
VAR270 Cultuur	Het opleidingsmanagement heeft een visie op het nut van ICT voor ons onderwijs.	,532	,740	-,029												
VAR271 Cultuur	Het opleidingsmanagement geeft leiding aan de richting die we opgaan met de inzet van ICT in het onderwijs.	,629	,805	-,031	,619	,798	-,029	,602	,783	-,018	,616	,787	-,006	,619	,785	,005
VAR272 Cultuur	Het opleidingsmanagement weet duidelijk te maken wat de waarde is van ICT in het onderwijs.	,759	,882	-,028	,760	,883	-,031	,762	,883	-,025	,771	,882	-,011	,772	,878	,002
VAR273 Cultuur	Het opleidingsmanagement zorgt voor de juiste randvoorwaarden voor het gebruik van ICT binnen het onderwijs.															
VAR274 Cultuur	Het opleidingsmanagement stimuleert de docenten in het gebruik van ICT binnen het onderwijs.	,702	,840	-,007	,727	,860	-,020	,742	,868	-,018	,749	,867	-,004	,740	,856	,011
VAR275 Cultuur	Het opleidingsmanagement geeft het goede voorbeeld als het gaat om het gebruik van ICT.	,669	,832	-,039	,684	,845	-,048	,696	,851	-,045	,702	,849	-,031	,720	,856	-,021
VAR276 Cultuur	Het opleidingsmanagement toont betrokkenheid als het gaat om het gebruik van ICT binnen het onderwijs.	,724	,872	-,060	,747	,890	-,072	,766	,900	-,070	,770	,897	-,056	,772	,894	-,042
VAR277 Cultuur	Het opleidingsmanagement stimuleert feedback en waardeert kritiek als het gaat om het gebruik van ICT binnen het onderwijs.	,626	,800	-,024	,627	,802	-,026	,621	,795	-,018	,628	,795	-,006	,654	,808	,002
VAR278 Cultuur	Het opleidingsmanagement moedigt experimenteren met ICT aan.	,633	,776	,047	,651	,792	,035	,675	,807	,034	,677	,803	,048	,679	,800	,060
VAR279 Cultuur	Het opleidingsmanagement stimuleert dat collega's samenwerken.															
VAR281 Cultuur	Het opleidingsmanagement verwacht dat medewerkers nieuwe dingen uitproberen.															
VAR282 Cultuur	Creativiteit wordt door het opleidingsmanagement gewaardeerd.															
VAR283 Cultuur	Binnen ons team kunnen collega's op elkaar terugvallen bij vragen over ICT.															
VAR284 Cultuur	Binnen ons team weten we wat er met ICT mogelijk is binnen het onderwijs.	,726	-,023	,861	,727	-,030	,864	,727	-,026	,862	,727	-,028	,863	,730	-,018	,861

Table 158: Sectie 13a: Management en team iteratie 11,12,13,14,15

Sectie 13b	Management en Team	Iteratie 11			Iteratie 12			Iteratie 13			Iteratie 14			Iteratie 15		
VAR	Omschrijving	Com	C1	C2	Com	C1	C2	Com	C1	C2	Com	C1	C2	Com	C1	C2
VAR285 Cultuur	Bij het gebruik van ICT in het onderwijs werken we binnen ons team samen.	,711	,069	,814	,712	,072	,813	,710	,063	,816	,705	,051	,819	,703	,041	,822
VAR286 Cultuur	Binnen ons team is er een gezamenlijke visie het gebruik van ICT in het onderwijs.	,679	,105	,777	,679	,112	,774	,679	,110	,775	,685	,115	,777	,685	,112	,780
VAR287 Cultuur	Binnen ons team betrekken we elkaar bij de plannen die we hebben voor het gebruik van ICT in het onderwijs.	,715	,000	,846	,716	-,002	,847	,717	-,003	,848	,718	-,004	,849	,719	-,001	,848
VAR289 Cultuur	Ons team voelt zich betrokken bij het ICT-beleid van de instelling.															
VAR290 Cultuur	Ons team staat positief tegenover veranderingen.															
VAR291 Cultuur	Binnen ons team proberen we zoveel mogelijk om risico's te vermijden.															
VAR292 Cultuur	Ons team probeert voorop te lopen met de inzet van nieuwe technologie in het onderwijs.	,660	-,090	,843	,658	-,086	,841	,658	-,085	,840	,659	-,082	,839	,659	-,090	,840
VAR293 Cultuur	Binnen ons team is er een drang tot vernieuwen.															
VAR295 Cultuur	Er is binnen ons team een grote bereidheid tot het zoeken van gemeenschappelijke oplossingen.															

Table 159: Sectie 13b: Management en team iteratie 11,12,13,14,15

Sectie 13a	Management en Team	Iteratie 16			Iteratie 17			Iteratie 18			Iteratie 19			Iteratie 20		
VAR	Omschrijving	Com	C1	C2	Com	C1	C2	Com	C1	C2	Com	C1	C2	Com	C1	C2
VAR267 Cultuur	Het opleidingsmanagement stimuleert dat de docenten kennis en ervaring uitwisselen met betrekking tot het gebruik van ICT.															
VAR268 Cultuur	De docenten worden betrokken bij de vraag hoe onze opleiding ICT binnen het onderwijs wil inzetten.															
VAR269 Cultuur	Het opleidingsmanagement heeft een visie op de inzet van ICT binnen het onderwijs.															
VAR270 Cultuur	Het opleidingsmanagement heeft een visie op het nut van ICT voor ons onderwijs.															
VAR271 Cultuur	Het opleidingsmanagement geeft leiding aan de richting die we opgaan met de inzet van ICT in het onderwijs.															
VAR272 Cultuur	Het opleidingsmanagement weet duidelijk te maken wat de waarde is van ICT in het onderwijs.	,762	,870	,008	,756	,864	,015	,757	,866	,011	,757	,867	,008	,791	,890	,000
VAR273 Cultuur	Het opleidingsmanagement zorgt voor de juiste randvoorwaarden voor het gebruik van ICT binnen het onderwijs.															
VAR274 Cultuur	Het opleidingsmanagement stimuleert de docenten in het gebruik van ICT binnen het onderwijs.	,766	,873	,007	,811	,901	,000	,813	,904	-,007	,813	,908	-,019	,801	,900	-,014
VAR275 Cultuur	Het opleidingsmanagement geeft het goede voorbeeld als het gaat om het gebruik van ICT.	,735	,865	-,022	,736	,864	-,017	,733	,858	-,005	,733	,861	-,012			
VAR276 Cultuur	Het opleidingsmanagement toont betrokkenheid als het gaat om het gebruik van ICT binnen het onderwijs.	,778	,896	-,040	,771	,889	-,033	,773	,894	-,042	,773	,890	-,032	,793	,902	-,036
VAR277 Cultuur	Het opleidingsmanagement stimuleert feedback en waardeert kritiek als het gaat om het gebruik van ICT binnen het onderwijs.	,641	,797	,010												
VAR278 Cultuur	Het opleidingsmanagement moedigt experimenteren met ICT aan.	,713	,824	,052	,738	,840	,050	,738	,836	,056	,739	,836	,064	,760	,850	,059
VAR279 Cultuur	Het opleidingsmanagement stimuleert dat collega's samenwerken.															
VAR281 Cultuur	Het opleidingsmanagement verwacht dat medewerkers nieuwe dingen uitproberen.															
VAR282 Cultuur	Creativiteit wordt door het opleidingsmanagement gewaardeerd.															
VAR283 Cultuur	Binnen ons team kunnen collega's op elkaar terugvallen bij vragen over ICT.															
VAR284 Cultuur	Binnen ons team weten we wat er met ICT mogelijk is binnen het onderwijs.	,728	-,008	,856	,728	,002	,852	,741	-,022	,869	,771	,004	,876	,771	,004	,877

Table 160: Sectie 13a: Management en team iteratie 16,17,18,19,20

Sectie 13b	Management en Team	Iteratie 16			Iteratie 17			Iteratie 18			Iteratie 19			Iteratie 20		
VAR	Omschrijving	Com	C1	C2	Com	C1	C2	Com	C1	C2	Com	C1	C2	Com	C1	C2
VAR285 Cultuur	Bij het gebruik van ICT in het onderwijs werken we binnen ons team samen.	,703	,049	,819	,703	,049	,820	,747	,015	,858	,791	,038	,876	,791	,047	,872
VAR286 Cultuur	Binnen ons team is er een gezamenlijke visie het gebruik van ICT in het onderwijs.	,683	,100	,785	,685	,115	,780	,684	,098	,785						
VAR287 Cultuur	Binnen ons team betrekken we elkaar bij de plannen die we hebben voor het gebruik van ICT in het onderwijs.	,721	-,015	,854	,723	-,036	,863	,754	-,066	,891	,765	-,035	,886	,767	-,042	,889
VAR289 Cultuur	Ons team voelt zich betrokken bij het ICT-beleid van de instelling.															
VAR290 Cultuur	Ons team staat positief tegenover veranderingen.															
VAR291 Cultuur	Binnen ons team proberen we zoveel mogelijk om risico's te vermijden.															
VAR292 Cultuur	Ons team probeert voorop te lopen met de inzet van nieuwe technologie in het onderwijs.	,658	-,086	,838	,658	-,084	,837									
VAR293 Cultuur	Binnen ons team is er een drang tot vernieuwen.															
VAR295 Cultuur	Er is binnen ons team een grote bereidheid tot het zoeken van gemeenschappelijke oplossingen.															

Table 161: Sectie 13b: Management en team iteratie 16,17,18,19,20

Sectie 13a	Management en Team	Iteratie 21				Iteratie 22				Iteratie 23				
VAR	Omschrijving	Com	C1	C2	Com	C1	C2	α1	α2	Com	C1	C2	α1	α2
VAR267 Cultuur	Het opleidingsmanagement stimuleert dat de docenten kennis en ervaring uitwisselen met betrekking tot het gebruik van ICT.													
VAR268 Cultuur	De docenten worden betrokken bij de vraag hoe onze opleiding ICT binnen het onderwijs wil inzetten.													
VAR269 Cultuur	Het opleidingsmanagement heeft een visie op de inzet van ICT binnen het onderwijs.													
VAR270 Cultuur	Het opleidingsmanagement heeft een visie op het nut van ICT voor ons onderwijs.													
VAR271 Cultuur	Het opleidingsmanagement geeft leiding aan de richting die we opgaan met de inzet van ICT in het onderwijs.													
VAR272 Cultuur	Het opleidingsmanagement weet duidelijk te maken wat de waarde is van ICT in het onderwijs.	,837	,910	,013	,837	,913	,007	,825	X	,875	,936	-,002	X	X
VAR273 Cultuur	Het opleidingsmanagement zorgt voor de juiste randvoorwaarden voor het gebruik van ICT binnen het onderwijs.													
VAR274 Cultuur	Het opleidingsmanagement stimuleert de docenten in het gebruik van ICT binnen het onderwijs.	,816	,902	,005	,815	,897	,017	,845	X	,875	,935	,002	X	X
VAR275 Cultuur	Het opleidingsmanagement geeft het goede voorbeeld als het gaat om het gebruik van ICT.													
VAR276 Cultuur	Het opleidingsmanagement toont betrokkenheid als het gaat om het gebruik van ICT binnen het onderwijs.	,807	,903	-,016	,808	,906	-,022	,850	X					
VAR277 Cultuur	Het opleidingsmanagement stimuleert feedback en waardeert kritiek als het gaat om het gebruik van ICT binnen het onderwijs.													
VAR278 Cultuur	Het opleidingsmanagement moedigt experimenteren met ICT aan.													
VAR279 Cultuur	Het opleidingsmanagement stimuleert dat collega's samenwerken.													
VAR281 Cultuur	Het opleidingsmanagement verwacht dat medewerkers nieuwe dingen uitproberen.													
VAR282 Cultuur	Creativiteit wordt door het opleidingsmanagement gewaardeerd.													
VAR283 Cultuur	Binnen ons team kunnen collega's op elkaar terugvallen bij vragen over ICT.													
VAR284 Cultuur	Binnen ons team weten we wat er met ICT mogelijk is binnen het onderwijs.	,771	-,006	,880	,844	-,022	,926			,840	-,006	,918		

Table 162: Sectie 13a: Management en team iteratie 21,22,23

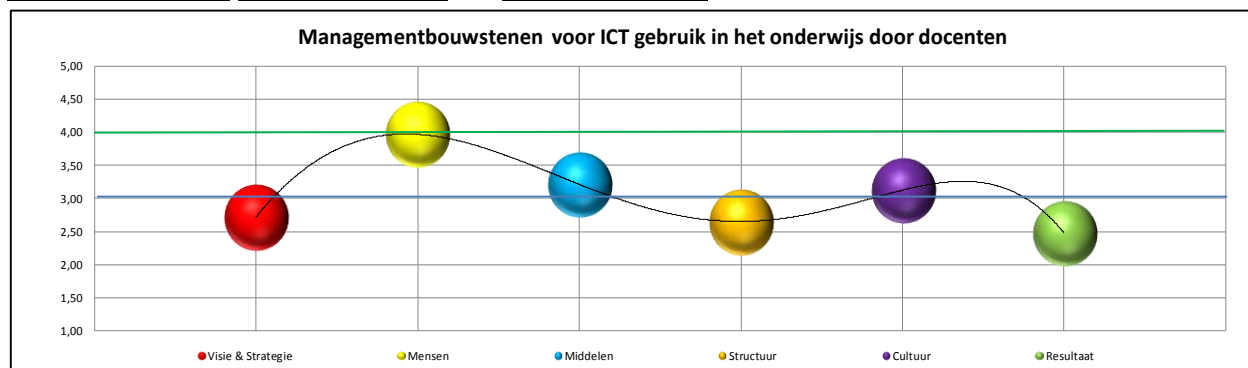
Sectie 13b	Management en Team	Iteratie 21					Iteratie 22					Iteratie 23				
VAR	Omschrijving	Com	C1	C2	α1	α2	Com	C1	C2	α1	α2	Com	C1	C2	α1	α2
VAR285 Cultuur	Bij het gebruik van ICT in het onderwijs werken we binnen ons team samen.	,790	,033	,877	X	,781	,835	,024	,906			,838	,006	,914		
VAR286 Cultuur	Binnen ons team is er een gezamenlijke visie het gebruik van ICT in het onderwijs.															
VAR287 Cultuur	Binnen ons team betrekken we elkaar bij de plannen die we hebben voor het gebruik van ICT in het onderwijs.	,766	-,024	,883	X	,808										
VAR289 Cultuur	Ons team voelt zich betrokken bij het ICT-beleid van de instelling.															
VAR290 Cultuur	Ons team staat positief tegenover veranderingen.															
VAR291 Cultuur	Binnen ons team proberen we zoveel mogelijk om risico's te vermijden.															
VAR292 Cultuur	Ons team probeert voorop te lopen met de inzet van nieuwe technologie in het onderwijs.															
VAR293 Cultuur	Binnen ons team is er een drang tot vernieuwen.															
VAR295 Cultuur	Er is binnen ons team een grote bereidheid tot het zoeken van gemeenschappelijke oplossingen.															
	Cronbach's Alpha				,887	,855				,887	,808				,850	,808
	Cronbach's Alpha Based on Standardized Items				,890	,855				,890	,808				,857	,808
	Component 1: Opleidingsmanagement															
	Component 2: Team															

Table 163: Sectie 13b: Management en team iteratie 21,22,23

VAR280	Het opleidingsmanagement verwacht dat medewerkers zich verder ontwikkelen.	Afkeur
VAR288	Ons team staat positief t.o.v. de inzet van ICT in het onderwijs.	Afkeur
VAR294	Anders denkenden worden binnen ons team gezien als interessant, omdat ze ons scherp houden.	Afkeur

Appendix 12: Overzicht Dashboard MBO ICT beleidsmonitor ROC Uitholland

Organisatie: ROC Uitholland Aantal respondenten: 146 Datum: 1-9-2012



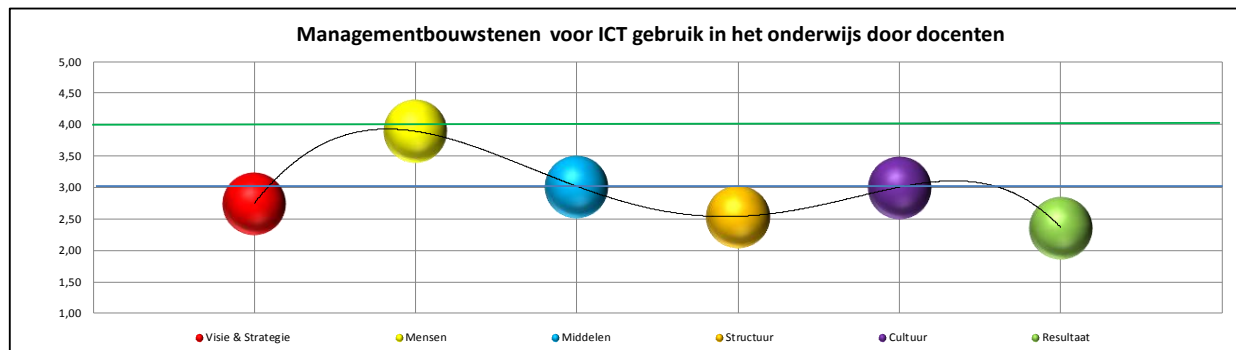
Visie & Strategie			Mensen			Middelen			Structuur			Cultuur			Resultaat		
Indicatie	Totaal	2,72	Indicatie	Totaal	3,97	Indicatie	Totaal	2,93	Indicatie	Totaal	2,65	Indicatie	Totaal	3,12	Indicatie	Totaal	2,48
LINK			LINK			LINK			LINK			LINK			LINK		
Component: Visie & Strategie	Com_Visie&StrategieIA1	2,72	Kennis en vaardigheden van de docenten	VAR001'IA1	3,99	Voldoende tijd voor toepassen ICT	VAR002'IA1	2,95	Bij de inzet van ICT in het onderwijs, laat de docent zich leiden door wat het opleidingsmanagement van hem verwacht	VAR008'IA1	2,68	Component: Opleidingsmanagement	Com_OpleidingsmanagementIA1	2,72			
Visie op onderwijs	VAR004'IA1	3,50	Docent bepaald voornamelijk zelf hoe ICT wordt ingezet	VAR009'IA1	4,03	De praktijkvoorbeelden van collega's zijn belangrijk voor de docent	VAR040'IA1	3,81	De manier waarop de docent ICT in het onderwijs wil inzetten komt overeen met wat de organisatie van hem verwacht	VAR010'IA1	3,39	Component: Team	Com_TeamIA1	3,29			
Visie op ICT	VAR005'IA1	2,69	Docent wil meer met ICT dan de organisatie zelf	VAR011'IA1	3,89	Component: ICT-middelen:	Com_ICT_middelenIA1	2,58	Er zijn regelmatig bijeenkomsten om te overleggen hoe we ICT zo goed mogelijk binnen het onderwijs kunnen	VAR003'IA1	2,41	Het opleidingsmanagement stimuleert om digitaal lesmateriaal in mijn lessen in te zetten	VAR030'IA1	2,86			
Samenhang tussen de visie onderwijs en ICT	VAR006'IA1	2,62	Leeftijd modus	VAR054'IA1	45-54	Component: Opleidingen en trainingen:	Com_Opleidingen&TrainingenIA1	2,79	Standaarden en richtlijnen helpen bij de inzet van ICT	VAR042'IA1	1,00	Mijn collega's stimuleren mij om digitaal lesmateriaal in mijn lessen in te zetten	VAR031'IA1	3,47			
Visie bij docenten bekend	VAR007'IA1	2,15	Aantal jaren in onderwijs werkzaam modus	VAR048'IA1	5 tot 10	Component: Technische ondersteuning:	Com_Tech_ondersteuningIA1	3,35	De manier waarom het ICT-gebruik wordt geëvalueerd, helpt de docent	VAR043'IA1	1,76	Het opleidingsmanagement stimuleert mij om extern digitaal lesmateriaal in	VAR034'IA1	2,62			
			Hoelang maakt u al gebruik van ICT modus	VAR051'IA1	meer dan 3 jaar	Component: Onderwijskundige ondersteuning:	Com_OnderwijskundigeondersteuningIA1	3,27				Mijn collega's stimuleren mij om extern digitaal lesmateriaal in	VAR035'IA1	3,57			
			ICT is onderdeel van het vak dat u geeft	VAR050'IA1	30,1%	Component: Toegankelijkheid Intern digitaal materiaal	Com_ToegankelijkheidInternDigitaalMateriaalIA1	3,03				Er wordt voldoende mate gebruikt gemaakt van elkaars kennis en ervaring met ICT	VAR039'IA1	2,91			
			Kenmerk van de docent Internet gebruik percentage functioneel gebruiker en hoger	VAR053'IA1	100,0%	Component: Toegankelijkheid Extern digitaal materiaal	Com_ToegankelijkheidExternDigitaalMateriaalIA1	3,54				De manier waarop wij kennis en ervaring delen, helpt de docent bij het inzetten van ICT	VAR041'IA1	3,56			
			Ook werkzaam buiten het onderwijs	VAR052'IA1	8,1%	Component: Ontwikkel tools:	Com_Ontwikkel_toolsIA1	3,60									
			Locatie werkzaam	VAR049'IA1													
			Percentage vrouw	VAR055'IA1	40,4%												

Kruistabel	Kruistabel	Kruistabel
Internet gebruik <=> Geslacht	ICT-middelen <=> Locatie	ICT-onderdeel van het vak <=> Geslacht
Kruis_M_V_Internet_gebruikIA1	Kruis_ICT_middelenIA1	Kruis_ICT_vakIA1
ICT-vaardigheid <=> Geslacht	ICT-ondersteuning <=> Locatie	ICT-vaardigheid <=> ICT-onderdeel van het vak
Kruis_M_V_KundeIA1	Kruis_ICT_ondersteuningIA1	Kruis_KundeIA1
ICT-vaardigheid <=> Leeftijd	Onderwijskundige ondersteuning <=> Locatie	
Kruis_Leeftijd_KundeIA1	Kruis_OnderwijskundigeondersteuningIA1	

Figuur 29: Overzicht dashboard MBO ICT beleidsmonitor ROC Uitholland

Appendix 13: Overzicht Dashboard MBO ICT beleidsmonitor Gilde Veste

Organisatie: **Gilde Veste** Aantal respondenten: **63** Datum: **1-9-2013**



Visie & Strategie			Mensen			Middelen			Structuur			Cultuur			Resultaat
Indicatie	Totaal	2,75	Indicatie	Totaal	3,89	Indicatie	Totaal	3,02	Indicatie	Totaal	2,54	Indicatie	Totaal	3,01	2,37
LINK			LINK			LINK			LINK			LINK			
Component: Visie & Strategie: Com_Visie&StrategieIA1	2,75		Kennis en vaardigheden van de docenten VAR001'IA1	3,70		Voldoende tijd voor toepassen ICT VAR002'IA1	2,83		Bij de inzet van ICT in het onderwijs, laat de docent zich leiden door wat het opleidingsmanagement van hem verwacht VAR008'IA1	2,12		Component: Opleidingsmanagement Com_OpleidingsmanagementIA1	2,54		
Visie op onderwijs VAR004'IA1	4,05		Docent bepaald voornamelijk zelf hoe ICT wordt ingezet VAR009'IA1	4,06		De praktijkvoorbeelden van collega's zijn belangrijk voor de docent VAR040'IA1	3,30		De manier waarop de docent ICT in het onderwijs wil inzetten komt overeen met wat de organisatie van hem verwacht VAR010'IA1	3,19		Component: Team Com_TeamIA1	3,17		
Visie op ICT VAR005'IA1	2,63		Docent wil meer met ICT dan de organisatie zelf VAR011'IA1	3,91		Component: ICT- middelen: Com ICT_middelenIA1	3,15		Er zijn regelmatig bijeenkomsten om te overleggen hoe we ICT zo goed mogelijk binnen het onderwijs kunnen gebruiken VAR003'IA1	1,87		Het opleidingsmanagement stimuleert om digitaal lesmateriaal in mijn lessen in te zetten VAR030'IA1	2,87		
Samenhang tussen de visie onderwijs en ICT VAR006'IA1	2,55		Leeftijd modus VAR054'IA1	35-44		Component: Opleidingen & trainingen: Com_Opleidingen&TrainingenIA1	3,03		Standaarden en richtlijnen helpen bij de inzet van ICT VAR042'IA1	3,51		Mijn collega's stimuleren mij om digitaal lesmateriaal in mijn lessen in te zetten VAR031'IA1	3,70		
Visie bij docenten bekend VAR007'IA1	2,27		Aantal jaren in onderwijs werkzaam modus VAR048'IA1	< 5		Component: Technische ondersteuning: Com_Tech_ondersteuningIA1	3,19		De manier waarom het ICT-gebruik wordt geëvalueerd, helpt de docent VAR043'IA1	2,02		Het opleidingsmanagement stimuleert mij om extern digitaal lesmateriaal in VAR034'IA1	2,49		
			Hoelang maakt u al gebruik van ICT modus VAR051'IA1	meer dan 3 jaar		Component: Onderwijskundige ondersteuning: Com_OnderwijsondersteuningIA1	3,05					Mijn collega's stimuleren mij om extern digitaal lesmateriaal in VAR035'IA1	3,27		
			ICT is onderdeel van het vak dat u geeft VAR050'IA1	55,6%		Component: Toegankelijkheid Intern digitaal materiaal Com_ToegangInternDigitaalMateriaalIA1	2,16					Er wordt voldoende mate gebruikt gemaakt van elkaars kennis en ervaring met ICT. VAR039'IA1	2,79		
			Kenmerk van de docent internet gebruik percentage functioneel gebruiker en hoger VAR053'IA1	98,4%		Component: Toegankelijkheid Extern digitaal materiaal Com_ToegangExternDigitaalMateriaalIA1	3,70					De manier waarop wij kennis en ervaring delen, helpt de docent bij het inzetten van ICT VAR041'IA1	3,21		
			Ook werkzaam buiten het onderwijs VAR052'IA1	20,6%		Component: Ontwikkel tools: Com_OntwikkelToolsIA1	2,77								
			Locatie werkzaam VAR049'IA1												
			Percentage vrouw VAR055'IA1	34,9%											

Kruistabel		Kruistabel		Kruistabel	
Internet gebruik <> Geslacht	Kruis_M_V_inInternet_gebruikIA1	ICT-middelen <> Locatie	Kruis ICT_middelenIA1	ICT-onderdeel van het vak <> Geslacht	Kruis ICT_vakonderdeelIA1
ICT-vaardigheid <> Geslacht	Kruis_M_V_KundeIA1	ICT-ondersteuning <> Locatie	Kruis ICT_ondersteuningLocatieIA1	ICT-vaardigheid <> ICT-onderdeel van het vak	Kruis_KundeICT_vakonderdeelIA1
ICT-vaardigheid <> Leeftijd	Kruis_Leeftijd_KundeIA1	Onderwijskundige ondersteuning <> Locatie	Kruis OnderwijsondersteuningLocatieIA1		

Figuur 30: Overzicht dashboard MBO ICT beleidsmonitor Gilde Veste

Appendix 14: Toepassing MBO beleidsmonitor ICT bij vakschool Gilde Veste

Onderwerp : Port of Knowledge & Port of Learning
Naam : Robert Koerts
Datum : 1-6-2014

Implementatie: *Port of Knowledge & Port of Learning*

De nieuwe digitale werk- en leeromgeving van Gilde Veste zal verder gaan onder naam "Gilde Port of Knowledge" en "Gilde Port of learning" voor het Learning Management Systeem (LMS). Voor de zomervakantie heeft het Sharepointteam een aantal grote slagen gemaakt. De beveiliging is uitgebreid getest en de configuratie is opgedeeld in een onderwijs deel en een administratief deel. Voor de beveiliging zijn er verschillende type aanvallen uitgevoerd op onze testopstelling voor de ontsluiting naar buiten. De gehanteerde beveiligingsoplossing voldoet aan de hoge eisen die het College van Bestuur stelt aan de beveiliging van de ICT-omgeving.

In de zomervakantie zal er in samenwerking met onze collega's in het buitenland gewerkt worden aan de branding van de omgeving. Hierbij wordt de Look en Feel van de digitale werk- en leeromgeving op een professioneel niveau getrokken.

Na de zomervakantie zal de uitrol van de nieuwe werkomgeving "Gilde Port of Knowledge" gaan plaatsvinden te beginnen met Het Portaal en My-Sites voor de hele organisatie. Hierbij zal het huidige intranet, de personeelssite en het smoelenboek komen te vervallen.

Bij de uitrol is het noodzakelijk om aan te sluiten bij de huidige situatie van de organisatie als het gaat over het gebruik van ICT in het onderwijs. Om een actueel beeld te krijgen van de huidige situatie wordt er gebruikt gemaakt van de MBO beleidsmonitor ICT (Koerts, 2014). Dit beleidsinstrument is aan de hand van de managementbouwstenen (mensen, middelen, structuur en cultuur) ontwikkelt en specifiek gericht MBO onderwijsorganisaties. De uitkomst van deze monitor geeft op basis van deze managementbouwstenen een indicatie hoe de organisatie er voor staat wat betreft het gebruik van ICT in het onderwijs. De MBO beleidsmonitor ICT geeft het implementatieteam van de nieuwe digitale werk- en leeromgeving een beeld van de huidige situatie en kan aan de hand van deze uitkomsten het implementatieplan hierop afstemmen.

Uitkomst MBO beleidsmonitor ICT

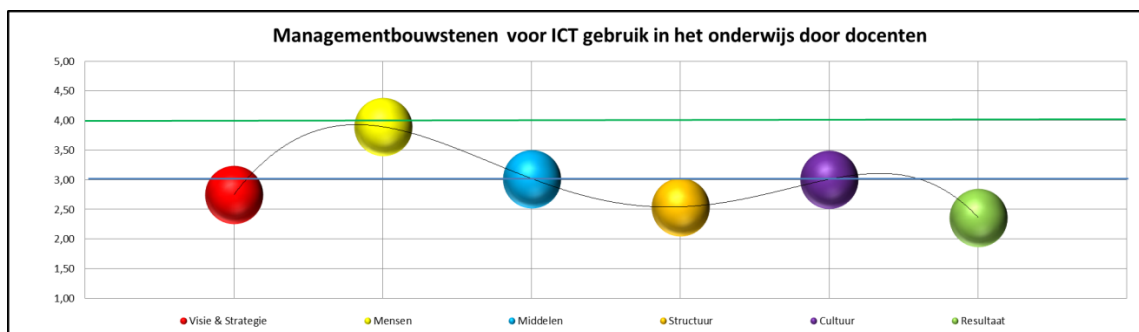
De MBO beleidsmonitor ICT geeft een actueel beeld over het gebruik van ICT in het onderwijs vanuit de docent. Een belangrijk onderdeel van de beleidsmonitor ICT is de Quick Scan die wordt voorgelegd aan de docenten. Deze Quick Scan is voor de zomervakantie afgenomen bij 63 MBO docenten. De Quick Scan bestaat uit een aantal stellingen per managementbouwsteen. (mensen, middelen, structuur en cultuur). De docenten geven per stelling hun eigen mening. Door deze benadering krijgt het management inzicht in wat er werkelijk gebeurd op de werkvloer bij de toepassing van ICT in het onderwijs. De MBO beleidsmonitor ICT hanteert het principe dat voor een optimale implementatie of verandering in een organisatie er aandacht moet zijn voor alle managementbouwstenen. Het grootste effect wordt hierbij bereikt als alle managementbouwstenen een gelijk gewenst niveau hebben en er geen sprake is van sub-optimalisatie waarbij de aandacht uitgaat naar een aantal specifieke gebieden.

Het implementatieplan voor de nieuwe werk- en leeromgeving zal op basis van deze beginsituatie aansluitende vervolgstappen formuleren. Hierbij wordt gebruik gemaakt van de PDCA-cyclus (Plan, Do, Check, Act) van Deming in de vorm van; het maken van plannen, het uitvoeren van de plannen, het evalueren van de uitkomsten en op basis hiervan de plannen kunnen bijsturen.

Het algemene beeld van de organisatie

Het onderstaande figuur geeft de score per managementbouwsteen aan waarbij er gebruikt gemaakt wordt van een Likert 5 puntschaalverdeling. (1= helemaal mee oneens, 2=mee oneens, 3= niet mee eens niet mee oneens, 4= mee eens, 5= helemaal mee eens). De aangegeven norm bedraagt 4 (mee eens) per bouwsteen. De resultaten bol geeft het gemiddelde aan min de helft van de maximale variatie van de managementbouwstenen. Hierbij wordt het belang van evenwicht tussen de managementbouwstenen benadrukt in het resultaat.

Wat direct opvalt, is de hoge waarde van de managementbouwsteen Mensen. De docenten vinden over het algemeen dat ze beschikken over voldoende kennis en vaardigheid om ICT in te zetten in hun onderwijs en willen in principe meer dan de organisatie van hun verwacht. In de volgende paragrafen zullen alle managementbouwstenen aan de orde komen met daarbij een concreet actieplan ter verbetering. Het actieplan is vervolgens voorgelegd is aan het College van Bestuur ter goedkeuring.

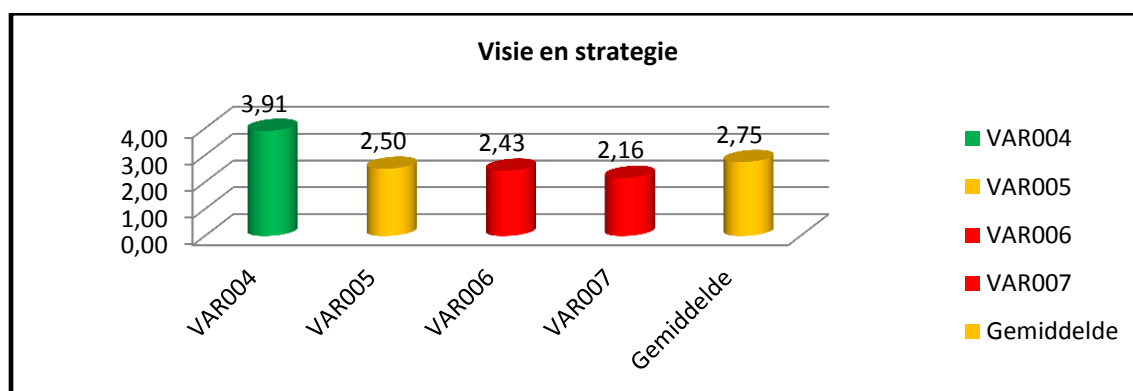


Figuur 31: Dashboard managementbouwstenen Gilde Veste 2013

De Visie & Strategie van de organisatie

Stand van zaken:

Gilde Veste verzorgt het onderwijs vanuit een heldere onderwijsvisie en hanteert hierbij een concreet onderwijsmodel. Zoals verwacht scoort Gilde Veste hoog op het item “de instelling heeft een duidelijke visie op onderwijs” (VAR004). Het aandachtsgebied ligt hier op de bekendheid van het ICT-beleid en de samenhang die deze heeft met de onderwijsvisie. ICT-beleid geeft de docent en de organisatie een ijkpunt waar naartoe gewerkt kan worden. De docent weet dan wat van hem verwacht wordt en kan zelf bepalen of zijn kennis en vaardigheden voor de inzet van ICT toereikend zijn. Het onderstaande schema geeft het resultaat van de managementbouwsteen Visie en Strategie.



VAR004	Onze instelling heeft een duidelijke visie op onderwijs.
VAR005	Onze instelling heeft een duidelijke visie op de inzet van ICT in het onderwijs.
VAR006	Er is samenhang tussen de visie op onderwijs en de visie op ICT.
VAR007	De visie op ICT in het onderwijs is bij de docenten bekend.
Gemiddelde	2,75

Table 164: Component Visie & Strategie Gilde Veste

Het gemiddelde van deze component is 2,75 wat voor een gerichte implementatie van ICT in het onderwijs onder de maat is. Door gericht te gaan werken aan herkenbaar ICT beleid met duidelijke voorbeelden weten docenten wat er van hun verwacht wordt bij de toepassing van ICT. Ook zal het duidelijk moeten worden welke rol ICT speelt binnen het onderwijsconcept van Gilde Veste. Hierbij zal de nadruk komen te liggen op kennisoverdracht, vaardigheidstraining en de toepassing van simulatoren. Het actieplan visie en strategie zal bestaan uit; het opstellen van een ICT-beleidsplan en het opstellen van een handleiding voor de docent voor het toepassen van ICT in het onderwijs. De onderstaande Table geeft het overzicht van de verbeteracties op het gebied van visie en strategie.

Actieplan Visie & Strategie

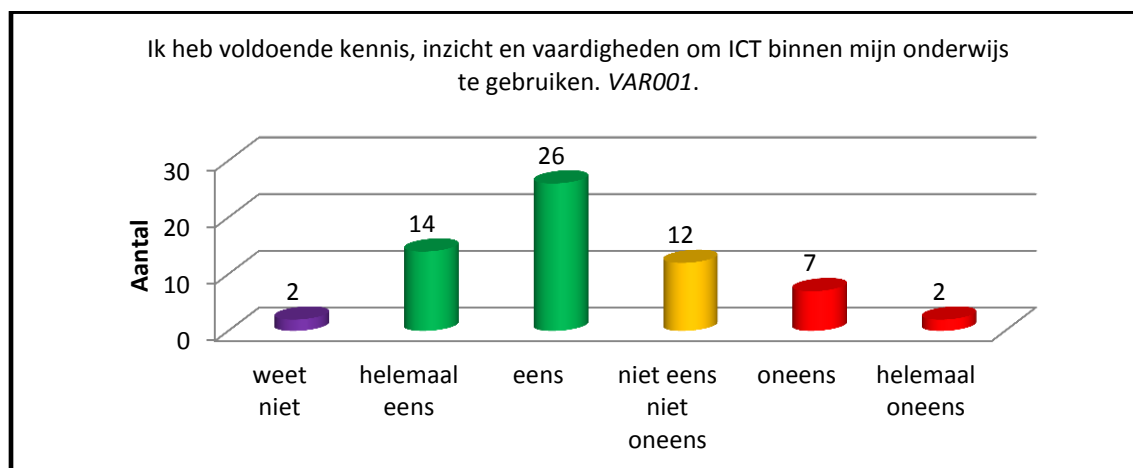
Visie & Strategie	Actie	Opstellen ICT-beleidsplan	Wie	Wanneer
Plan	1	Gilde Veste werkt met een integraal ICT-beleidsplan gekoppeld aan de eigen strategie en onderwijsvisie.	KRT	1-12-2013
Do	1	Het aanpassen van het ICT-beleidsplan met een duidelijke koppeling van de strategie en onderwijsvisie.	KRT	1-10-2013
Check	1	Feedback en vaststelling door het CVB.	CVB	1-11-2013
Act	1	Aanpassingen ICT-beleidsplan doorvoeren.	KRT	15-11-2013
		Opstellen handleiding toepassing ICT voor docenten		
Plan	2	De docenten van Gilde Veste weten wat er van hun verwacht wordt bij de inzet van ICT in het onderwijs.	BOK/KRT/RBL	1-12-2-13
Do	2	Het maken van een praktische handleiding ICT gebruik in het onderwijs op basis van ICT-beleid voor de docenten en deze bij elke ICT training behandelen.	BIRD/BOK	1-10-2013
Check	2	Het evalueren van de handleiding ICT-gebruik in het onderwijs met de docenten	Docenten	1-11-2013
Act	2	Het aanpassen en actualiseren van de handleiding	BIRD	15-11-2013

Tabel 165: Actieplan visie en strategie

De Mensen van de organisatie

Stand van zaken:

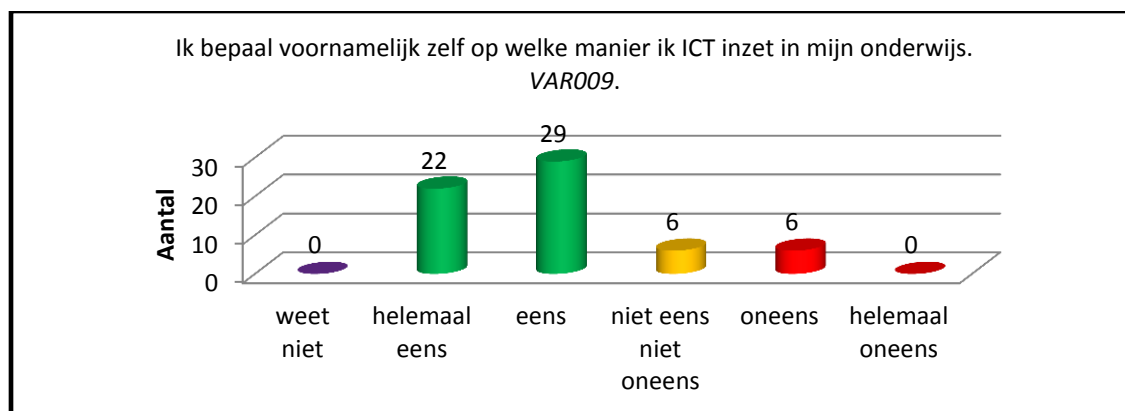
De docenten van de Gilde Veste zijn over het algemeen voldoende vaardig in het gebruik van ICT bij het verzorgen van het onderwijs. Dit geeft het onderstaande schema weer. Daarbij geven ze aan dat ze dit doen vanuit hun eigen drijfveer en minder vanuit de visie van de organisatie. Het is bemoedigend dat de docenten meer willen dan de organisatie van hun verwacht maar het is wel van belang dat de docenten weten wat van hun verwacht wordt en hieraan invulling geven.



VAR001	Ik heb voldoende kennis, inzicht en vaardigheden om ICT binnen mijn onderwijs te gebruiken.
Gemiddelde	3,70

Tabel 166: VAR001 Kennis, inzicht en vaardigheid van de docenten

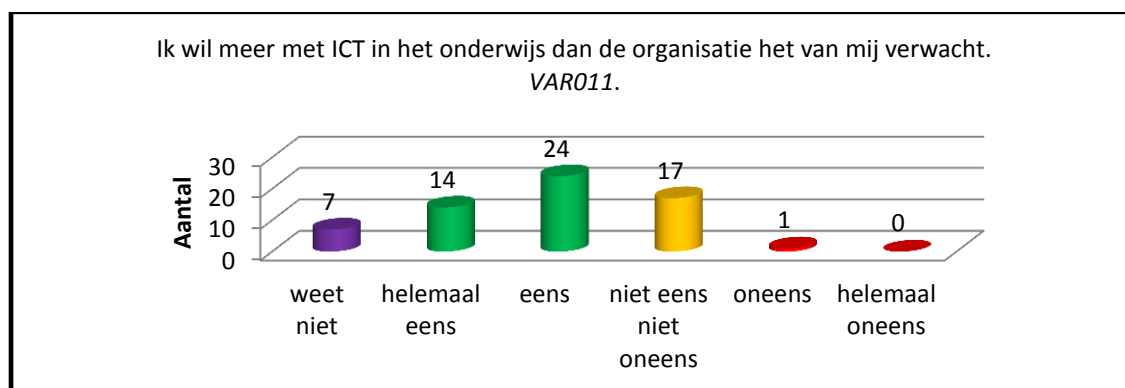
Door extra promotie en uitleg van het ICT-beleidsplan en het verzorgen van specifieke scholing voor de toepassing van ICT in het onderwijs wordt het voor de docenten duidelijk wat er van hem verwacht wordt. Het is wel noodzakelijk om bij de introductie van de nieuwe digitale werk- en leeromgeving trainingen te verzorgen voor het gebruik van SharePoint als nieuwe samenwerk- en leeromgeving, zodat de omgeving wordt gebruikt zoals het management dit voor ogen heeft.



VAR009	Ik bepaal voornamelijk zelf op welke manier ik ICT inzet in mijn onderwijs
Gemiddelde	4,06

Tabel 167: VAR 009 De docent bepaald zelf op welke manier ICT wordt ingezet

Variabelen 009 geeft aan dat de docent voornamelijk zelf bepaald hoe ICT wordt ingezet bij de verzorging van het onderwijs. De docenten zijn voor een groot gedeelte vrij zelf invulling tegen aan hun onderwijs. Hierbij is het gebruik van ICT geen uitzondering. Het is wel opvallend dat de docenten meer willen doen met ICT dan de organisatie op dit moment van ze verwacht. Variabele 011 geeft dit aan met een hoge score helemaal eens (14) en eens (24).



VAR011	Ik wil meer met ICT in het onderwijs dan de organisatie het van mij verwacht.
Gemiddelde	3,91

Tabel 168: VAR011 De docenten willen meer doen met ICT dan de organisatie van hun verwacht

Actieplan de Mensen van de organisatie

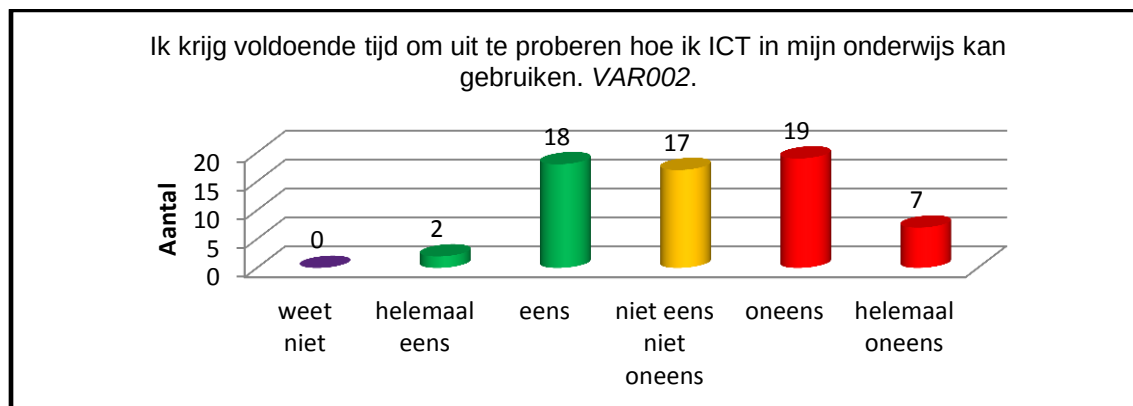
Mensen	Actie	Ontwikkelen e-learning modules	Wie	Wanneer
Plan	1	Aan de hand van online e-learning modules kunnen de docenten zich de basisvaardigheden van SharePoint aanleren.	RBL	15-11-2013
Do	1	Het ontwikkelen van de e-learning Captivate modules voor het gebruik van SharePoint.	RBL	1-10-2013
Check	1	Het monitoren van het gebruik van de e-learning modules en het vastleggen van de feedback van gebruikers.	RBL	1-11-2013
Act	1	Het aanpassen en actualiseren van de e-learning modules	RBL	Doorlopend
		Ontwikkelen scholingsaanbod		
plan	2	De docenten kunnen via de STC-Academy scholing volgen over het toepassen van ICT in het onderwijs als didactische werkvorm.	BOK/BIRD	1-12-2013
Do	2	Het ontwikkelen en uitvoeren van een training ICT als didactische werkvorm.	BOK/BIRD	1-11-2013
Check	2	Het evalueren van de training door de docenten	Docenten	15-11-2013
Act	2	Het aanpassen en actualiseren van de training	BOK/BIRD	Doorlopend
		Opzet e-learning thema site		
Plan	3	De docenten worden op de hoogte gehouden van nieuwe ontwikkelingen op het gebied van ICT voor het onderwijs. Het ontwikkelen van promotiemateriaal over de toepassing van ICT in het onderwijs. (e-learning Captivate module)	BIRD/PR	1-12-2013
Do	3	Het opzetten en onderhouden van een ICT (e-learning) themasite binnen SharePoint	BIRD/RBL/P R	1-11-2013
Check	3	Het monitoren van de e-learning thema site. Aantal gebruikers en vragen die gesteld worden	BIRD/RBL	Doorlopend
Act	3	Aan de hand van het gebruik het promoten van de e-learning site	BIRD/RBL	Doorlopend
		Training basis pakketten		
Plan	4	Alle medewerkers van Gilde Veste kunnen voor het gebruik van de voor hun relevante software pakketten trainingen volgen. (SharePoint, Captivate, MS-Word, Excel, Outlook, PowerPoint, Projects).	BOK/BIRD/P Z	1-9-2013
Do	4	Het inplannen en verzorgen van de trainingen	BOK/BIRD/ PZ	1-09-2013
Check	4	Alle trainingen worden aan de hand van het evaluatieformulier door de deelnemers geëvalueerd.	Docenten	Doorlopend
Act	4	Op basis van de evaluatie en de updates van de software pakketten de trainingen aanpassen.	BOK/BIRD	Doorlopend

Tabel 169: Actieplan mensen van de organisatie

De Middelen van de organisatie

Stand van zaken:

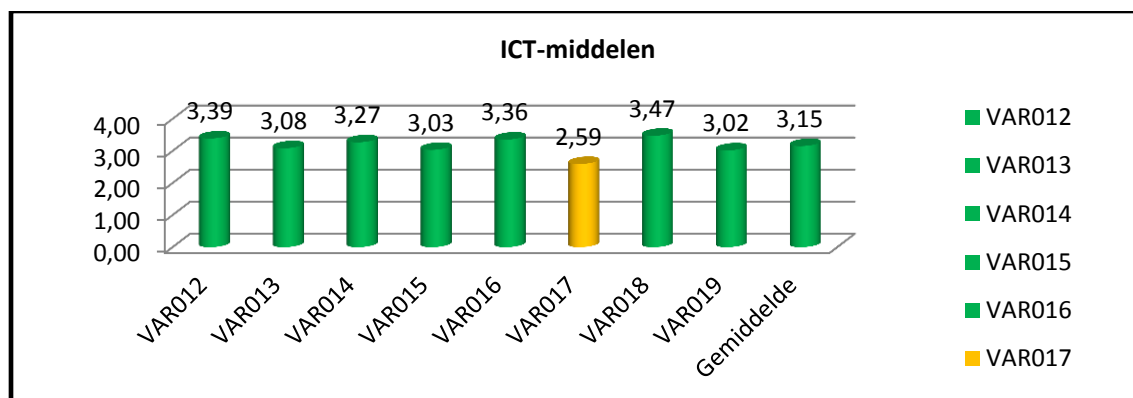
De managementbouwsteen middelen bestaat uit een groot aantal elementen. Deze omvat zowel de ICT-infrastructuur als vormen van ondersteuning (onderwijskundige, technische en trainingen). Ook de factor tijd en geld wordt als middel gezien bij de toepassing van ICT in het onderwijs. Gilde Veste scoort over het algemeen redelijk op deze managementbouwsteen. Uitschieters naar boven zijn de onderwijskundige en technische ondersteuning bij de toepassing van ICT in het onderwijs. Ook de ICT middelen (infrastructuur) en het gebruik van extern digitaal materiaal worden als voldoende beschouwd. Aandachtspunten zijn de mogelijkheid om meer tijd te kunnen besteden aan de toepassing van ICT in het onderwijs en de mogelijkheid om gebruik te kunnen maken van intern digitaal materiaal.



VAR002	Ik krijg voldoende tijd om uit te proberen hoe ik ICT in mijn onderwijs kan gebruiken.
Gemiddelde	2,83

Tabel 170: VAR002 Voldoende tijd krijgen voor het gebruik van ICT

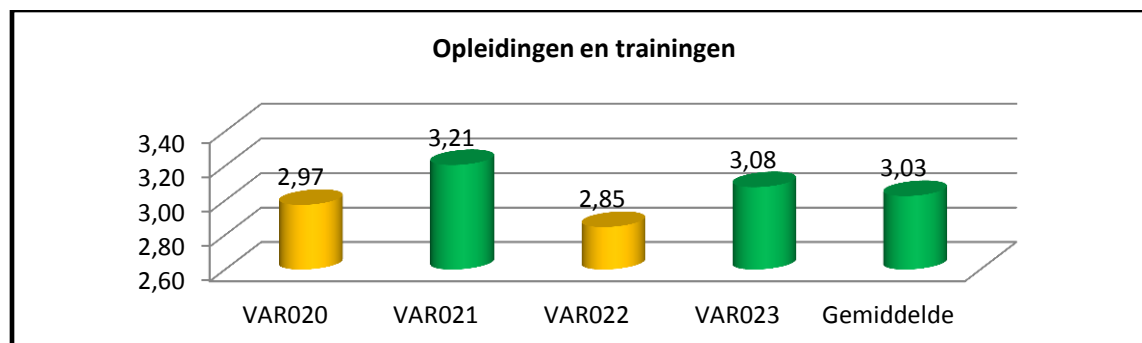
Bij het component ICT-middelen scoort VAR013 laag omdat Gilde Veste het administratieve en het onderwijs domein gescheiden heeft. Deze keuze is gemaakt uit oogpunt van beveiliging. Deelnemers kunnen hierdoor niet vanuit de lesruimte op het administratieve domein komen. Toegang tot het administratieve domein is goed mogelijk op de werkplek van de docent.



VAR012	In de lesruimte zijn voldoende pc, printers, beamers
VAR013	In de docentenruimte zijn voldoende pc's, printers, beamers, etc.
VAR014	De beschikbare ICT-middelen werken goed.
VAR015	De beschikbare ICT-middelen zijn nieuw genoeg.
VAR016	In de lesruimtes is een internetverbinding die voldoet voor mijn lessen.
VAR017	In de lesruimtes heb ik een goede toegang tot het netwerk van de opleiding.
VAR018	De beschikbare ICT-middelen helpen mij bij het geven van mijn lessen.
VAR019	Het beheer van de ICT-middelen houdt rekening met hoe ik ICT in het onderwijs wil gebruiken.
Gemiddelde	3,15

Tabel 171: Component ICT-middelen

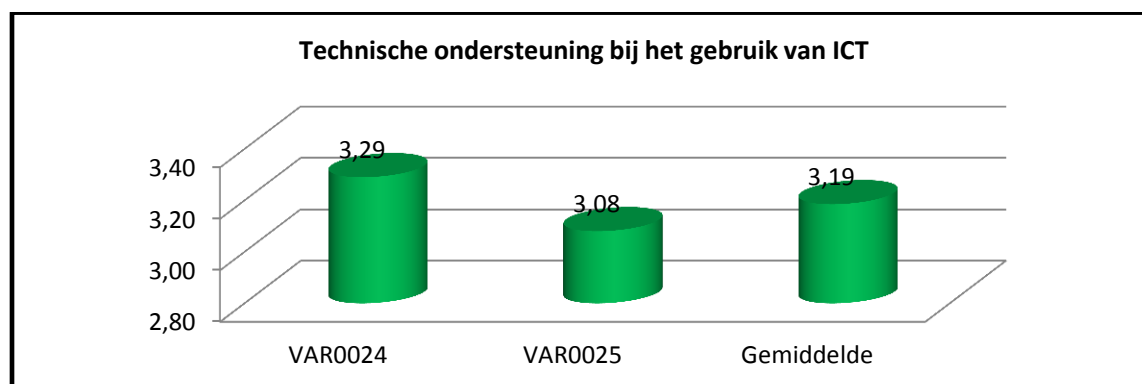
Bij de component Opleidingen en Trainingen valt op dat voor het volgen van opleidingen de docenten vinden hier weinig tijd voor hebben, ook ervaren ze weinig stimulans van collega's om dit te gaan doen.



VAR020	Voor het volgen van opleidingen is er voldoende tijd.
VAR021	Voor het volgen van opleidingen is er voldoende geld.
VAR022	Mijn collega's stimuleren mij om opleidingen te volgen.
VAR023	De beschikbare opleidingen sluiten aan bij mijn lessen.
Gemiddelde	3,03

Tabel 172: Component Opleidingen en Trainingen

Over het algemeen zijn de docenten tevreden over de kwaliteit van de technische ondersteuning. Er wordt voldoende aandacht gegeven aan de docenten en de technische ondersteuning helpt bij het gebruik van ICT in het onderwijs.

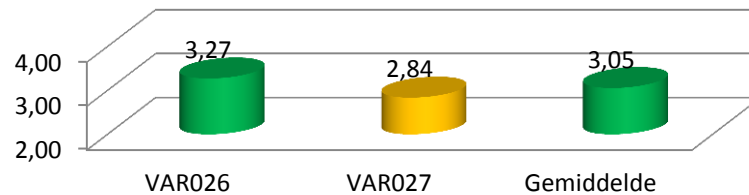


VAR024	Als ik technische ondersteuning nodig heb, wordt daar voldoende aandacht aan besteed.
VAR025	Die technische ondersteuning helpt mij bij het gebruik van ICT in mijn onderwijs.
Gemiddelde	3,19

Tabel 173: Component Technische ondersteuning

De onderwijskundige ondersteuning wordt verzorgd door de afdeling BOK. De afdeling houdt zich onder andere bezig met het begeleiden van docenten bij de toepassing van het onderwijsconcept. Een belangrijk onderdeel hierbij is het inzetten van interactief lesmateriaal. Op dit punt waarbij het gebruik van e-learning een belangrijk onderdeel wordt nog te weinig aandacht aan besteed. Over het algemeen wordt de kwaliteit van de ondersteuning wel als voldoende ervaren.

Onderwijskundige ondersteuning bij het gebruik van ICT

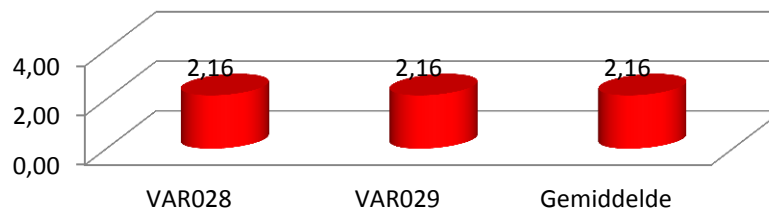


VAR026	De onderwijskundige ondersteuning is van goede kwaliteit.
VAR027	De medewerkers van de onderwijskundige ondersteuning helpen mij goed.
Gemiddelde	3,05

Tabel 174: Component onderwijskundige ondersteuning

De volgende twee componenten hebben betrekking op digitaal lesmateriaal. Het betreft hier intern en extern digitaal materiaal wat ingezet kan worden bij het verzorgen van het onderwijs. Hierbij wordt de beschikbaarheid van intern digitaal lesmateriaal als onvoldoende beschouwd. Door het inrichten van een digitale lesmaterialenbank die voor alle docenten beschikbaar is zal dit tot een verbetering moeten leiden. Er wordt veelvuldig gebruik gemaakt van extern digitaal lesmateriaal door dit materiaal ook op te nemen in de lesmaterialenbank verkrijgt Gilde Veste een uitgebreide lesmaterialenbank waar de docent zijn specifieke materiaal kan vinden en naar wens kan aanpassen.

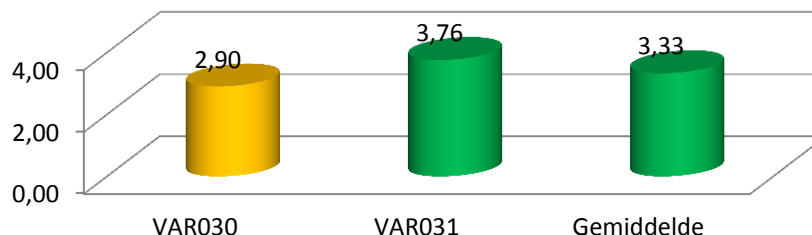
Toegankelijkheid intern digitaal materiaal



VAR028	Het beschikbare digitale lesmateriaal binnen de organisatie is gemakkelijk te vinden.
VAR029	Het is gemakkelijk het beschikbare digitale lesmateriaal op te halen en in te zetten binnen mijn lessen.
Gemiddelde	2,16

Tabel 175: Component beschikbaarheid digitaal lesmateriaal

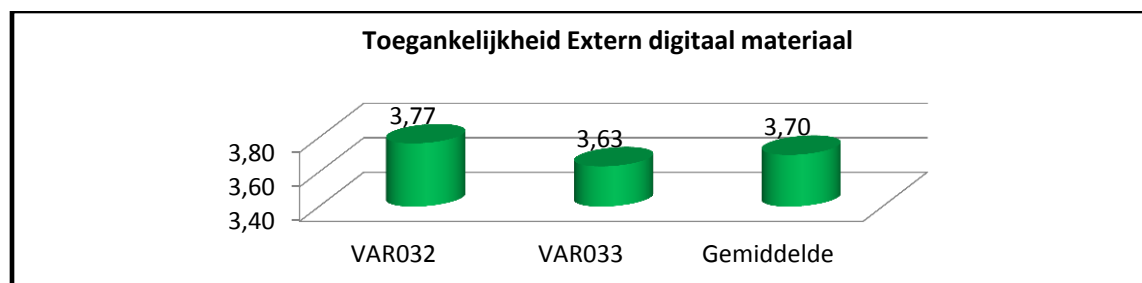
Stimulering intern digitaal materiaal



VAR030	Het opleidingsmanagement stimuleert mij om digitaal lesmateriaal in mijn lessen in te zetten.
VAR031	Mijn collega's stimuleren mij om digitaal lesmateriaal in mijn lessen in te zetten.
Gemiddelde	3,33

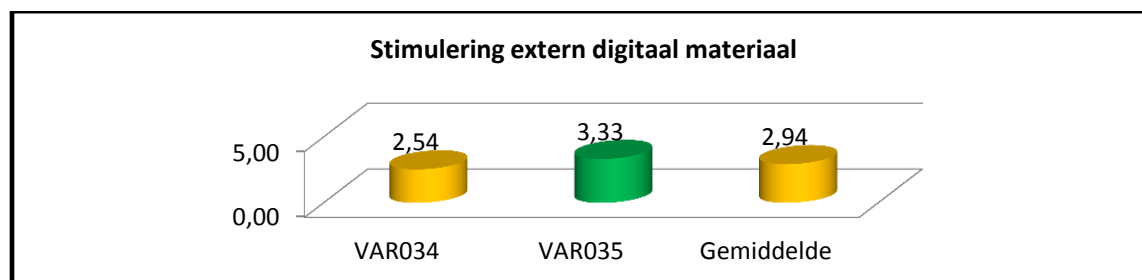
Tabel 176: Component stimulering gebruik intern digitaal lesmateriaal

Voor de inzet van intern en extern digitaal lesmateriaal is er ook gekeken naar de stimulering op dit te gaan gebruiken bij de verzorging van het onderwijs. Wat duidelijk naar voren komt is dat het opleidingsmanagement het gebruik nog weinig stimuleert en de directe collega's in het team dit wel doen.



VAR032	Ik weet voldoende extern digitaal lesmateriaal voor mijn lessen te vinden.
VAR033	Het is gemakkelijk om de externe digitaal lesmiddelen op te halen en in te zetten binnen mijn lessen.
Gemiddelde	3,70

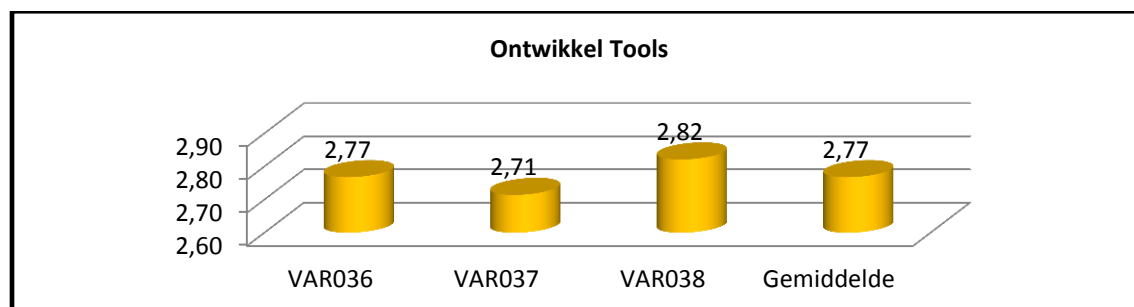
Tabel 177: Component toegankelijkheid extern digitaal lesmateriaal



VAR034	Het opleidingsmanagement stimuleert mij om extern digitaal lesmateriaal in mijn lessen in te zetten.
VAR035	Mijn collega's stimuleren mij om extern digitaal lesmateriaal in mijn lessen in te zetten.
Gemiddelde	2,94

Tabel 178: Component stimulering gebruik extern digitaal lesmateriaal

Gilde Veste heeft voor de ontwikkeling van e-learning modules gekozen om gebruik te maken van één ontwikkel tool voor de hele organisatie. Door deze standaardisatie kan het materiaal beter uitgewisseld en aangepast worden. De e-learning modules worden ook opgenomen in de lesmaterialenbank voor algemeen gebruik.



VAR036	Als ik digitaal lesmateriaal wil maken kan ik gemakkelijk bij de software die daarvoor nodig is.
VAR037	Met deze software kan ik mijn ideeën vormgeven
VAR038	Met de software is het mogelijk om kwalitatief goed digitaal lesmateriaal te maken.
Gemiddelde	2,77

Tabel 179: Component ontwikkel-tools

Actieplan *Middelen* van de organisatie

Middelen	Actie	Voldoende tijd voor de toepassing van ICT	Wie	Wanneer
<i>Plan</i>	1	Docenten zijn zich bewust dat de toepassing van ICT in het onderwijs een werkvorm is waardoor de klassikale lessen efficiënter kunnen verlopen. Meer theorie via ICT en meer opdrachten en vragen tijdens de klassikale les.	BOK/BIRD	1-12-2013
<i>Do</i>	1	Ontwikkelen module ICT als didactische werkvorm (zie actieplan 2 mensen)	BOK/BIRD	1-11-2013
<i>Check</i>	1	(zie actieplan 2 mensen)	BOK/BIRD	
<i>Act</i>	1	(zie actieplan 2 mensen)	BOK/BIRD	
ICT middelen				
<i>Plan</i>	2	De medewerkers en deelnemers kunnen beschikken over een toereikende en betrouwbare ICT infrastructuur voor het gebruik van ICT in het onderwijs	IT-Infra/BIRD	1-2-2014
<i>Do</i>	2	Het opstellen van een business case voor IT-Infra op basis van de beleidsplannen voor 2015	BIRD/IT-Infra	1-12-2013
<i>Check</i>	2	Business case voorleggen aan het CvB	IT-Infra/BIRD	1-1-2014
<i>Act</i>	2	Uitvoeren van het investeringsprogramma	IT-Infra	1-2-2014
Opleidingen en trainingen				
<i>Plan</i>	3	Docenten van Gilde Veste kunnen opleidingen en trainingen volgen die aansluiten bij de praktijk van het doceren. Zie actieplan mensen, didactische werkvormen, ICT gebruik en thema ICT in het onderwijs	BOK/BIRD	
<i>Do</i>	3	Zie actieplan mensen		
<i>Check</i>	3	Zie actieplan mensen		
<i>Act</i>	3	Zie actieplan mensen		
Technische ondersteuning				
<i>Plan</i>	4	De docenten van Gilde Veste maken gebruik van professionele ICT ondersteuning voor het gebruik van ICT in het onderwijs.	IT-Infra/BIRD	1-9-2013
<i>Do</i>	4	Inrichten helpdesk voor de nieuwe werk- en leeromgeving (Sharepoint en LMS)	BIRD	1-7-2013
<i>Check</i>	4	De helpdesk service wordt gemeten aan de hand van de Quick-scan 2014	BIRD	1-8-2013
<i>Act</i>	4	De helpdesk service verbeteren aan de hand van de evaluatie	BIRD	1-9-2013
Onderwijskundige ondersteuning				
<i>Plan</i>	5	De afdeling Begeleiding Onderwijs en Kwaliteit, zal naast de bestaande scholing en advisering op het gebied van onderwijskundige werkvormen ook scholing en advisering speciaal gaan verzorgen op het gebied van ICT	BOK	1-8-2013 1-8-2014
<i>Do</i>	5	Zie actieplan mensen, scholing en training ICT als didactische werkvorm.		1-10-2013
<i>Check</i>	5	Zie actieplan mensen		
<i>Act</i>	5	Zie actieplan mensen		
Intern digitaal materiaal				
<i>Plan</i>	6	Alle docenten van Gilde Veste kunnen gebruik maken van de lesmaterialenbank in de nieuwe werk- en leeromgeving. Door materiaal toe te voegen en materiaal te gebruiken van collega's	BIRD	1-7-2013
<i>Do</i>	6	Inrichting lesmaterialenbank SharePoint		
<i>Check</i>	6	Evaluatie van het gebruik van de lesmaterialenbank. Aantallen gebruikers en de hoeveelheid aan lesmateriaal dat ter beschikking komt.	BIRD Docenten	1-6-2013
<i>Act</i>	6	Aan de hand van de evaluatie docenten motiveren om hun eigen lesmateriaal ter beschikking te stellen.	BIRD Docenten	1-6-2013

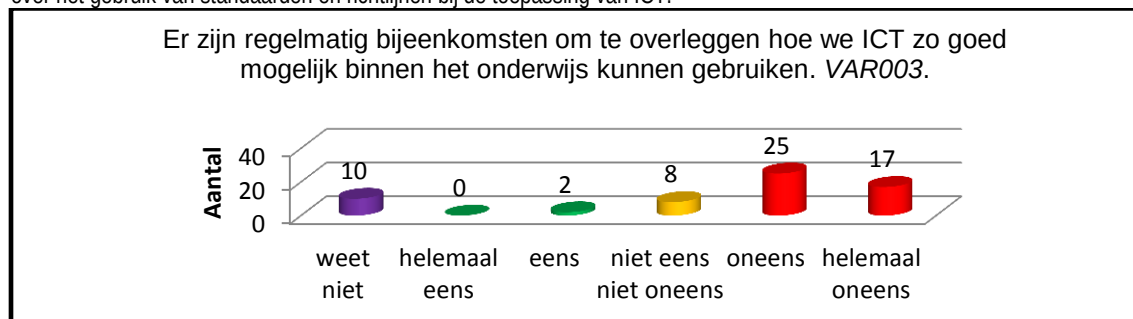
		Extern digitaal materiaal		
Plan	7	Door gebruik te maken van de e-learning thema-site in de nieuwe werk- en leeromgeving blijven docenten op de hoogte van relevant extern digitaal lesmateriaal	BIRD/RBL	1-11-2013
Do	7	Inrichting thema site e-learning	BIRD/RBL	1-10-2013
Check	7	Evaluatie van het gebruik van de themasite e-learning. Het aantal gebruikers en inhoudelijke vragen die gesteld worden	BIRD/RBL	Doorlopend
Act	7	Aan de hand van het aantal gebruikers en inhoudelijke vragen de thema-site aanpassen	BIRD/RBL/D ocenten	Doorlopend
		Ontwikkel tool voor digitaal lesmateriaal		
Plan	8	Alle docenten zijn op de hoogte van het gebruik van Captivate Adobe voor het ontwikkelen van e-learning	BIRD/BOK	
Do	8	Zie mensen, training Captivate		
Check	8	Zie mensen, training Captivate		
Act	8	Zie mensen, training Captivate		

Tabel 180: Actieplan Middelen van de organisatie

De Structuur van de organisatie

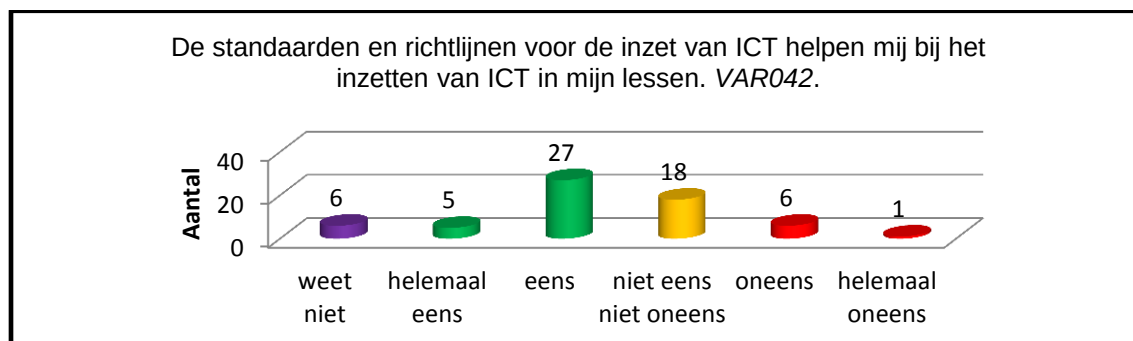
Stand van zaken:

De structuur van de organisatie is wel een aandachtspunt voor de implementatie van de nieuwe werk- en leeromgeving. De implementatie van de nieuwe werk- en leeromgeving vindt per afdeling trapsgewijs plaats. Hiervoor wordt eerst een team opgezet bestaande uit het afdelingshoofd en key-users met de projectleider SharePoint. Ook zullen er duidelijke standaarden en richtlijnen opgesteld worden voor het gebruik van ICT in het onderwijs. De onderstaande variabelen gaan over het kunnen overleggen met collega's over het gebruik van ICT en over het gebruik van standaarden en richtlijnen bij de toepassing van ICT.



VAR003	Er zijn regelmatig bijeenkomsten om te overleggen hoe we ICT zo goed mogelijk binnen het onderwijs kunnen gebruiken.
Gemiddelde	1,87

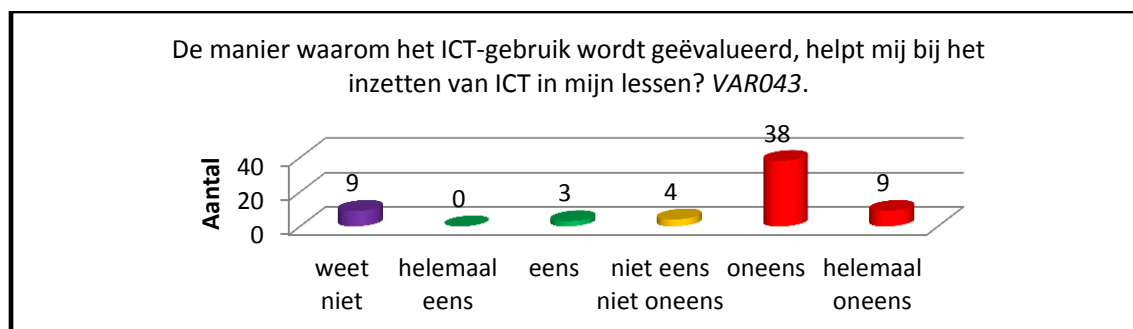
Tabel 181: VAR003 Bijeenkomsten



VAR042	De standaarden en richtlijnen voor de inzet van ICT helpen mij bij het inzetten van ICT in mijn lessen.
Gemiddelde	3,51

Tabel 182: VAR042 Standaarden en richtlijnen

Om te kunnen leren van de verschillende toepassingen is het noodzakelijk deze te evalueren en te bespreken met het docententeam. Door structureel te evalueren leert de organisatie van succesvolle trajecten en trajecten die minder goed verlopen. Het evalueren van trajecten gebeurt bij Gilde Veste op dit moment onvoldoende.



VAR043	De manier waarom het ICT-gebruik wordt geëvalueerd, helpt mij bij het inzetten van ICT in mijn lessen?
Gemiddelde	2,02

Tabel 183: VAR043 Het evalueren van ICT gebruik

Actieplan de Structuur van de organisatie

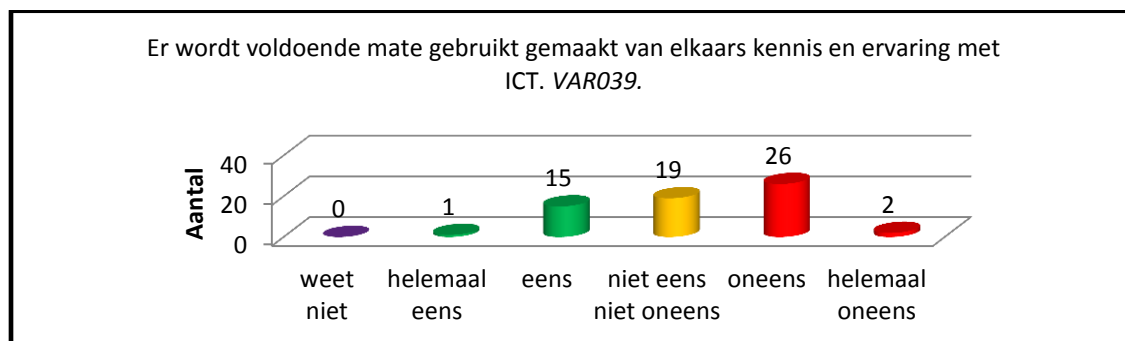
Structuur	Actie	Het delen van kennis over het gebruik van ICT	Wie	Wanneer
Plan	1	Elk docententeam van Gilde Veste beschikt over een key-user voor de nieuwe werk- en leeromgeving. De key-user is het aanspreekpunt voor het team bij de inzet van ICT in het onderwijs.	Afdelingshoofd, key-user, SharePoint-team	Aan de hand van het implementatietraject van de afdeling
Do	1	Bij de implementatie van de nieuwe werk- en leeromgeving wordt per onderwijsteam minimaal 1 key-user benoemd. Met de key-user en het afdelingshoofd worden evaluatiegesprekken gevoerd.	Afdelingshoofd, key-user, SharePoint-team	Aan de hand van het implementatietraject van de afdeling
Check	1	Het Sharepointteam heeft tweewekelijks gesprekken met de key-users om de voortgang te bespreken en de bestaande omgeving te evalueren.	Afdelingshoofd, key-user, SharePoint-team	Aan de hand van het implementatietraject van de afdeling
Act	1	Aan de hand van de evaluatie het implementatietraject aanpassen.	Sharepoint-team	Aan de hand van het implementatietraject van de afdeling
Standaarden en richtlijnen voor de inzet van ICT				
Plan	2	De docenten van Gilde Veste weten aan de hand van richtlijnen en standaarden hoe ze ICT moeten inzetten in het onderwijs.	BIRD/BOK	1-12-2-13
Do	2	Opstellen richtlijnen en standaarden gebruik LMS en e-learning	BIRD/BOK	1-10-2013
Check	2	Standaarden voorleggen aan het CvB	BIRD	1-11-2013
Act	2	Aanpassen en vaststellen richtlijnen en standaarden	BIRD	15-11-2013

Tabel 184: Actieplan de structuur van de organisatie

De Cultuur van de organisatie

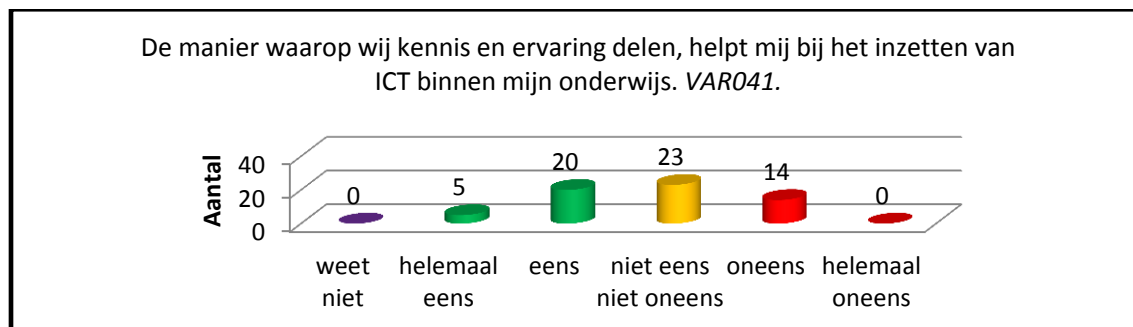
Stand van zaken:

Bij de cultuur van de organisatie valt op dat er een hoge team spirit bij Gilde Veste aanwezig is. Dit in combinatie met het feit dat de docenten meer willen met ICT dan de organisatie van hun verwacht geeft een goede voedingsbodem om op door te pakken met de implementatie van de nieuwe werk- en leeromgeving. Een aandachtspunt is dat het management nog te weinig weet duidelijk te maken wat de meerwaarde van ICT in het onderwijs is en ook het gebruik hiervan weinig stimuleert. Door nu nadrukkelijker het management te betrekken bij de implementatie van de nieuwe werk- en leeromgeving wordt het voor het management ook duidelijker wat er van hen verwacht wordt en welke rol ze moeten vervullen om het gebruik daadwerkelijk te stimuleren. Een belangrijk element van de cultuur is het delen van kennis en ervaring. De onderstaande variabelen geven aan dat dit in onvoldoende mate gebeurt.



VAR039	Er wordt voldoende mate gebruikt gemaakt van elkaars kennis en ervaring met ICT.
Gemiddelde	2,79

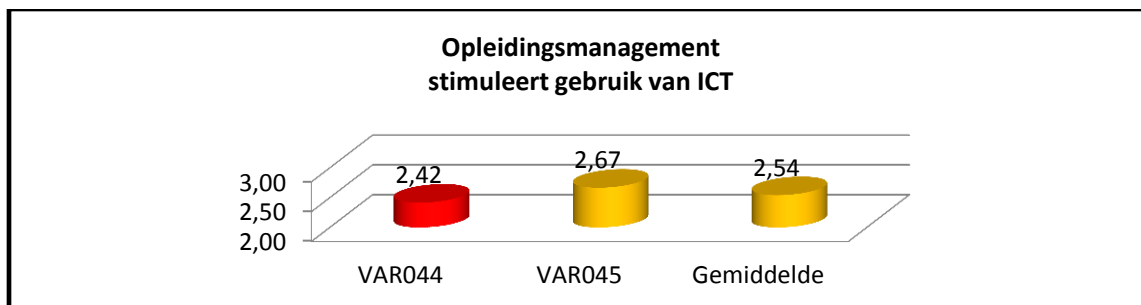
Tabel 185: VAR039 Gebruik maken van elkaars kennis en ervaring



VAR041	De manier waarop wij kennis en ervaring delen, helpt mij bij het inzetten van ICT binnen mijn onderwijs.
Gemiddelde	3,21

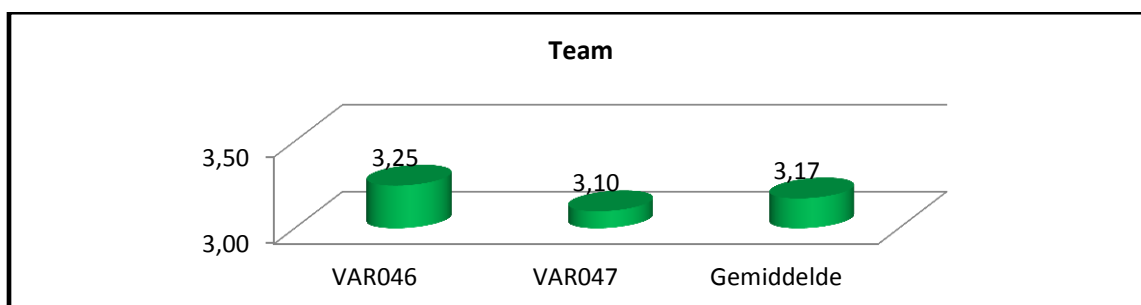
Tabel 186: VAR041 De manier van kennisdeling

De rol van het opleidingsmanagement en de manier waarop het opleidingsteam samenwerkt zijn zeer belangrijke componenten voor het welslagen van een juist gebruik van ICT in het onderwijs. Hierbij is het duidelijk geworden dat het opleidingsmanagement nog niet duidelijk kan maken wat de meerwaarde is en het gebruik van ICT ook onvoldoende stimuleert. Het opleidingsteam daarin tegen weet wat er mogelijk is en werkt bij het gebruik van ICT samen. Het actieplan cultuur van de organisatie zal gericht zijn op het opleidingsmanagement waarbij in eerste instantie aan de hand van het ICT-beleidsplan duidelijk wordt wat de meerwaarde is van het gebruik van ICT in het onderwijs en in tweede instantie het opleidingsmanagement een bepalende rol krijgt bij de implementatie van de nieuwe leer- en werkomgeving. Per afdeling maakt het afdelingshoofd onderdeel uit van het implementatie team. Ook zullen er een aantal Key-users per afdeling aangesteld worden, die de eerste vragen van de afdelingsmedewerkers afhandelen en de linkpin is tussen de afdeling en het Sharepointteam.



VAR044	Het opleidingsmanagement weet duidelijk te maken wat de waarde is van ICT in het onderwijs.
VAR045	Het opleidingsmanagement stimuleert de docenten in het gebruik van ICT binnen het onderwijs.
Gemiddelde	2,54

Tabel 187: Component opleidingsmanagement



VAR046	Binnen ons team weten we wat er met ICT mogelijk is binnen het onderwijs.
VAR047	Bij het gebruik van ICT in het onderwijs werken we binnen ons team samen.
Gemiddelde	3,17

Tabel 188: Component team

Actieplan de *Cultuur* van de organisatie

Cultuur	Actie	Het opleidingsmanagement stimuleert het gebruik van ICT	Wie	Wanneer
<i>Plan</i>	1	Het afdelingshoofd is stakeholder en medeverantwoordelijk voor de implementatie van de nieuwe werk- en leeromgeving. Het stimuleert en motiveert het gebruik van ICT	Afdelings- hoofd	1-12-2013
<i>Do</i>	1	Per afdeling wordt een lokaal projectteam samengesteld met het hoofd en de key-users	Afdeling/ BIRD	1-10-2013
<i>Check</i>	1	Tweewekelijkse contact met het hoofd en key-users van de afdeling		1-11-2013
<i>Act</i>	1	Intensivering van de ondersteuning indien dit nodig is		15-11-2013
		Samenwerking binnen het team bij het gebruik van ICT.		
<i>Plan</i>	2	Teamleden zijn op de hoogte wat van hun verwacht wordt als ze ICT in het onderwijs gaan gebruiken.	Afdeling/ BIRD	Aan de hand van de afdelings- planning
<i>Do</i>	2	Aanstelling per team van een key-user die als eerste aanpreekpunt fungeert voor de teamleden bij de implementatie van de nieuwe werk- en leeromgeving	Afdeling/ BIRD	Aan de hand van de afdelings- planning
<i>Check</i>	2	Het Sharepointteam heeft twee wekelijks overleg met het afdelingsteam over de voortgang van de implementatie en het gebruik van de nieuwe omgeving	Afdeling/ BIRD	Aan de hand van de afdelings- planning
<i>Act</i>	2	Aan de hand van voortgangsgesprekken met de afdeling zal het Sharepointteam de benodigde resources inzetten om de planning het traject te en het gebruik van de omgeving te waarborgen	Afdeling/ BIRD	Doorlopend

Tabel 189: Actieplan cultuur van de organisatie

Appendix 15: Syntax file Parallel Analyse

* Parallel Analysis Program For Raw Data and Data Permutations.
* To run this program you need to first specify the data for analysis and then RUN, all at once, the commands from the MATRIX statement to the END MATRIX statement.
* This program conducts parallel analyses on data files in which the rows of the data matrix are cases/individuals and the columns are variables; Data are read/entered into the program using the GET command (see the GET command below); The GET command reads an SPSS data file, which can be either the current, active SPSS data file or a previously saved data file; A valid filename/location must be specified on the GET command; A subset of variables for the analyses can be specified by using the "/ VAR =" subcommand with the GET statement;
* You must also specify: -- the # of parallel data sets for the analyses; -- the desired percentile of the distribution and random data eigenvalues; -- whether principal components analyses or principal axis/common factor analysis are to be conducted, and -- whether normally distributed random data generation or permutations of the raw data set are to be used in the parallel analyses.
* Permutations of the raw data set can be time consuming; Each parallel data set is based on column-wise random shufflings of the values in the raw data matrix using Castellan's (1992, BRMIC, 24, 72-77) algorithm; The distributions of the original raw variables are exactly preserved in the shuffled versions used in the parallel analyses; Permutations of the raw data set are thus highly accurate and most relevant, especially in cases where the raw data are not normally distributed or when they do not meet the assumption of multivariate normality (see Longman & Holden, 1992, BRMIC, 24, 493, for a Fortran version); If you would like to go this route, it is perhaps best to (1) first run a normally distributed random data generation parallel analysis to familiarize yourself with the program and to get a ballpark reference point for the number of factors/components; (2) then run a permutations of the raw data parallel analysis using a small number of datasets (e.g., 100), just to see how long the program takes to run; then (3) run a permutations of the raw data parallel analysis using the number of parallel data sets that you would like use for your final analyses; 1000 datasets are usually sufficient, although more datasets should be used if there are close calls.
* These next commands generate artificial raw data (500 cases) that can be used for a trial-run of the program, instead of using your own raw data; Just select and run this whole file.
set mxloops=9000 printback=off width=80 seed = 1953125.
matrix.
* Enter the name/location of the data file for analyses after "FILE ="; If you specify "FILE = **", then the program will read the current, active SPSS data file; Alternatively, enter the name/location of a previously saved SPSS data file instead of "**"; you can use the "/ VAR =" subcommand after "/ missing=omit" subcommand to select variables for the analyses.
GET raw / FILE = * / missing=omit / VAR = VAR128 to VAR137.
* Enter the desired number of parallel data sets here.
compute ndatsets = 9000.
* Enter the desired percentile here.compute percent = 95.
compute percent = 95.
* Enter either 1 for principal components analysis, or 2 for principal axis/common factor analysis.
compute kind = 1 .
* Enter either 1 for normally distributed random data generation parallel analysis, or 2 for permutations of the raw data set.
compute randtype = 2.
***** End of user specifications. *****
compute ncases = nrow(raw).
compute nvars = ncol(raw).
* principal components analysis & random normal data generation.
do if (kind = 1 and randtype = 1).
compute nm1 = 1 / (ncases-1).
compute vcv = nm1 * (sscp(raw) - ((t(csum(raw))*csum(raw))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute realeval = eval(d * vcv * d).
compute evals = make(nvars,ndatsets,-9999).
loop #nds = 1 to ndatsets.
compute x = sqrt(2 * (ln(uniform(ncases,nvars)) * -1)) &*cos(6.283185 * uniform(ncases,nvars)).
compute vcv = nm1 * (sscp(x) - ((t(csum(x))*csum(x))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute evals(:,#nds) = eval(d * vcv * d).
end loop.
end if.
* principal components analysis & raw data permutation.
do if (kind = 1 and randtype = 2).
compute nm1 = 1 / (ncases-1).
compute vcv = nm1 * (sscp(raw) - ((t(csum(raw))*csum(raw))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute realeval = eval(d * vcv * d).
compute evals = make(nvars,ndatsets,-9999).
loop #nds = 1 to ndatsets.
compute x = raw.

```

loop #c = 1 to nvars.
loop #r = 1 to (ncases - 1).
compute k = trunc( (ncases - #r + 1) * uniform(1,1) + 1 ) + #r - 1.
compute d = x(#r,#c).
compute x(#r,#c) = x(k,#c).
compute x(k,#c) = d.
end loop.
end loop.
compute vcv = nm1 * (sscp(x) - ((t(csum(x))*csum(x))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute evals(:,#nds) = eval(d * vcv * d).
end loop.
end if.

```

** PAF/common factor analysis & random normal data generation.*

```

do if (kind = 2 and randtype = 1).
compute nm1 = 1 / (ncases-1).
compute vcv = nm1 * (sscp(raw) - ((t(csum(raw))*csum(raw))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute cr = (d * vcv * d).
compute smc = 1 - (1 &/ diag(inv(cr)) ).
call setdiag(cr,smc).
compute realeval = eval(cr).
compute evals = make(nvars,ndatsets,-9999).
compute nm1 = 1 / (ncases-1).
loop #nds = 1 to ndatsets.
compute x = sqrt(2 * (ln(uniform(ncases,nvars)) * -1) ) &*cos(6.283185 * uniform(ncases,nvars) ).
compute vcv = nm1 * (sscp(x) - ((t(csum(x))*csum(x))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute r = d * vcv * d.
compute smc = 1 - (1 &/ diag(inv(r)) ).
call setdiag(r,smc).
compute evals(:,#nds) = eval(r).
end loop.
end if.

```

** PAF/common factor analysis & raw data permutation.*

```

do if (kind = 2 and randtype = 2).
compute nm1 = 1 / (ncases-1).
compute vcv = nm1 * (sscp(raw) - ((t(csum(raw))*csum(raw))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute cr = (d * vcv * d).
compute smc = 1 - (1 &/ diag(inv(cr)) ).
call setdiag(cr,smc).
compute realeval = eval(cr).
compute evals = make(nvars,ndatsets,-9999).
compute nm1 = 1 / (ncases-1).
loop #nds = 1 to ndatsets.
compute x = raw.
loop #c = 1 to nvars.
loop #r = 1 to (ncases - 1).
compute k = trunc( (ncases - #r + 1) * uniform(1,1) + 1 ) + #r - 1.
compute d = x(#r,#c).
compute x(#r,#c) = x(k,#c).
compute x(k,#c) = d.
end loop.
end loop.
compute vcv = nm1 * (sscp(x) - ((t(csum(x))*csum(x))/ncases)).
compute d = inv(mdiag(sqrt(diag(vcv)))).
compute r = d * vcv * d.
compute smc = 1 - (1 &/ diag(inv(r)) ).
call setdiag(r,smc).
compute evals(:,#nds) = eval(r).
end loop.
end if.

```

** identifying the eigenvalues corresponding to the desired percentile.*

```

compute num = rnd((percent*ndatsets)/100).
compute results = { t(1:nvars), realeval, t(1:nvars), t(1:nvars) }.
loop #root = 1 to nvars.
compute ranks = rnkorder(evals(#root,:)).
loop #col = 1 to ndatsets.
do if (ranks(1,#col) = num).
compute results(#root,4) = evals(#root,#col).
break.
end if.
end loop.
end loop.

```

<pre> compute results(:,3) = rsum(evals) / ndatsets. print /title="PARALLEL ANALYSIS:". do if (kind = 1 and randtype = 1). print /title="Principal Components & Random Normal Data Generation". else if (kind = 1 and randtype = 2). print /title="Principal Components & Raw Data Permutation". else if (kind = 2 and randtype = 1). print /title="PAF/Common Factor Analysis & Random Normal Data Generation". else if (kind = 2 and randtype = 2). print /title="PAF/Common Factor Analysis & Raw Data Permutation". end if. compute specifs = {ncases; nvars; ndatsets; percent}. print specifs /title="Specifications for this Run:". /rlabels="Ncases" "Nvars" "Ndatsets" "Percent". print results /title="Raw Data Eigenvalues, & Mean & Percentile Random Data Eigenvalues" /labels="Root" "Raw Data" "Means" "Prcntyle" /format "f12.6". </pre>
<pre> do if (kind = 2). print / space = 1. print /title="Warning: Parallel analyses of adjusted correlation matrices". print /title="eg, with SMCs on the diagonal, tend to indicate more factors". print /title="than warranted (Buja, A., & Eyuboglu, N., 1992, Remarks on parallel". print /title="analysis. Multivariate Behavioral Research, 27, 509-540.).". print /title="The eigenvalues for trivial, negligible factors in the real". print /title="data commonly surpass corresponding random data eigenvalues". print /title="for the same roots. The eigenvalues from parallel analyses". print /title="can be used to determine the real data eigenvalues that are". print /title="beyond chance, but additional procedures should then be used". print /title="to trim trivial factors.". print / space = 2. print /title="Principal components eigenvalues are often used to determine". print /title="the number of common factors. This is the default in most". print /title="statistical software packages, and it is the primary practice". print /title="in the literature. It is also the method used by many factor". print /title="analysis experts, including Cattell, who often examined". print /title="principal components eigenvalues in his scree plots to determine". print /title="the number of common factors. But others believe this common". print /title="practice is wrong. Principal components eigenvalues are based". print /title="on all of the variance in correlation matrices, including both". print /title="the variance that is shared among variables and the variances". print /title="that are unique to the variables. In contrast, principal". print /title="axis eigenvalues are based solely on the shared variance". print /title="among the variables. The two procedures are qualitatively". print /title="different. Some therefore claim that the eigenvalues from one". print /title="extraction method should not be used to determine". print /title="the number of factors for the other extraction method.". print /title="The issue remains neglected and unsettled.". end if. </pre>
<pre> compute root = results(:,1). compute rawdata = results(:,2). compute percntyl = results(:,4). </pre>
<pre> save results /outfile= 'screedata.sav' / var=root rawdata means percntyl . </pre>
<pre> end matrix. </pre>
<pre> * plots the eigenvalues, by root, for the real/raw data and for the random data; This command works in SPSS 12, but not in all earlier versions. </pre>
<pre> GET file= 'screedata.sav'. TSPLIT VARIABLES= rawdata means percntyl /ID= root /NOLOG. </pre>

Table 190: Syntac file Monte Carlo

Appendix 16: Disk data