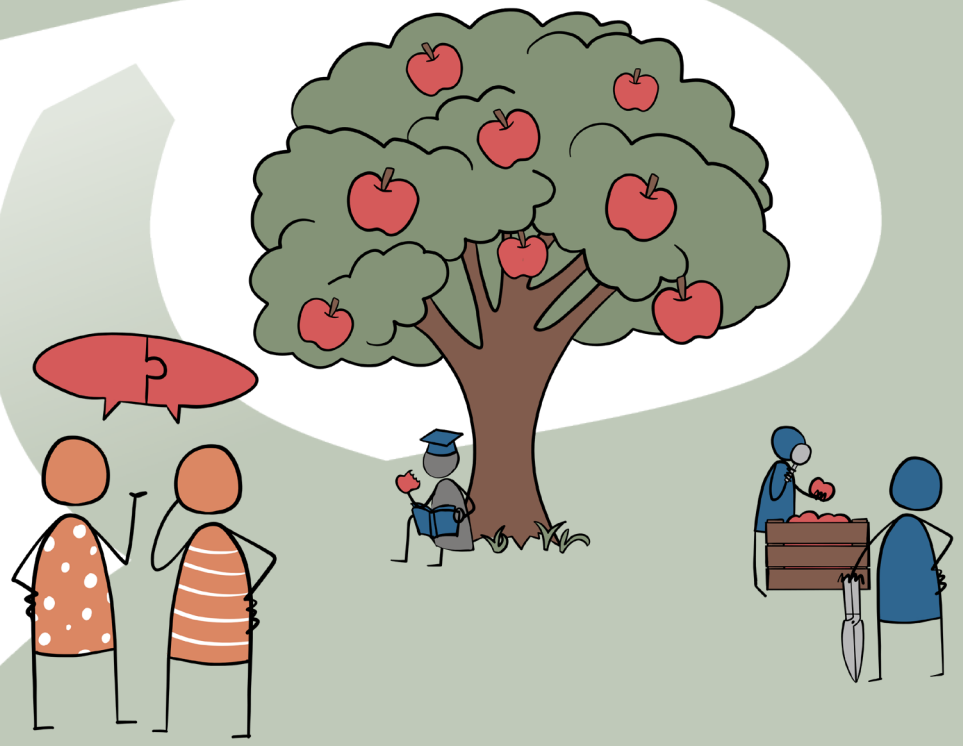
Stimulating Publishing Open Educational Resources within the Industrial Design Engineering Faculty

Researching the motivational factors that influence teachers from the Industrial Design Engineering bachelor to publish and/or create open educational resources



Alies Scharroo

Master Thesis Report in partial fulfilment
of the requirements for the degree
MSc Communication Design for Innovation

25 June 2024

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Master Thesis report
in partial fulfilment of the requirements for the degree of
Master of Science
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Summary

The Delft University of Technology wants their teachers to create and publish Open Educational Resources (OER). And even though they have an OER policy in place, creating and publishing OER is not yet a common practice. Therefore, this research aims to answer the question "How can a communication tool be used to help increase the creation and/or publishing of (little) OER at the Industrial Design Engineering faculty?". It does so by taking a design-based approach and using the double diamond method.

This thesis starts by using literature to create a combined framework which combined the reasoned action approach with the OER adoption pyramid. This combined framework showed multiple factors that are relevant in influencing the motivation of teachers to create or publish OER. These motivational factors were incorporated into the questions and topics that were discussed in the semi structured interviews. The outcome of the interviews was compiled into a causal loop diagram that showed how different factors influence the willingness of teachers to create or publish OER. The causal loop diagram also showed how some factors could be both a driver and barrier depending on the situation. Based on the interview results the critical nodes were identified in the causal loop diagram. The critical nodes being: available time, perceived institutional support, perceive time and effort it cost to publish OER, clarity in expectations of OER, social responsibility to create/publish OER, Sharing ER with colleagues.

Using the critical nodes, a design goal was formulated. This design goal resulted in the design of a roadmap that laid out the phases in which the TU Delft can support IDE teachers in publishing their educational resources as open educational resources. The first phase addresses the creation of a designated support team and spreading awareness about OER. The second phase outlines that teachers first publish in a closed system, since sharing their material with colleagues is something teachers already do. During the second phase the educational material will also be improved via peer-to-peer feedback and the support team will ensure the quality. In the final phase the material will be published as open educational resource.

In conclusion, using this roadmap should make it easier to increase the creation and publication of OER at the IDE faculty by lowering barriers for teachers and playing into teachers' drivers. For further research, it is recommended to validate the design and look into possible differences between teachers for master and bachelor courses.

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1. Introduction

Recently the Erasmus University Rotterdam (EUR) was filing a lawsuit against StudeerSnel for copyright infringement (Smaling, 2024 and Iyer, 2024). According to the university Studeersnel, a student-to-student knowledge sharing platform that offers educational resources to students, hosts educational material of which the university holds the copyright. The EUR would like Studeersnel (also called Studocu internationally) to take measures to prevent copyrighted material being uploaded to their website. Studeersnel was founded by students from Delft University of Technology who found that there was an unfair distribution of study materials among students in Delft as well as globally and created Studeersnel as a solution (Iyer, 2024). The Studeersnel website is used by a large number of students (60 million monthly users according to studeersnel.nl), as well as some professors who use the platform to share their educational materials. The success of Studeersnel shows a need of students to have access to additional education materials as well as the willingness of (at least some) professors to share those materials openly. Of course, it is undesirable for professors to have their materials published without their approval, but there is another way to make the educational materials openly available that gives the professors and the university more control over the material. The university could choose to publish their own materials as open educational resources, which would result in less need for students to upload copyrighted material to Studeersnel.

1.1. Open Education Resources

Open educational resources (OER) is a broad term that encompasses many things. OER can be educational resources developed by an institution specifically made for educational purposes, like study books, presentations (slides), digital syllabi or manuals, video's, etc. But OER are also educational resources that are developed independently from an institution that were not necessarily created with the intention to be educational, like (Youtube) videos, blogs, podcasts, digital news articles, etc (De Jong & Van den Berg, 2022). This paper uses the UNESCO definition of OER which is "Open Educational Resources (OER) are learning, teaching and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open license, that permit no-cost access, re-use, re-purpose, adaptation and redistribution by others." (UNESCO, 2019). As an addition to this definition of OER, Weller (2010) classifies institution created OER as 'Big OER' and the individually created OER as 'Little OER'. According to Weller (2010) big OER are developed by institutions often with an explicit learning goal in mind and often as part of a bigger project. Meanwhile, little OER is a type of resource that "can be seen as near frictionless outputs from standard academic practice" Weller (2010). "For example, if a presentation is given then uploading it to Slideshare is a zero cost activity, and adding a synchronised audio file to create a slidecast takes only a modest amount of time." (Weller, 2010)

Publishing and using OER also has benefits for teachers, including benefits that come from creating an inter-institutional community. Baas et al. (2022) says about the value creation of sharing materials in a community: "Teachers experienced value because their participation in the inter-institutional

community resulted in access to resources, inspiration, connections with peers, or aid during emergency teaching". This is in line with Weller et al. (2015), who reported survey results that showed strong evidence that using OER leads to teachers being more reflective of their own practices, as well as them drawing inspiration from OER for their own educational material. "For teachers, a key advantage of OER is that they can reuse OERs rather than start from scratch when designing or revising curricula." (Baas, 2023). Sharing materials among colleagues can also have the effect of improving the quality of the material. "By sharing materials in (disciplinary)communities, teachers build on each other's work and with joint effort, improve its quality." (Reesink, 2020). Furthermore, De Jong and Van den Berg (2022) say that creating OER offers a change for teachers to show their "didactic competence" as well as their competence in "designing education".

Furthermore, publishing OER also has benefits for students. Mullens and Hofmans (2023) found saving costs to be a big benefit for university students in North-America. "Our review of studies verified that students and faculty identified cost savings as the primary incentive to using OER." (Mullens & Hoffman, 2023). Baas (2023) also mentions that students have various reasons to look for additional materials, witch OER can provide "Different pedagogies, different modalities, or just seeing other examples are reasons why students often look for additional resources" (Baas, 2023).

1.1.1. Reasons for the TU Delft to adopt OER

Adopting open education practices and publishing OER is important for the Delft University of Technology (also called the TU Delft) for a few reasons. The first reason is that, in my opinion, the university, as a publicly funded institution, has a social responsibility to contribute to the public knowledge. So, for the university publishing OER can be seen as giving back to society in a similar way as open science. This seems to be backed by the TU Delft's statement on open science (which includes open education) "TU Delft sees Open Science as a valuable means of contributing to a just society and an open research and education culture." (Delft University of Technology, 2024). Furthermore, as far as I am concerned, it is good practice for the TU Delft, as a public funded institution, to be transparent and open about the teaching practices at the university.

The second reason for the TU Delft to further adopt open education practices is that publishing OER can benefit the international reputation of the TU Delft, similar to MIT publishing their OpenCourseWare (according to Mulder and Janssen (2013) MIT publishing their courses as open courseware is what started the trend of opening up education). The TU Delft's Strategic agenda emphasizes the importance of their impact on society: "The aim is to strengthen the inclusive nature of education at TU Delft by applying the concept of Open Education. This will also increase the university's societal impact" (Delft University of Technology, 2024). Additionally, publishing OER is a way to show off the expertise of the teachers at the university, which also increases its reputation. This is also in line with the TU Delft's strategic agenda: "TU Delft wants to hold on to the international recognition it receives for its excellent quality of education and research." (Delft University of Technology, 2024).

The third reason is that it is crucial for educational institutions like the TU Delft to take control of their own educational material, so they don't become reliant on commercial suppliers for educational services. Losing control of their educational material would mean institutions become dependent on commercial suppliers, like publishers, who are then free to dictate the prices and terms and conditions of education (De Jong & Van den Berg, 2022). In taking control

of their education materials universities can also prevent some incidents of copyright infringement from happening. Publishing educational resources for students to use makes sure that these students don't have to acquire the educational materials through other (sometimes illegal) means, like in the earlier example of Studeersnel.

1.1.2. TU Delft OER policy

Delft University of Technology is in the process of implementing the creation and publication of OER all around the university. This initiative is led by the Open Science programme of the TU Delft, which organises and coordinates multiple initiatives and activities to implement open education practices across the institution. These implementations are across faculties in both the bachelor and in the master programme.

The TU Delft would like there to be a single platform from which all their OER is accessible, which is reflected in their OER policy "TU Delft Open Educational Resources (OER) should be accessible from one point" (Will et al., 2021). Currently the TU Delft has three different kinds of big OER available on three different platforms. The first one is the massive open online courses, or MOOC's, which are open access courses that are completely accessible online (https://online-learning.tudelft.nl/mooc-massive-open-online-courses/). Secondly, there is the TU Delft OpenCourseWare (OCW) which are digital publications of educational materials (https://ocw.tudelft.nl/). The last one is TU Delft OPEN Textbooks which is a platform with open textbooks produced by the TU Delft (https://textbooks.open.tudelft.nl/textbooks).

In addition to the goal of creating a single platform for OER, the TU Delft wants to increase the amount of OER that is created and published, specifically little OER. Little OER in this case refers to the publication of already existing educational resources that are created for, and used in the courses at the TU Delft. "Staff may also use a wide range of self-generated teaching materials to support high-quality teaching, including teaching notes, handouts, audio, images, animations, multimedia materials, data, software and others. TU Delft encourages and supports staff to create and publish these resources as Open Educational Resources (OER)" (Will et al., 2021). The OER policy also aims to include development of OER in the TU Delft framework of rewarding and recognition (Will et al., 2021).

1.1.3. Industrial Design Engineering and OER

This research has taken the Industrial Design Engineering (IDE) faculty at the TU Delft as a case study. The choice for Industrial Design Engineering was made in light of my personal experience at the faculty during my bachelor, which gave me insight into the educational context and (most of) the educational practices, which can differ greatly from faculty to faculty at the TU Delft.

Looking at the different faculties and their experience with OER, the IDE faculty is not the most advanced within the TU Delft in publishing OER, nor are they the least experienced. Faculties like Architecture, and Technology, Policy and Management both have more MOOCs and OCW available compared to Industrial Design Engineering and Applied Sciences, Civil Engineering and Geosciences, and Electrical Engineering, Mathematics and Computer Science all having more open textbooks. However, IDE has done some research on possible platforms for publishing OER (M. Dijkstra, personal communication, November 20, 2023). although the faculty is looking for suitable platform, there is not much priority for open education within the faculty, which also means that it is currently left to individual teachers to take initiative and get involved with OER (J. Hekkens, personal communication, October 12, 2023).

1.2. Research Question

Even with all the benefits of OER and the intention from the Delft University of Technology to bring the creation and publication of (little) OER in practice, there is currently no designated platform to publish little OER for the TU Delft. Although steps are being taken to set up such a platform, this is a difficult and slow process. According to Reesink (2020) teachers' need for better content is a big drive behind the exchange of digital resources. "People want to consume new materials and develop better materials". This means that getting teachers from the TU Delft onboard with publishing OER as soon as a platform becomes available, or preferably before, is crucial. This way teachers can be a big driver for the future platform and its adoption by other educational staff as well as students.

The aim of this research was to identify motivational factors that influence teachers to publish their educational materials as little OER, with the final goal to increase the creation and publishing of little OER through a communication strategy. The scope of the research was teachers from the Industrial Design Engineering (IDE) faculty at the TU Delft for reasons outlined earlier. This leads to the following main research question:

MRQ: How can a communication tool be used to help increase the creation and/or publishing of (little) OER at the Industrial Design Engineering faculty?

From this main research question come the following research questions:

RQ1: What are factors that influence the motivation of teachers to create and/or publish OER according to literature?

RQ2: Which drivers and barriers influence the intention of Industrial Design Engineering teachers to create and/or publish little OER?

RQ3: How can the identified drivers and barriers be implemented in a communication tool that increases the creation and/or publishing of (little) OER at the Industrial Design Engineering faculty?

1.3. Research Approach & Outline

This research takes a design based approached through the double diamond (Banathy, 1996). The double diamond consists of four phases: discover, define, develop, and refine. These phases help define the right problem (in the first diamond) so we can then find the right solution (in the second diamond). As can be seen in Figure 1.3.1 the first diamond is bigger than the second diamond, which is representative of the amount of time spent on each diamond. What is not visible in the figure is the iterative nature of the approach, meaning that multiple times during the project earlier stages were revisited and iterations were made.

Discover

During the first phase, a better understanding of the situation and the problems was developed by gather insights and information. A literature review was done to gather information, which is discussed in chapter 2. This resulted in the relevant motivational factors for the motivation of lectures to publish OER. Chapter 3 outlines the way the semi structured interviews were conducted based on these motivational factors from the literature review. Chapter 3 also discusses the participants for the interviews and the data analysis of the outcomes.

Define

In the define phase the insights from the 'discover' phase were used to define the design problem. This was done by conducting semi-structured interviews with IDE course coordinators. The design problem was defined by means of processing the data from the interviews, summarizing them in a causal loop diagram, and finding the critical nodes, which is discussed in chapter 4.

Develop & Refine

Chapter 5.1 further details the methods used in developing multiple ideas for the design. These ideas were then refined leading to the final communication design, which is discussed in chapter 5. In chapter 6 the research's conclusions are discussed and chapter 7 contains the discussion and conclusion.

Ethical data management

To make sure all parts of the research comply with the TU Delft ethical guidelines, a risk assessment was done, and any risks were identified and mitigated. This means an appropriate informed consent form was created for participants together with an information sheet with information about the research. Furthermore, a data management plan was created to make sure any collected data would be handled safely. All collected data was anonymized to prevent identification of the participants.

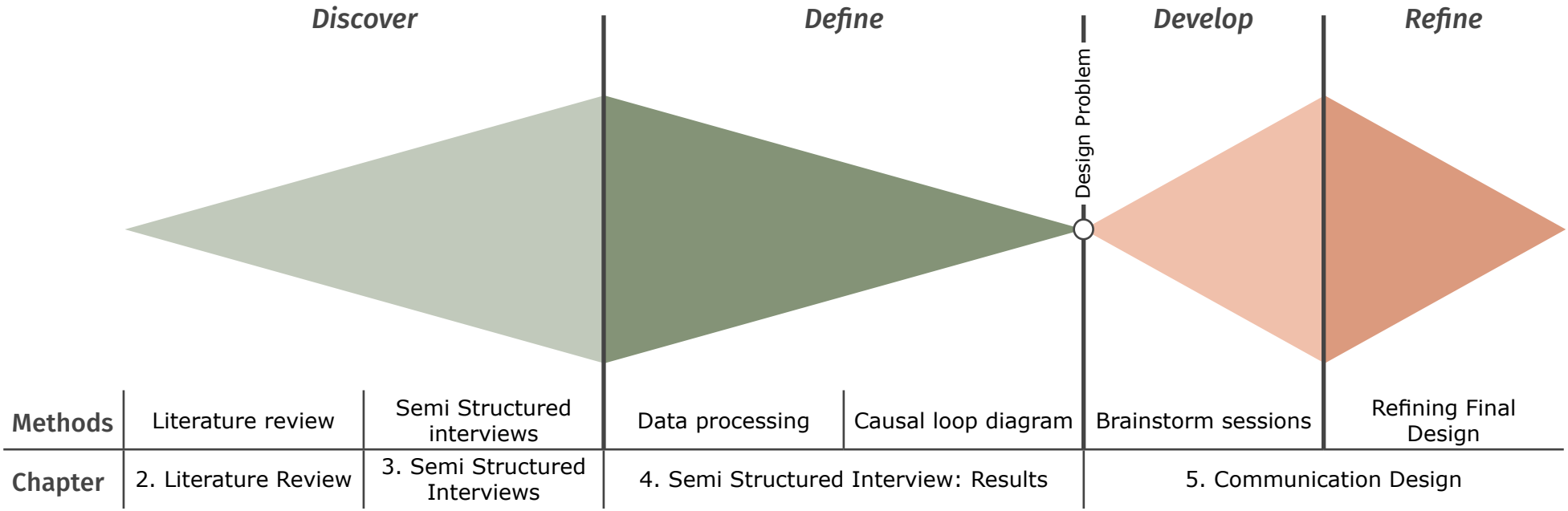

Figure 1.3.1. Double diamond approach.

2. Literature Review

2.1. Method

The Literature Review started with recommended readings provided by one of the thesis supervisors, Michiel de Jong, who at that time worked at the TU Delft Library. These readings included articles about educational innovation, innovation opportunities for academic libraries, and a paper about open pedagogy. Additionally, the blog of Robert Schuwer was referenced. Schuwer, is an "independent consultant and researcher on Open Educational Resources" (Schuwer, n.d.-a) and a renowned researcher in the field of Open education according to de Jong (M. de Jong, personal communication, May 24, 2023). Although Schuwer is retired, he still keeps an online blog where he publishes interesting developments in the open education field (Schuwer, n.d.-b). These blog posts contain links to the papers he references, which snowballed to multiple articles about OER.

Subsequently, a systematic search for additional papers about the benefits of adopting OER for specifically teachers, was conducted. This search entailed screening articles on the Scopus website (scopus.com), using specific keywords. These keywords and the number of articles screened, retrieved and read in full can be seen in Table 2.1 and Table 2.2 (a more detailed version of the process can be found in Appendix A). Additional relevant articles were found through snowballing from the cited references in the initial papers. Articles were selected based on relevance of the subject to the overarching research, specifically articles discussing motivations for OER adoption and motivation for teachers to publish their educational resources.

Table 2.1. First round of structured search.

Date:	15-8-2023
Source	Scopus.com
Keywords	Open AND Educational AND Resources
Years	2013-2023
Language	Limited to English
Documents found	1,594, sort by new
Records screened:	40
Records excluded:	31 (Personally filtered on awareness, adoption, academic library involvement, motivation)
Reports retrieved:	9

Table 2.2. Second round of structured search.

Date:	23/10/2023
Source	Scopus.com
Keywords	open AND educational AND resources AND motivation
Years	-
Language	Limited to English
Documents found	246
Records screened:	100
Records excluded:	91 (Personally filtered on relevance)
Reports retrieved:	9

2.2. Theoretical Framework

The theoretical framework used in this research is a combination of the OER adoption pyramid, which shows the main factors that influence OER adoption, and the reasoned action approach, which describes the way attitude, perceived norm, perceived behavioural control and actual control influence someone's behaviour. Furthermore, some other factors, like the benefits of open education resources, were considered. These parts combined in the theoretical framework informed the creation of the questions during the data collection.

2.2.1. Benefits of Open Education Resources

Open education resources (OER) are defined by UNESCO as "learning, teaching and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open license, that permit no-cost access, re-use, re-purpose, adaptation and redistribution by others." (UNESCO, 2019). When talking about OER in this paper, it is mostly referring to little OER (Weller, 2010) which can be one of the outputs of academic practice. Weller (2010) uses uploading a slide deck to an online platform as an example of little OER, while big OER is often part of a bigger project with more effort put into it.

Sharing and using OER can have benefits for Lectures, the institution and students, like giving teachers advantages when creating their own educational materials by gaining inspiration from others' work and not having to start from scratch (Baas, 2023; Weller et al., 2025). Using OER can lead to teachers being more reflective on their own practices (Weller et al., 2025) which can lead to material of improved quality (Reesink, 2020). "By sharing materials in (disciplinary) communities, teachers build on each other's work and with joint effort, improve its quality." (Reesink, 2020).

2.2.2. OER adoption Pyramide

In order to get a better understanding of the necessary elements for an individual or an institution to adopt OER, the OER adoption pyramid (Cox & Trotter, 2017) is used (see Figure 2.2.1). In combining multiple other studies, Cox and Trotter's (2017) found the most commonly cited reasons for OER adoption not being a normative practice yet included a lack of: "awareness, permission (to create and share), high-quality OER to use, interest, time, and institutional recognition" (Cox & Trotter, 2017). The pyramid shows not only the factors, but also indicated that without the factors at the bottom, that are also more externally determined, the factors at the top, which are more internally determined, make less difference in OER engagement (Cox & Trotter, 2017). The pyramid also shows that there are different levels at which OER practices occur. The Individual level, the social level, and the institutional level.

The OER adoption pyramid proposes six conditions that need to be fulfilled before OER adoption takes place. Looking at these conditions and comparing them to the current situation at the TU Delft gave insight into some of the elements that might still be missing before OER practices will be adopted. However, some of the conditions in the pyramid are already met or are less relevant in this research. This will be further discussed in the combined framework.

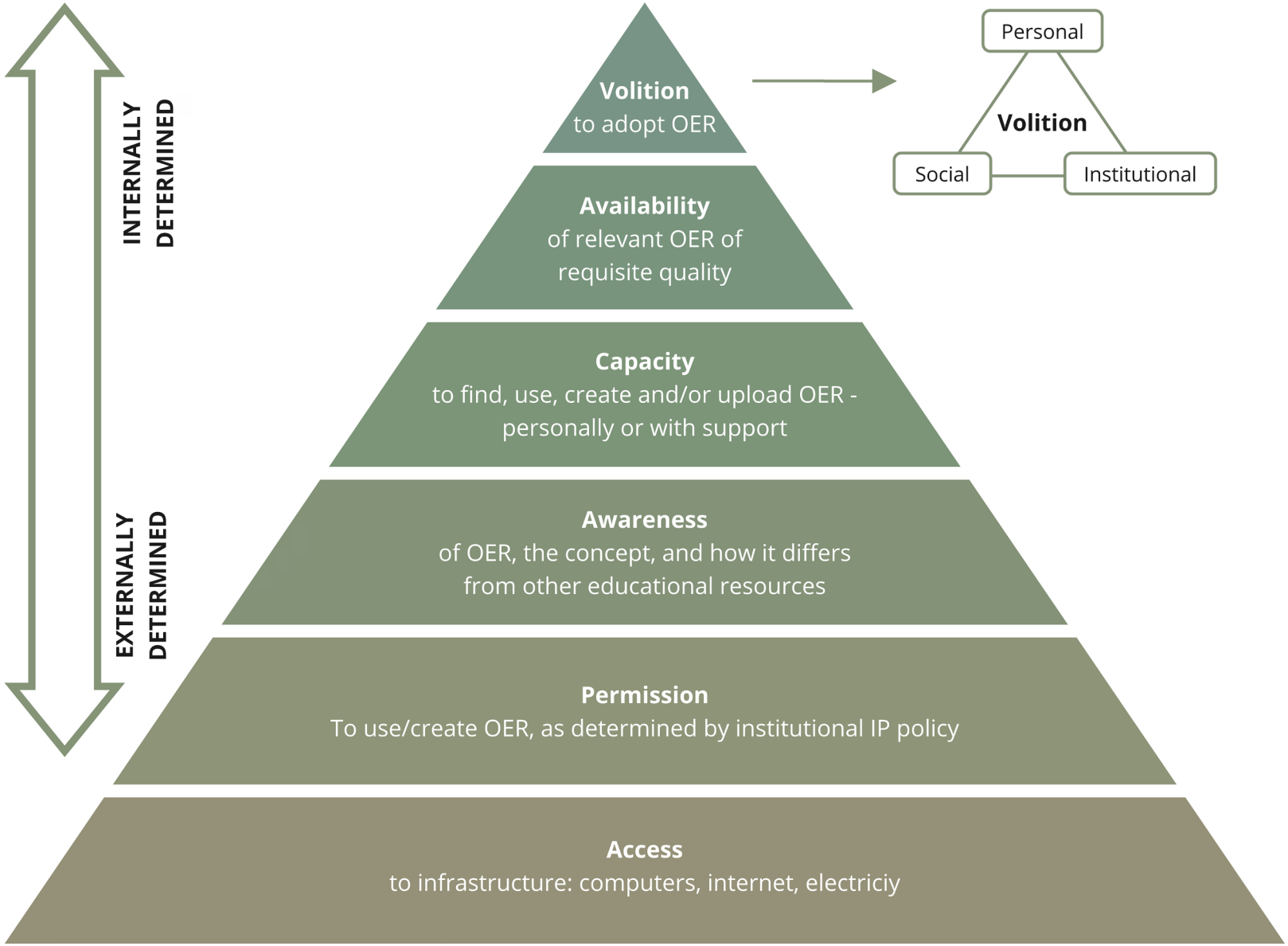

Figure 2.2.1. OER Adoption Pyramid.
Note. Adapted from The OER Adoption Pyramid, by Trotter and Cox, 2017, (http://conference.oeconsortium.org/2016/presentation/the-oer-adoption-pyramid/). CC BY 4.0 licence.

2.2.3. The Reasoned Action Approach

Similar to an earlier study by De Jong et al. (2019) on educators' adoption of open education, the reasoned action approach (Fishbein & Ajzen, 2010) was used to get a better insight into motivational factors that influence teachers. This theory is a combination and extension of the theory of planned behaviour (Ajzen, 1991) and the theory of reasoned action (Fishbein & Ajzen, 1975). The reasoned action approach includes the influence of background factors and the way that a person's beliefs influence their intentions which in turn influence their behaviour (see Figure 2.2.2). Background factors can include personal experiences, your demographic and cultural influences, and your environment like your social group and the information you have. The combined framework will further explore how the reasoned action approach will be used during this research.

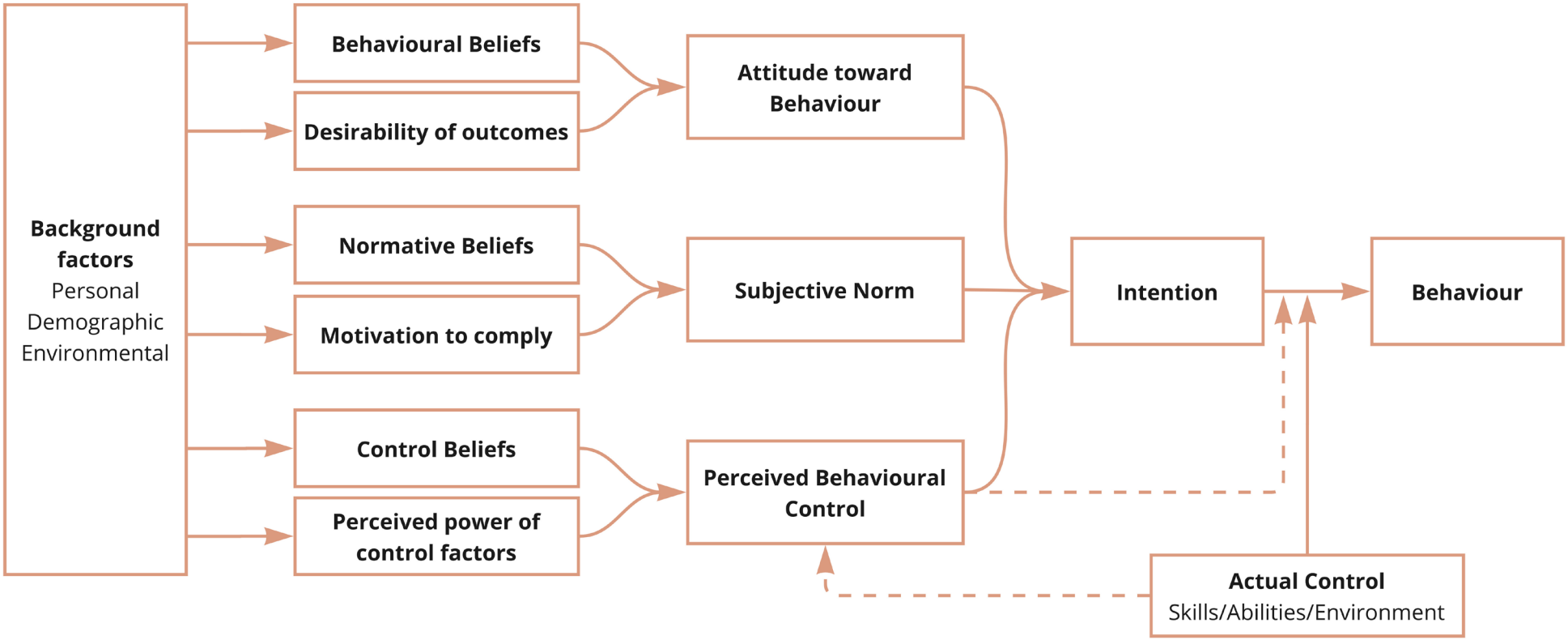

Figure 2.2.2. Reasoned Action Approach.
Note. Adapted from* Reasoned action approach text as paths*, by G-J. Peters, 2013, Wikipedia (https://en.wikipedia.org/wiki/File:Reasoned_action_approach_text_as_paths.svg). CC BY-SA 3.0 licence.

2.2.4. Combined Framework

The reasoned action approach shows various motivational factors that influence a person's intentions and their behaviour. While the OER adoption pyramid shows a broader overview of things that need to be present for people (or institutions) to adopt OER. Cox and Trotter (2017) concluded that "lecturers (and managers/institutions) are influenced by the personal values of the individual educators, the institutional support mechanisms (financial, technical or policy-based) that may or not be present, and the social norms and expectations of the departments and disciplines they work in". All of these things are present in some way in the reasoned action approach, which is why the combined framework is made through the lens of the reasoned action approach (Figure 2.2.3).

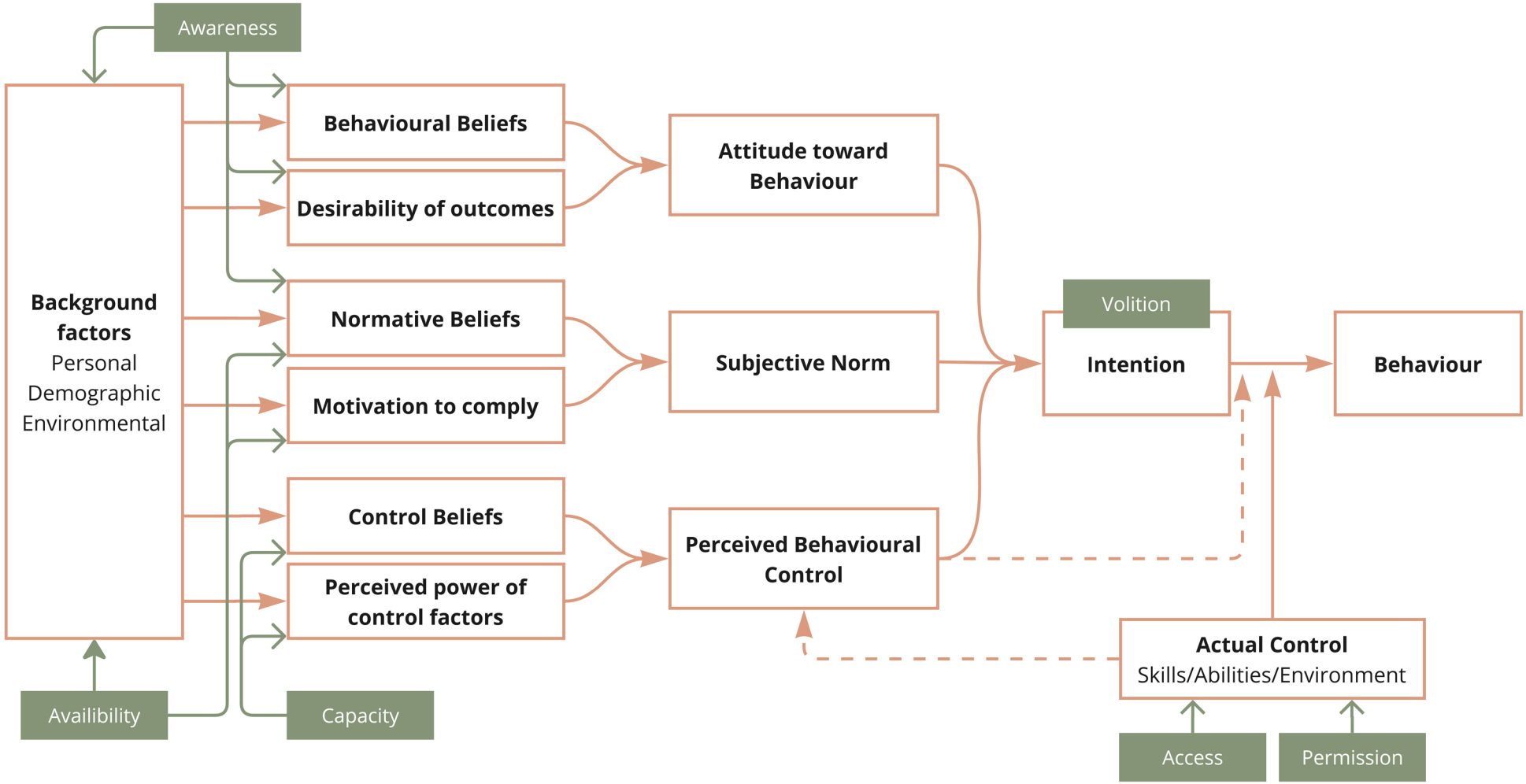

Figure 2.2.3. Combined Framework.

Background Factors

The background factors that can influence a teacher's intention to publish OER. These can include more personal experiences, but also your environment. Looking at the OER adoption pyramid, two things seem to influence the background factors the most, which are awareness of OER and availability of OER. These factors are part of the environmental background of the teachers.

Attitude toward Behaviour

According to the reasoned action approach, the attitude towards a behaviour is influenced by a person's behavioural beliefs combined with the desirability of the outcomes. For example, when a teacher beliefs that the behaviour of publishing OER will result in them gaining new connections, and the belief that gaining new connections is a desirable result, they will have a positive attitude toward that behaviour. Looking again at the OER adoption pyramid, the attitude toward a behaviour is most influence by awareness of OER. Being aware that OER exists and what it is, is important to fully see the results of the behaviour of publishing OER and the desirability of those results (the benefits OER).

Subjective Norm

The subjective norm is a reflection of the social pressure to do a certain behaviour. This norm is a combination of the normative beliefs and the motivation to comply with the norm. For example, as a teacher it generally is the norm to publish your slides after you finish giving a lecture and if you don't do this your colleague disapprove, and you care about your colleague's opinion. This would result in the subjective norm influencing your intention to publish your slides. When looking at the OER adoption pyramid, this subjective norm is influenced by awareness of OER practices in your social group and the (awareness of) availability of OER. Basically, is publishing and using OER common practice in your social group? if it is considered common practice to share OER, this will influence the subjective norm of teachers and thus their intention and behaviour.

Perceived Behaviour Control

Perceived behaviour control refers to the amount of control a person believes the have over their own behaviour. This is a combination of the factors you think are either inside or outside of your control and the perceived power those factors have on you. For example, if you really want to create a presentation, but your computer is not working, you do not have control over your behaviour. Looking at the OER adoption pyramid, capacity plays the biggest role in the perceive behaviour control. Capacity in the OER adoption pyramid is described as follows: "This characteristic implies that a teacher or institution enjoys the necessary technical fluency to search for, identify, use and/or create OER, or has access to support from people with those skills" (Cox & Trotter, 2017).

Capacity is also influenced by the institution. The institution can provide examples, lectures, booklets, workshops etc to help inform and teach teachers all about OER. If a teacher feels like they do not have the capacity to create and/or publish OER they are less likely to intent to do so. But by teaching and informing them, the institution can ensure they feel more capable of creating and publishing OER and which results in more perceived behaviour control.

Actual Control

Actual control are external elements (both enablers and constrains) that influences the perceived behaviour control and also influences the behaviour directly. For example, since the TU Delft currently does not have a platform on which teacher can publish little OER, teachers can not publish little OER on a TU Delft platform. Looking at this from the

OER adoption pyramid, access and permission are the most important factors here.

Access in this case refers to the right physical infrastructure and hardware being available for teachers to adopt OER. The infrastructure here is defined as access to computers, internet, and electricity. This infrastructure and the hardware are available at the TU Delft therefore, the access will not be discussed further in this research.

Regarding permission Cox and Trotter (2017) state that, in higher education, there are two potential agents of OER activity: teachers and the institution. "[Teachers] can only be considered potential OER creators if they hold copyright over their teaching materials." (Cox & Trotter, 2017). The TU Delft has stated on their website that "We support lecturers in improving their campus education by implementing blended concepts, embedding open educational resources or realising other types of innovative learning for campus students." (Call for Proposals, n.d.). This shows that the institution gives permission to teachers to publish OER, which is further supported by the coordinator Online, Open & Life Long Learning from the IDE faculty (J. Hekkens, personal communication, October 12, 2023). Since the institution gives permission for teachers to publish OER, 'permission' will not actively be taken into account.

Intention

The intention is a combination the attitude towards a behaviour, the subjective norm, and the perceived behavioural control. This is very similar to volition in the OER adoption pyramid. Volition is described as "their desire or will to adopt OER." (Cox & Trotter, 2017). The personal volition of teachers is influenced by many factors like: The lecturers' personal beliefs around open education, the (perceived) benefits for the educator, (perceived) benefits for students. According to Cox & Trotter (2017) personal motivation is one of many factors determining OER adoption and the last one in a chain of factors. However, they found that personal motivation was sometimes not even relevant. "This was because there were other institutional factors that pre-empted them from even thinking about OER adoption activities, such as a lack of OER awareness, or the lack of an IP policy that allows them to share their teaching materials openly." (Cox & Trotter, 2017). This shows again that the more externally determined factors at the bottom of the pyramid need to be addresses in order to address to top factors like volition.

2.3. Important motivational factors

Based on the combined theoretical framework and my personal experience with the education system in the IDE faculty, I determined the most relevant factors that influence the motivation of teachers to create or publish OER. These factors are summarised in Table 2.3.

Table 2.3. Motivational factors that influence behaviour.

Background Factors:	• Awareness of what OER is and the forms it can take • Awareness of institutional policies around IP and OER
Attitude toward behaviour:	• Personal beliefs about open education. • (Perceived) benefits/outcomes of publishing OER
Subjective Norm:	• Is creating/publishing OER common practice?
Perceived behavioural control:	• (Perceived) institutional support • (Perceived) capacity to create and publish OER

3. Semi Structured Interviews

3.1. Data collection Method

The interview consisted of two parts. The first part of the interview was conducted in a semi-structured way, in order to leave more flexibility in both the questions that were asked as well as the overall conversation during the interviews. This approach made sure that the participants were free to discuss topics that naturally emerged, even if they were originally not part of the prepared questions. The questions were created based on the theoretical framework and supplemented with additional insights and information from preliminary discussions with different people involved in the IDE organisation.

The second part of the interview was a more creative exercise for the participants in order to gain a sense of the most important factors to participants, either the ones that held them back the most, or the ones that motivated them the most to create and publish OER. By asking about the most important factors to them, the second part of the interview also acted as a summary of the whole interview. By giving the participants physical parts to interact with, they were able to organize their priorities in whichever way they liked, which gave them more freedom to express the importance of the motivational factors to them.

The primary goal of the interviews was to gain insight into the drivers and barriers of IDE course coordinators around creating and publishing OER, to identify drivers and barriers experienced by multiple coordinators. The questions aimed to get a complete image of the participants' motivations for either publishing or not publishing OER. Some important topics during the interviews were: awareness of OER, (awareness of) support in creating OER, personal perspective of OER, (perceived) benefits and/or downsides for students, the needed steps to create OER, willingness to invest effort into creating OER.

3.2. Interview Protocol

The interviews were only conducted with participants who consented to be recorded with at least audio, so all the interviews could be transcribed and coded in a similar fashion. The full protocol can be found in Appendix B. Thesis supervisors were consulted to make sure the questions were as unbiased as possible. All interviews were conducted one-on-one with just the participant and the researcher present. Interviews were either conducted in person, or online. All interviews were recorded with audio and the online interviews were also recorded with video. The recordings were saved locally to the researcher's personal device and the informed consent forms were digitized and were saved locally to the researcher's personal device as well. The interviews took between 30-60 minutes.

Before the interview the following step were taken:

1. First, the informed consent form (Appendix D) was sent to the participant via email so the participant could read it before the interview. Attached to the consent form was an information sheet with more information about the research and the interview.
2. Before the start of the interview, participants were asked if they had any questions about the information sheet or the informed consent form. Any questions were answered to the best of the researcher's ability.
3. If the participants had no further questions they were asked to sign the informed consent form. Then the recording started and the interview began.

During the first part of the interview participants were asked a set of predetermined questions (Appendix C). Since the interviews were conducted in a semi structured way, the conversations were allowed to deviate from the questions. This meant that some questions would be answered before they were asked, and consequently would not always be asked again.

In the second part of the interview, participants were presented with the two big cards with two categories: 'motivates me to publish/create OER' and 'Holds me back to publish/create OER'. Participants were given a few small cards, some pre-written and some empty. They were then asked to put down relevant cards in two categories (Figure 3.2.1) and were told that they could edit the pre-written cards or write new cards.

After the interview, the following steps were followed for the recordings:

1. The recordings were saved locally to the researcher's personal device.
2. The recordings were transcribed and anonymised and uploaded to a drive shared with the research team, as well as saved to the researcher's personal device.
3. The recordings were deleted from the researcher's personal device after transcription.
4. When requested transcripts were sent to participants for approval of anonymity.

After the interview, the following steps were followed for results of the second part of the interview:

1. The outcome of the second part of the interview was photographed.
2. The photos were digitally recreated for readability and extra anonymity (Appendix E).
3. Quotes from the audio recordings were added to the digital images for clarity and additional nuances (Figure 3.2.2).

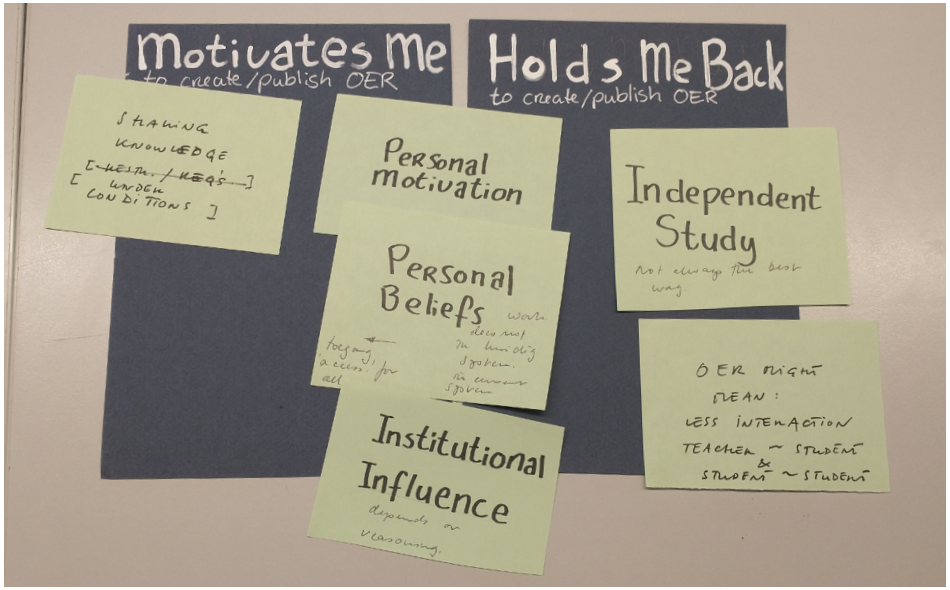

Figure 3.2.1. Set-up of part two of the interview.

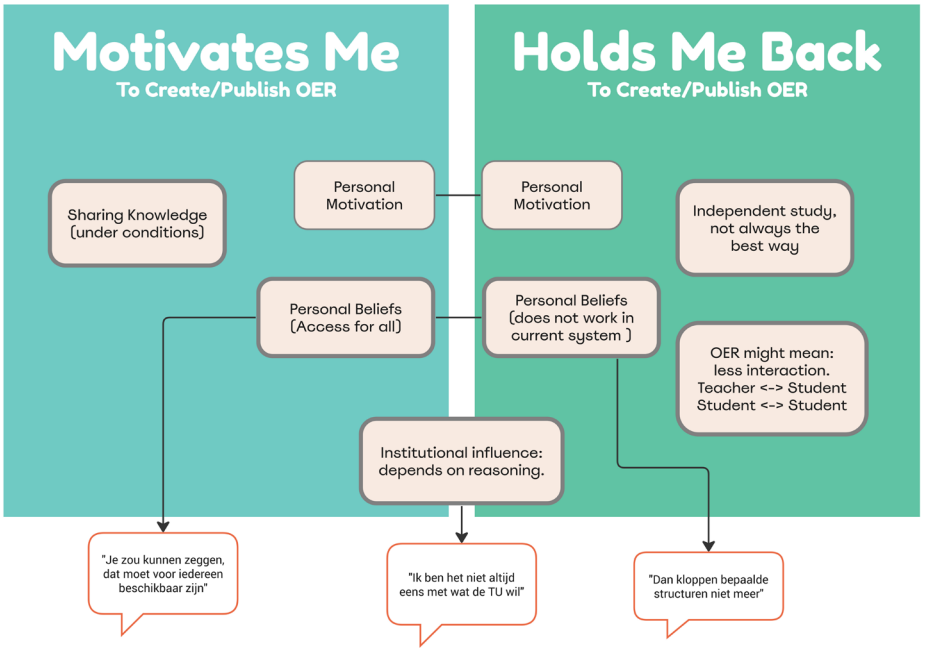

Figure 3.2.2. Digital version of part two of the interview.

3.3. Participants

The participants for the interviews were teaching staff at the IDE faculty, specifically course coordinators. Course coordinators are responsible for creating the material for their courses, though the material is often created and taught by a team of teachers, including the course coordinator. The team is led by the course coordinator, who has the final responsibility for the educational material.

A list of all course coordinators for the IDE bachelor courses was compiled using the available information on the TU Delft website. An attempt was made to do the same for the master courses, however the IDE masters are currently being restructured and are starting with new courses next year. This made it difficult to get an overview of the course coordinators for the new master courses. Therefore, only course coordinators from the bachelor courses were approached. Though it should be noted that some oversee more than one course, this can include master courses.

In total 42 course coordinators from the IDE faculty were approached about an interview. In total 17 people responded. Eight people answered that they were unavailable, and one email address appeared to be a wrong email address. Nine people agreed to be interviewed. As visible in Table 3.1, most of the bachelor course coordinators are Assistant Professors or Lecturers, with some associate professors and professors. The final participants were only assistant professors and lecturers, which is a sufficient representation of the overall group.

Table 3.1. Interview participants.

	Approached	*Responses*	*Interviewed*
Professors	4	0	0
Associate Professors	8	2	0
Assistant Professors	18	8	6
Lecturers	12	7	3
Total	**42**	**17**	**9**

3.4. Data Analysis

The interviews were transcribed from audio recordings made during the interviews. The initial transcription was done using the Microsoft Word 'transcribe' function. This initial transcription was then completed, corrected, and anonymised where necessary and colour coded for readability.

After that the transcripts were coded and analysed using the ATLAS.ti software. The coding was based around themes that were identified in the literature and supplemented with themes that became apparent during the interviews. There were seven overarching themes all with multiple sub-codes. The seven themes were Awareness, colleagues and OER, Competence and Support, Institutional Support, Pedagogy and Students, Personal Motivation, and Other Barriers. After all transcripts were coded, the quotes from each sub-code were analysed and written up as a summary.

The final part of the interview was an exercise where participants placed topics on top of one of two big cards either in "Motivated me" (drivers) or "Holds me back" (barriers). The goal of this exercise was for participants to create a sort of summary of the most important factors for them. These were then photographed and digitised for legibility (Appendix E). This digitisation was then used to find the most important drivers and barriers according to teachers.

Figure 3.3.1. Overview of codes used in ATLAS.ti.

4. Semi Structured Interview: Results

The interviews gave a complex image of the barriers and drivers surrounding Open Education in general and teacher's motivation for publishing OER specifically. These results have been compiled in a causal loop diagram (Figure 4.1.1). The causal loop diagram visualises different variables and shows their causal relation, which can be positive (in green), or negative (in orange). One example of how the causal relations work is: When teachers use more copyrighted material in their educational Resource, the perceived time and effort it costs to publish OER also increases (positive causal relation). In turn when the perceived time and effort increases, the teacher's willingness to put time and effort into publishing decreases (negative causal relation).

It's important to mention that some of the variables in the causal loop diagram can be both a barrier and a driver depending on the situation. For example, having to create Educational Resources (ER) from scratch is a barrier, but if there are more ER available, there is less need to create ER from scratch and this then becomes a driver for lectures to publish OER.

4.1. Motivational Factors in the Interviews

Using the motivational factors that influence behaviour (Table 4.1) that were outlined in chapter 2.3, the interview results will be further discussed below. Each part includes a version of the causal loop diagram in which the relevant variables for that section are highlighted.

Table 4.1. Motivational factors that influence behaviour.

Background Factors:	• Awareness of what OER is and the forms it can take • Awareness of institutional policies around IP and OER
Attitude toward behaviour:	• Personal beliefs about open education. • (Perceived) benefits/outcomes of publishing OER
Subjective Norm:	• Is creating/publishing OER common practice?
Perceived behavioural control:	• (Perceived) institutional support • (Perceived) capacity to create and publish OER

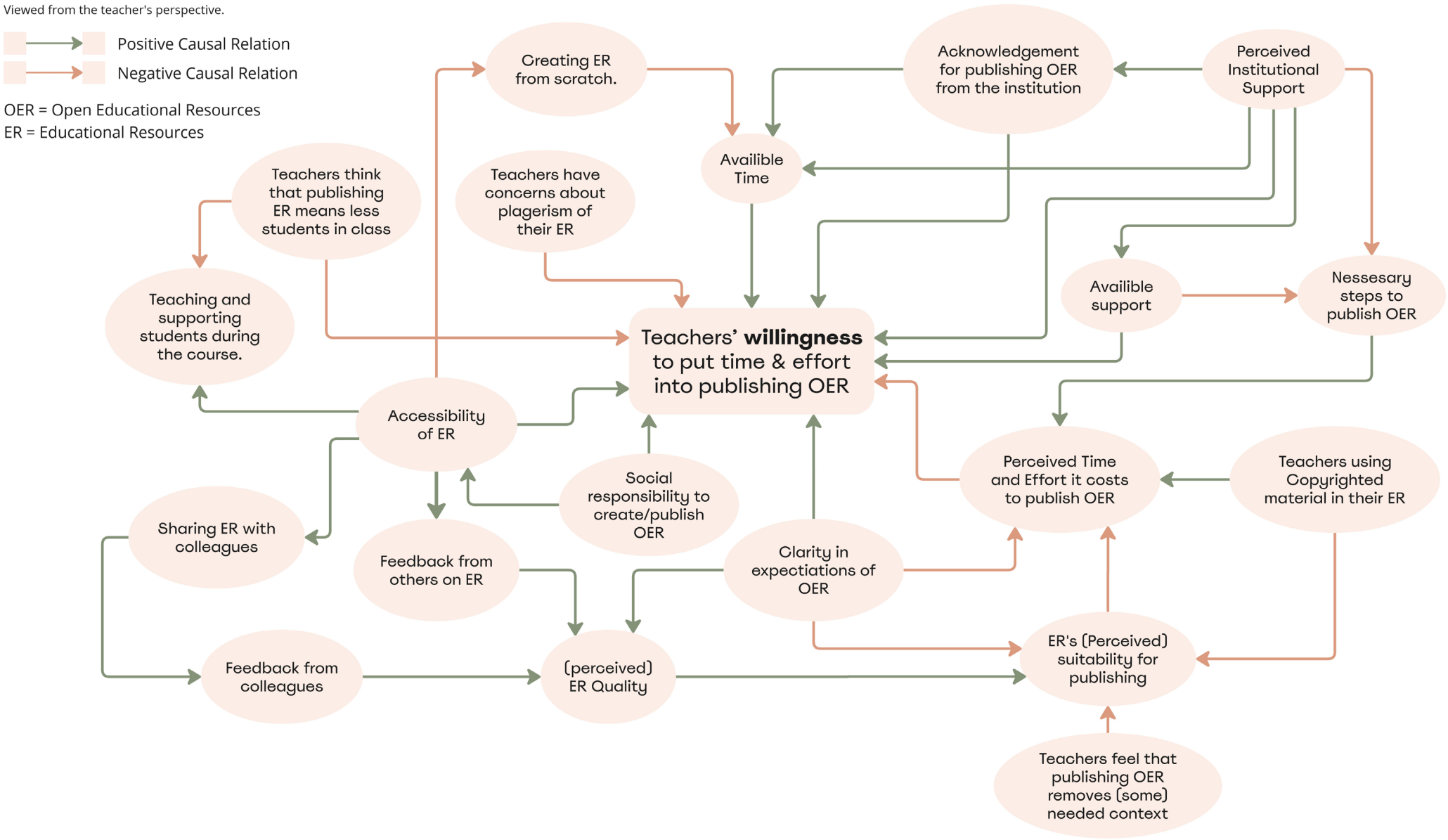

Figure 4.1.1. Causal Loop Diagram.

4.1.1. Background Factors

Awareness of (different kinds of) OER

Most participants were on some level aware of the existence of OER. The familiarity of the participants ranged from not very familiar with OER to some understanding of OER. None of them said they had a good or complete understanding of OER as a general term.

" I can have some guesses, but I'm really not familiar with what exactly [OER] is in detail. I may think that there are sources and there are actually materials that we provide students openly, but I really don't know what the formats are, or what the details about it are."
(Participant 9)

"No, I can't say that I've familiarised myself very much with it."
(Participant 7)

The most well-known example of OER among participants was the Massive Online Open Courses, or MOOCs, which most of the participants had heard from or had some experience with. Some participants also mentioned (MIT) Open courseware as examples of OER. Some participants also mentioned similarities between OER and Open Science.

"When you talk about open education resources that would be also more MOOC and these kinds of things, right?"
(Participant 4)

"I think quite a good canonical example would be the MIT open course ware"
(Participant 2)

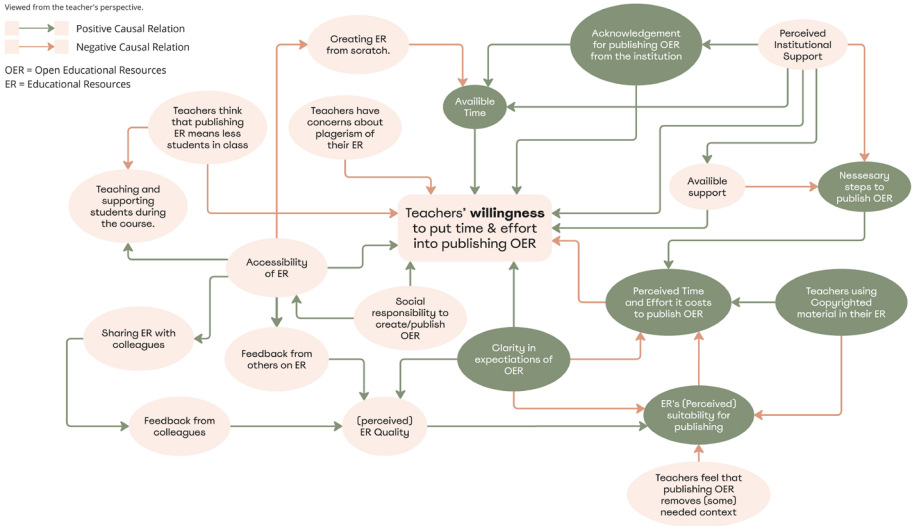

Figure 4.1.2. Background factors in the causal loop diagram.

During the interviews it became clear that most saw OER as an online publication of a complete course, similar to MOOCs and the open courseware. This misconception that OER can only be a complete course led to further misconceptions about the expectations of OER and which educational material might be suitable for publishing as OER. With the misconception that OER has to be a complete course came also the expectation that in order to publish current educational material as OER a lot of time has to be invested in changing the material.

Awareness of Institutional policy

Most participants were unaware of institutional policies around OER, even though the TU Delft has an Open Educational Resources Policy (Will et al., 2021). The TU Delft Policy states that they encourage and support staff to create and publish

educational materials as OER. However, this policy is not currently noticeable for the participants. One participant said that they do not think they get incentives by the institution to publish OER.

"I don't think we're incentivized by our institution to do this. My bosses don't say, you know, 'let's create really good material, because we want to put them out there. and if you do this, it will be good for 'a, b, c, d', you will be compensated in these ways' or anything. So, we're not encouraged to do it. Our students don't care. For me it's just more work."
(Participant 6)

Another participant mentioned that they would put time into publishing OER if they wouldn't have to worry about doing their other work activities.

"Yeah, if they actually stop me with other past activities that I have, and say 'ok, you have one month work on [publishing OER]'. Absolutely, I was so willing to do that. But if they ask for, I don't know, publication, applying for grants, and supervision of the students, teaching the other courses, all these things, unfortunately no, there is no-. Yeah, but if I have one month or something, I can do that."
(participant 9)

One participant mentioned that they didn't even know if they were allowed to publish OER by the institution.

"I suppose the first thing would be to double check with my higher ups that our department policy, you know, that I'd even be allowed to [publish OER]. I wouldn't be surprised if we were, but..."
(Participant 2)

Overall, participants felt there was no time available for the creation and publication of OER. Participants felt they have little time to spare because of their already full workload. All participants mentioned that time was a big concern when considering publishing OER. They mentioned that they already had little time to do the work they needed to in order to teach and prepare their course.

"Honestly, the one that mostly influences [my motivation to publish OER] is one that I haven't even mentioned, which is that it would take me some amount of additional effort to put them out there. I've already got plenty of work to do."
(Participant 2)

"With the current allocation of time, the answer is no. It would have to come from a special time budget to allow that. So the institution has to be committed to that first." (Participant 6)

Furthermore, teachers tend to use copyrighted material in their work since it will only be shared in a closed system. This means that this material cannot be shared as is, which teachers are aware of. Currently there is support available from the TU Delft library to help replace any copyrighted material in the educational materials with Open-source materials that can be published. However, through the interviews it became clear that participants were mostly unaware of this support.

(Q: is your material ready to be published openly?)
"No, probably not quite. And I'll be honest with you. One of the reasons is that I wouldn't be surprised if just here and there in very small ways, I am infringing other people's copyright. And especially in slides, it's very hard to never just use a photo of a whatever that someone technically owns."
(Participant 2)

"I'm using copyrighted material like a madman."
(Participant 3)

Acknowledgement

Some participants mentioned that they would want acknowledgement for publishing OER, especially since they put a lot of effort into creating the material. The participants also said the acknowledgment could create more visibility for them as experts in their field, which might create opportunities, like collaborations.

"Depending on my effort on... If I need a full year to optimise all my work and make it available, then some sort of credit would be nice. And visibility is important, and being acknowledged for it, and then get some new collaborations based on that for instance, it would be great."
(Participant 5)

"Well, there could be reputational gains here, but I don't know if any and... I doubt if somebody's designing a course and they're basing some of their work on open material from somebody else that they'll be like, 'yes, I've designed this course based on this other person's course' we don't do that. [...] So I have very little to gain, if at all."
(Participant 6)

Some participants specifically wanted for the institution to see Education and publishing OER as valuable and for it to help further them in their career steps. In their policy on OER the TU has written: "TU Delft will include the development of OER in its framework for rewarding and recognition" (Will et al., 2021). Through the interviews it became clear that this is not felt by these participants.

"You know sometimes education is getting less important than research. And even there is some pressure, especially for us assistant professors. There is sometimes more push towards doing more research, less education. While some assistant professors are really doing well in education."
(Participant 9)

Although a few participants also mentioned that they did not care about their name being attached to it, at least not for their own recognition. Some mentioned that it was important for their name to stay attached to show a sort of validity, or responsibility of the material.

"So, to me, it's not so important that my name is on. So it can be that it's just developed here at IDE and my name is taken off. I would take that as completely ok. Within the organisation, I think it's nice if people know."
(Participant 7)

"If the name is not there, or it's just anonymous things, then you also don't take that much responsibility. So, in a way that you should also take the responsibility of what you publish, what you actually share."
(Participant 9)

"And I think there it is important, not just because of us and our egos and whatever, but also for others, to whom it's being transferred, to know that yes, it's a valid source and if they want to criticise it or if they want to build on top of it or refute it, then they know where it is"
(Participant 2)

4.1.2. Attitude toward behaviour

Personal Beliefs about OE(R)

Most participants felt that sharing educational resources is a social responsibility as teachers. They agree with the principle of open education and feel there should be no barrier to access this knowledge.

"Then again, anybody should be able to access it. I don't see any value in in in keeping it closed, stuff like that."
(Participant 3)

"The part of me that is in favour says firstly that, knowledge and education and information are all things that are valuable for society and there should not be a barrier to access, a barrier to entry, you know."
(Participant 2)

Most participants also felt that sharing resources is a social responsibility for the TU Delft as an institution. Some also mentioned the possible reputational value for the TU Delft.

"I mean for a university like TU Delft, I can totally see value in doing that. From like a reputation point of view. I mean, I think we definitely are one of the more well known, recognisable as high-quality institutions in the world. Probably nobody really cares about the open courseware from, you know, the university of the ass-end-of-nowhere that nobody's ever heard of. MIT, everyone's heard of MIT, you know, so if you're going to go and try and find some lecture notes on something."
(Participant 2)

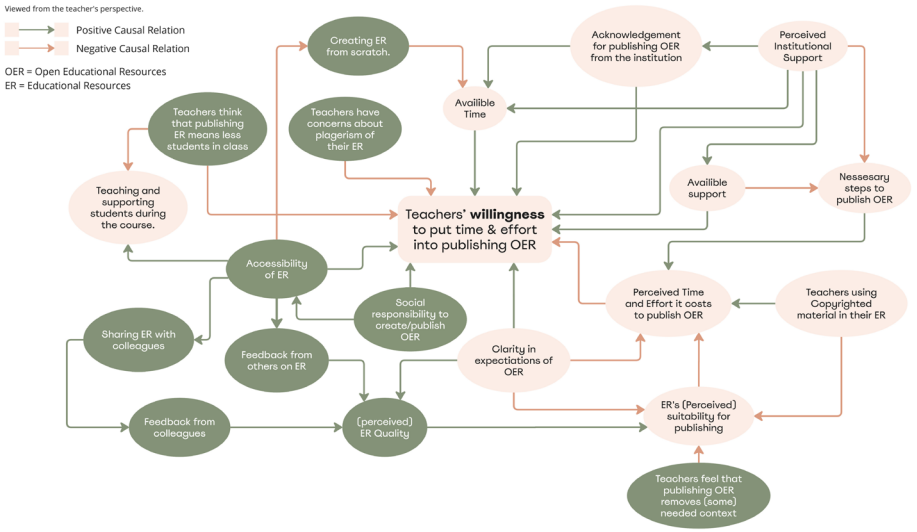

Figure 4.1.3. Attitude toward behaviour in the causal loop diagram.

"[...] and I've always thought of my duty here, both as scientists, researchers and as educators that we have... That we are being paid by the Dutch taxpayers, but also are being paid by international. But if somebody comes in, we need to explain what we're doing in some way. We don't need to tell them everything, but we should be as open as possible about our research, and about our education."
(Participant 3)

Accessibility

Participants felt it is important to share material in a way that is accessible to colleagues, but more importantly accessible to students. This goes for current TU Delft student, past TU Delft students, and outside students looking for additional materials.

"Now, the intention is to [publish educational materials] on YouTube and GitHub and stuff, the motivation behind that is so that any of our students, regardless of what year they in, regardless of what course they're on can use them. "
(Participant 1)

"It's free. And I suppose to a lesser extent. You can do it in your own time. And there's no entry requirements. So, accessibility."
(Participant 2)

"But also, for students, like especially open access, if there's material available for them. Also, for the people who didn't join the course. Or maybe that they did join, but don't have access to Brightspace anymore and still want to have access to the content. When, in a later phase, they still think like 'hey, there was this lecture on can I find it somewhere?' For instance, it could be super useful."
(Participant 5)

(Perceived) desirable outcomes of publishing OER

When asked about the benefits of publishing OER, one of the main benefits (next to accessibility) was getting feedback from colleagues. Freely sharing the material can create the opportunity to start interesting conversations with colleagues about the topic, dive deeper into the material, and discuss differences in views on the topic. Through feedback and discussion participants believed the quality of their educational material would increase, which was also seen as a benefit.

"A platform would be interesting to also meet other teachers and have conversations with them and know what their experiences are and see where you can help each other, yeah."
(Participant 3)

"If let's say, if I'm teaching simple statistical procedures and somebody says 'no, you're wrong' at least I can refer to this material and then maybe they, or I, can look into the limitations together and see how to move forward? "
(Participant 1)

Next to the benefits that come from sharing your own work, many of the participants also see some benefit in having access to their colleagues' work. Some participants mentioned that OER can be a source of inspiration and a starting point for your own educational resources. Additionally, they mentioned that having access to other teachers' materials creates the opportunity to make sure the courses align better in the bachelor program.

"I'm thinking more about a sort of shared vocabulary and stuff like that. So, if more people sort of have the same ways to think about certain topics, then there are more people talking the same way and then [the knowledge] becomes more valuable, it's like that. [...] So, if everybody has the same systems, then it's easier to transfer that knowledge and to make it bigger and expand it."
(Participant 3)

"A lot of people have taught, a lot of people are currently right now around the world teaching exactly the same shit as a lot of other people and you could argue like, why are we all inventing lectures and inventing materials over and over again, reinventing the wheel you know."
(Participant 2)

"Yeah, I often think it's a pity, actually that you don't really see, not only the content, but the methods that other teachers use in their course. Like it's difficult to reach that information, but sometimes you could really get new ideas and yeah, teaching differently or...?"
(Participant 4)

(Perceived) undesirable outcomes of publishing OER

Participants also mentioned some undesirable possible outcomes of sharing OER, like students not showing up to lectures or workshops. One participant also felt that there is a certain value to teaching in a classroom that might disappear if everything becomes public.

"It's a bit like, okay, we created this, putting in our blood, sweat and tears, and then students don't come, but they do it online, which is a shame."
(participant 8)

"Look, if I wanted to make everything I do in the classroom public, I would have recorded it and put it on YouTube. There's a reason why we don't do that all the time. I think that what happens in the classroom to some extent is, I don't want to say sacred, but it has its value as a space that is safe for people to say things and to do things. And I think the moment that everything is public and available, is a moment where that safety disappears, so that's one thing."
(Participant 6)

Some participants also worried about the plagiarism of their work. Some feel very protective of their material since they put a lot of work into it. These participants don't like the idea of someone claiming their hard work as their own.

"I don't teach secrets, I teach things so my students can use them. I would like them to attribute the idea if they're going to use it verbatim. Or they could make it their own by investing intellectual labour in it and adapting it, that's why I teach them. It's not trade secrets. I don't tell them, you know, 'don't use this it's just between us'. That's not the point. But it's different if this appears as is, or in very small changes, in a way that makes money for other people "
(Participant 6)

"I realise that this is completely impossible to actually achieve, but I would be much more ok with the idea of putting all of my learning resources out there. If I knew that the only people were going to use them were individual people who wanted to learn."
(Participant 2)

One participant even had experience with their material being plagiarised by a foreign university.

"We have experienced in the past that, let's say, examples, [specific example of material], that we've made here, or that were part of the course. If those [examples] are available to everyone, people will walk away with them without mentioning us. Several times we have seen our [examples] on [foreign] websites containing the watermark of that [foreign] university."
(Participant 8)

4.1.3. Subjective Norm

Some teachers already publish some of their material online available or say they plan to at some point. This ranges from one participant who has a concrete plan to create videos that will be publicly available, to another participant who expressed the wish to publish openly but didn't know how to do that. During the interviews it became clear that publishing OER is not a widespread practice in the IDE faculty. When asked about their colleagues some teachers mentioned that they knew some colleagues who have published MOOCs, but many did not know any colleagues who published their resources openly available.

"So for the moment my courses are in Brightspace, but I intend to put some of the materials, at least my slides which I have developed, on my own personal website so that it's kind of also broadly accessible to all, of course it will be copyrighted to me and they can reuse it with certain degree."
(Participant 1)

(Q: Do you publish any of your educational material open access?)
"No, just on-, always using Brightspace. Which is not open access."
(Participant 5)

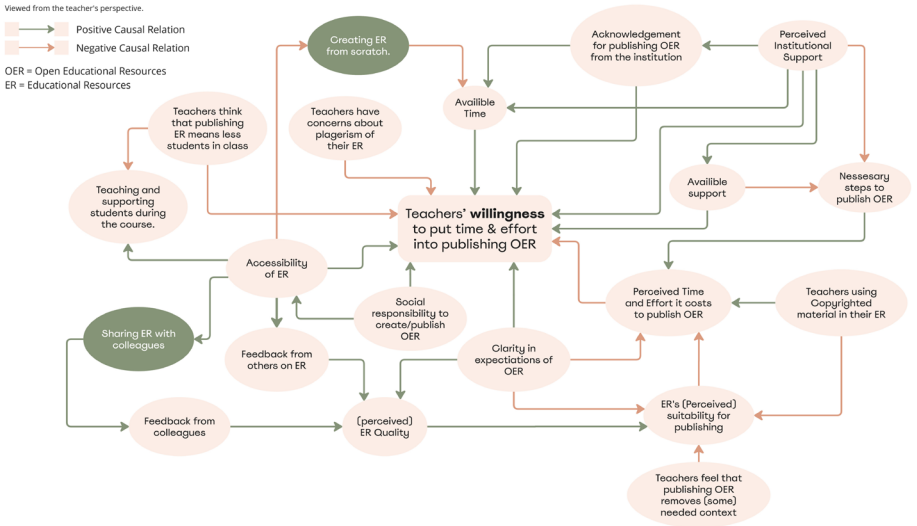

Figure 4.1.4. Subjective Norm in the causal loop diagram.

Some of the participants have used OER in their course, in the form of Open-source images, or tried looking for OER form other institutions (Eindhoven University of Technology and the University of Twente) when constructing their course.

"I looked for [OER] when designing a course for instance. […] And then I looked for similar courses that were taught in Rotterdam or Twente or Eindhoven and how are they doing it? What material are they using? And how can I use that for my own course and give my own spin to it?"
(Participant 5)

"But as I said when I developed this course, I was looking for sources that were already available, also because we have a lot of students. We have limited contact time. And the hours that I have for the course I'm trying to spend with the students."
(Participant 7)

Although creating and sharing OER is not jet a common practice among the participants, sharing educational materials with colleagues is. Although they mainly do this on request since there is currently no way to see another person's material without asking them for it. Most participants also said that they would not mind sharing their resources with students or colleagues from outside the university.

"Well, kind of depends, I have colleagues who ask can we join your bright space to see what you guys are up to? Sure yeah. "
(Participant 6)

"So for instance, I was discussing with a colleague recently from Arizona state and they are willing to develop a similar course as mine and they said 'hey, when will you have a public website or all the content shared with me? Because I'm using it and I want to have something similar or something to inspire me' but it's very much on a one-on-one basis, there is no kind of open search like a google search to do that."
(Participant 1)

"And if it's available online, it's just easier to connect. You can always send emails, but sometimes you just don't know what people are doing. And some course titles you can't really figure out whether it's worth it to many people, to get their materials and understand what they are doing. And there is always this barrier to emailing people"
(Participant 4)

"And I would not mind if other universities, or high schools, would use parts of our workshops if they would like to. But I haven't published anything of that. But I wouldn't mind at least."
(Participant 7)

4.1.4. Perceived behavioural control

(Perceived) institutional support

Most participants were unaware of institutional support for OER. There was a general feel of unclarity on availability of support and the idea that if you wanted to get support you would have to look for it yourself. Some participants had a general idea who they might have to contact for support, while others had no idea if there was support and how to find it.

"I think there is [institutional support], but you have to find it."
(Participant 1)

"I haven't seen support on this specific topic of publishing teaching materials open access. Probably it is there somewhere, maybe from the library, but I'm not familiar with it. […] if I would be interested, I would look at the teaching lab or the library and then go search there somewhere, but I'm not-, I don't know who to call when I'm going to do that."
(Participant 5)

(Q: do you think there is institutional support?)
"I have like no idea. I don't know."
(Participant 7)

Although some participants were sure that there was support, the lack of widespread visible support also shows that it is not currently the norm for teachers to publish their ER as OER.

"Yes. […] for example, I think when there is a MOOC you're very well supported, in creating the videos, creating the materials, even creating the background for the videos. […] At least that's the feeling I have, that if you really want to do something open access, you can knock on many doors."
(Participant 4)

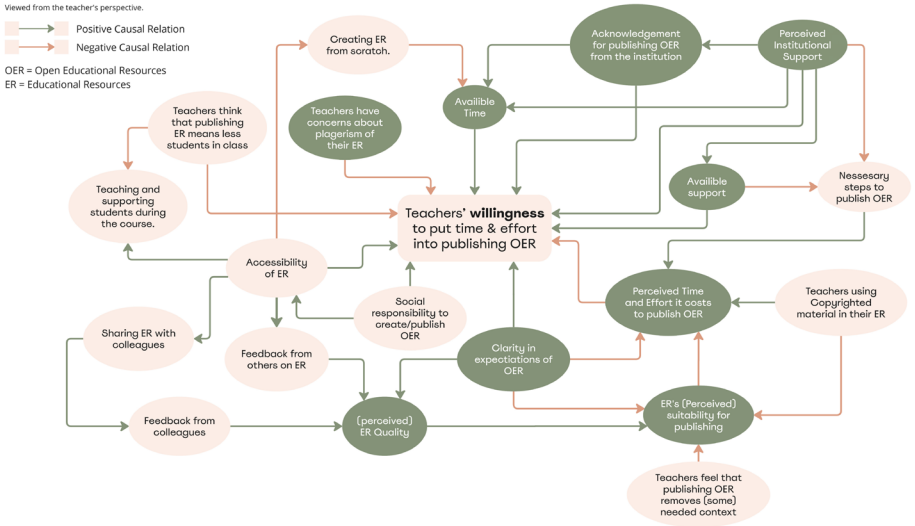

Figure 4.1.5. Perceived behavioural control in the causal loop diagram.

(Perceived) capacity to create and publish OER

When discussing their capacity to publish OER, there was a lot of uncertainty about their educational material among participants. Some of this comes from uncertainty about copyrighted material, while some of it had to do with awareness about the expectations of OER. Like what format the OER should be and how much work that would take to change the materials.

"If it's in a situation like this, then there's probably very little chance that I will [publish OER] myself and put in time that's already precious and scarce to adjust that, and also figuring out myself like, ok, where should I then put it in? What formats? What should I think of? What about safety? What about students in videos? How to handle these kinds of things."
(participant 5)

"I think I still have to really process it and find what materials exactly I want to provide. Still, it needs a lot of effort. Still, it's just there, and there, and there. But maybe a sort of like, I don't know, syllabus. Or a source thing, that you can gather everything in one platform."
(Participant 9)

Some participants also mentioned that they did not see the value of publishing their education material as is. Either because the material is more aimed at educators, or because the material is a collection of other resources.

"I think that the material that I made, like the workshops, are mainly aimed at other educators. More than students. I don't even publish them for the students in the course. So, if you miss a workshop, you don't really get all the steps. Yeah, which I'm doubting, whether I think I should do that also, didactically."
(Participant 7)

"Yeah, I'm not sure if the course manual, I think it's-, at least for my course I use it as a very administrative and informative documents about the course. But it's there's not so much content in there, so I don't think it would be very useful to use it as an educational resource."
(Participant 4)

Some participants were also unsure about the quality of their work, saying they would want a second pair of eyes to catch any mistakes in the material.

"I suppose before I put it out there for the whole world, I would want a second set of eyes to just make sure I haven't made any stupid factual mistakes on any of them."
(Participant 2)
"So, I was trained here as a designer and I'm female, so a lot of us have this perfectionism somewhere. And I have let go. But I do think that I would have another look at my stuff, if I should put it online, open access, for all. Because now I don't really mind if there are minor typos or sentences that are not the best, as long as my teachers just understand."
(Participant 7)

4.2. Critical Nodes

From the interviews it became clear that some factors were very important in the teachers' intention to create and/or publish OER. Using the results of the second part of the interviews, where participants were asked to name the most important factors that motivated them or held them back, three main barriers were identified as well as two main drivers for teachers. These barriers were: (lack of) available time, Perceived time and effort it costs to publish OER, (un)clarity in expectations of what OER are, and the (lack of) perceived Institutional Support. The main drivers of teachers were: sharing resources with colleagues, and teachers' personal belief that creating and publishing OER is a social responsibility for them as well as the institution. These things together form the critical nodes in the causal loop diagram (Figure 4.2.1) and will be the focus of the communication design.

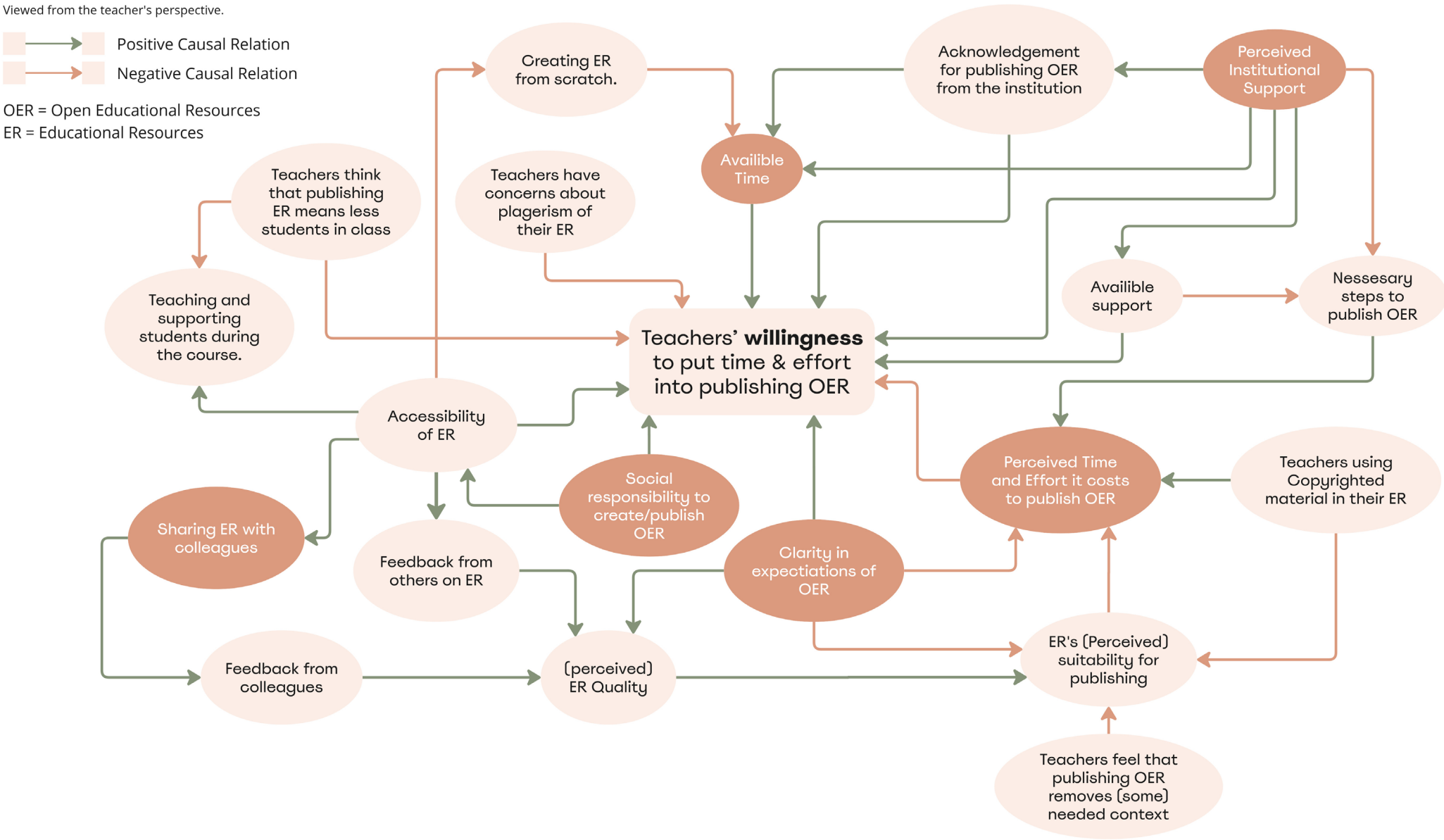

Figure 4.2.1. Critical nodes in the causal loop diagram.

4.3. Discussion of the Results

The results show that teachers see publishing OER as their social responsibility, both as individual people as well as a responsibility for the TU Delft as a public institution. They see accessibility of educational resources as very important for both students and colleagues. Teachers also see the benefit of sharing educational resources with colleagues, saying that feedback on and discussions about the material makes it of higher quality, which is a benefit for everyone. However, teachers have some misconceptions about what it means to publish OER, they associate OER mostly with complete courses like with open courseware and MOOCS (Big OER). However, this is not the kind of OER the TU Delft is asking them to publish. The TU Delft is asking them to publish OER based on their existing educational materials, which they have already developed (little OER). Based on this misconception, teachers assume that publishing OER takes a lot of time and effort. And since teachers already feel like they have too little time to work on their current job, it makes sense that they would be less willing to spend extra time on changing their material to OER.

Additionally, the results show another part of the problem, which is that teachers are unaware of any institutional support that is available for publishing OER, like help with replacing copyrighted material. It is important to acknowledge that, in a way, it makes sense for the TU Delft to have so little visible support currently, since they do not have a platform where OER can be published yet. However, this is still part of the overall problem that needs to be addressed when designing a communication strategy. The lack of visible institutional support gives the teachers the impression that they have to do all of the work on their own. And even if they say institutional support is available, they still feel like they would have to look for it themselves.

Looking back at the reasoned action approach, even without the actual control of there not being a platform to publish OER teacher's current motivational factors don't lead them to the intention of creating/publishing OER (Figure 4.3.1).

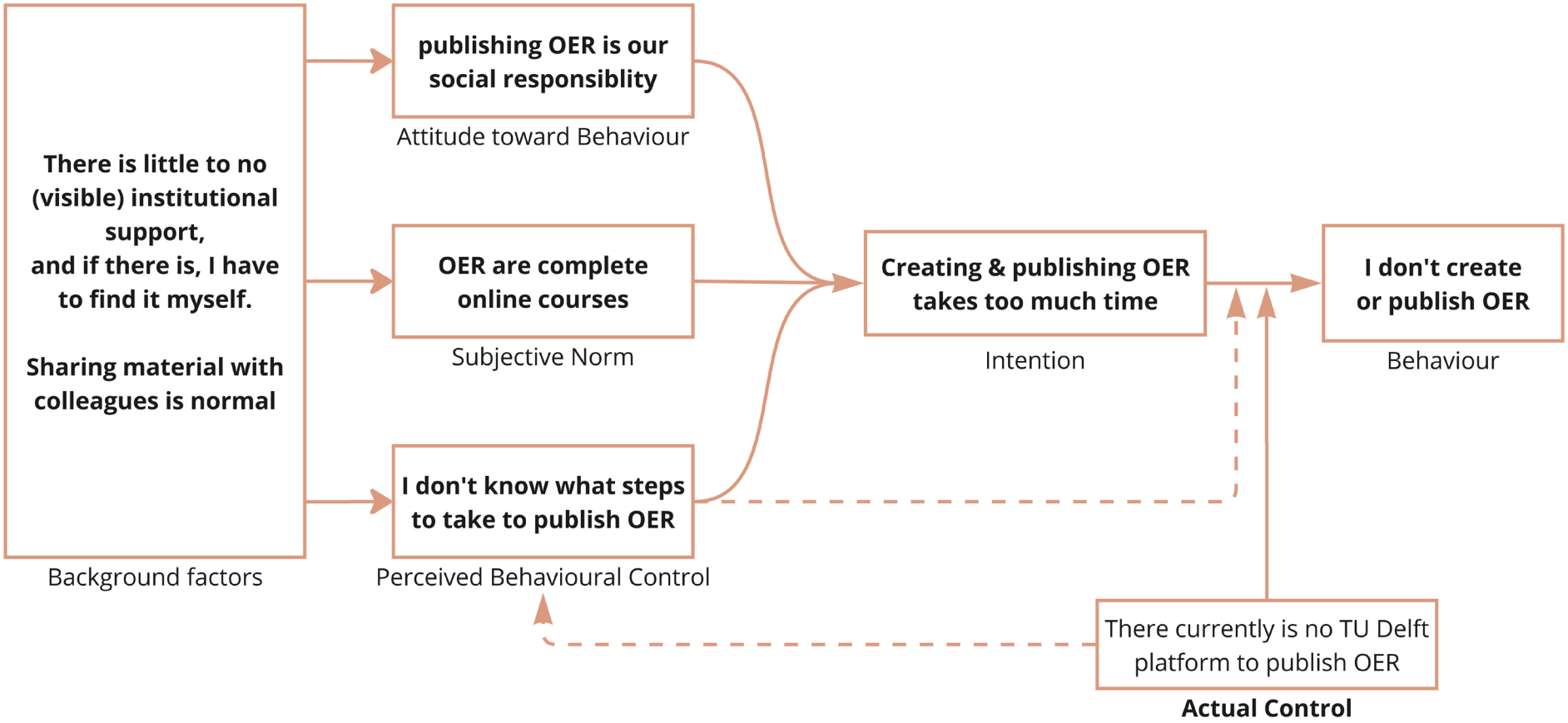

Figure 4.3.1. Reasoned Action Approach based on the interview results.

5. Communication Design

5.1. Design Methodology

The results of the interviews gave a complex view of many elements that influences teachers in their willingness to publish OER which were summarised in a causal loop diagram. The previous chapter identified the critical nodes in the causal loop diagram, which were translated into a design goal to define the scope and focus of the design.

Based on the interview results, I organized a brainstorming session with my thesis supervisors around three questions (translated from Dutch): 'How can you make sure publishing OER is as efficient as possible?', 'How can you create clarity around the what/how of OER?', and 'How can you give course coordinators more confidence in publishing their materials?' (Appendix F). The outcome was used to create an initial idea for a communication strategy surrounding more awareness. This then evolved into a roadmap through discussion with a fellow communication student. The roadmap went through multiple iterations with feedback from fellow design and communication students (Appendix G).

5.2. Final Design

The final design is a roadmap that outlines three phases in which the IDE faculty will support teachers in the publishing of (little) OER (Figure 5.2.1). In the first phase the TU Delft will set-up a platform and create a support team to help teachers. During this phase it will also be important to spread awareness about OER among teachers and other staff. In phase two, IDE teachers will share their educational material in a closed system, available only to other TU Delft staff. During this phase there will be time to make the material copyright free and make it of higher quality after feedback from peers and help from the support team. In the third phase the material is ready to be published as OER on a public TU Delft platform. Although teachers can still make changes to the material and the OER should be considered a living document.

These phases are initial steps to start getting teachers familiar with creating and publishing (little) OER, however once phase 3 is complete, new materials should still be made public in steps through phases (phase 2 & 3). This means that when there will be new teachers or courses added to the system, they still go through this process of being published first in a closed system and later be made openly available. This is to break up the big task of publishing openly as well as to maintain the quality standard and keep room for peer-to-peer feedback.

This roadmap is visualised in a 'praatplaat' (an infographic), a term that I borrowed from Buro BRAND who define the praatplaat as "a 'plaat' (an image) which you can use to 'praat' (talk) about your keymessage." (Buro BRAND, n.d.). Since the roadmap was designed to be used in the context of the IDE faculty, the choice to make a praatplaat and use a visual metaphor were deliberate, since the IDE faculty (and design education in general) is known for being very visual. In the praatplaat the visual of planting an orchard is used as a metaphor for the creation and publication of OER. The creation is compared to the planting and nurturing of young trees. When the OER gets published, everyone can enjoy the results, or fruits, of the labour that went into creating the OER/growing the plants.

Roadmap for Publishing Open Educational Resources

Within the IDE Faculty.

Phase 1

Support Team

Created by de TU Delft

They spread awareness about OER among teachers and other staff

TU Delft

TU Delft sets up the platform needed to publish OER

Phase 2a

Sharing the Material

The educational materials are first shared in a closed system

Phase 2b

Quality Model & Copyright

The support team provides a quality model

copyrighted material is replaced with open-source material

Teachers

Teachers arrive with their existing educational materials

Peer-to-Peer Feedback

Other teachers in the closed system give feedback

Which improves the quality of the educational material

Continued Improvement

The OER should be continually improved

Phase 3

Discussion

Publishing OER creates the opportunity for discussion with colleagues from outside the university.

Open Educational Resources

After improvement in phase 2 the material will be published as OER and be available for everyone.

Quality Control

The support team has the final responsibility for the quality control of the OER

Figure 5.2.1. Visual Roadmap for publishing OER within the IDE Faculty.

5.2.1. Phase 1

Phase 1 focuses on the (perceived) institutional support as well as spreading awareness about OER and creating more clearity in the expectations from teachers. This will influence the perceived time and effort teachers feel they need to invest to publish (little) OER.

In phase 1 most of the work is on the IDE faculty, and the TU Delft library who all have an important role to play in the adoption of OER practices. Their role is to create the baseline for the teachers to work on. Looking back at the OER adoption pyramid, the IDE faculty has to make sure there is enough awareness of OER and that teacher have the capacity to create/upload OER, since these things need to be present before the personal volition or motivation starts to play a bigger role in the adoption of OER.

OER Awareness

During phase 1 teachers need to be made more aware about OER and what steps are needed to publish their own educational material as little OER. Spreading awareness and creating more clarity in the expectations around publishing OER will decrease the perceived amount of time and effort teachers need to spend to publish OER, which will in turn increase the teachers' willingness to put time and effort into publishing OER.

Spreading awareness can be done via a multimedia approach of informational emails, posters, planned workshops and events, and information on the website. To help spread awareness the faculty should get in contact first with teachers who have already created MOOCs or open courseware for the TU Delft and get them involved. The TU Delft Library can help with this as well by providing courses and training for teachers about OER. Not just Teachers need to be made aware about OER, but program coordinators and other education staff should be educated as well on the possibilities of publishing OER and the different ways to find and get help with that. This is so they can properly support their teachers if they have questions.

Capacity to create and publish OER

To make sure teachers have the capacity op create/ publish OER, the IDE faculty should appoint an OER support team who will help teachers with the process of publishing their educational materials as OER. Creating the support team will improve the perceived institutional support. The support team will also decrease the number of necessary steps that teachers need to take to publish OER, which will also decrease the perceived time and effort it costs to publish OER. This will result in teachers being more willing to put in time and effort towards publishing OER.

This support team should be made up of IDE faculty staff who are currently working with OER or blended learning, the open education team from the TU Delft library, and possible additional people specifically hired to support teachers in this process. The support team will be the direct communication to teachers, and they need to be knowledgeable about the institutional policies around OER and copyright. They should also have a basic understanding of design education for better communication with teachers about the content of the material. This support team should also create guidelines for the quality of the OER and provide examples of different kinds of OER. This will also create more clarity for the expectations of OER.

5.2.2. Phase 2

During phase 2 the IDE faculty should still continue to evaluate and adapt the OER platform where necessary. However, the most important stakeholders during this phase are the support team and the teachers. If there is enough awareness among the teachers and they feel supported in their capacity to create and publish OER, their personal motivation will come into play. Since teachers feel strongly that accessibility is important, and they feel that they have a social responsibility to create/publish OER they will be likely to come to the support team with their educational materials, ready to change and publish them.

Since teachers do not have a lot of time available for creating and publishing OER, it is important to make this more manageable. To do this the educational material will first be shared in a closed system where it can only be accessed by other teachers from the TU Delft. This is a small change from sharing materials educational resources with colleagues on request, which is already common practice within the faculty. When the materials are first shared in a closed system, they don't have to be perfect immediately. This takes away some of the uncertainty teachers feel about the quality and suitability of their educational materials. During phase 2 teachers have enough time and opportunity to change the materials before the will be published openly.

In this phase the support team should provide a quality model for OER to teachers, which would consist of clear guidelines and expectations about OER. This could be examples of OER, checklist, templates, etc. This quality model is to ensure the OER will be of a set standard. The support team will be responsible for making sure this standard is met and will help teachers improve their material accordingly. During this process any copyrighted material will also be replaced by open-source material.

Another way in which the material will be improved during this phase is by peer review from colleagues. Discussion and feedback about the educational material create the opportunity to improve the quality of the material. The peer reviews and improvements to the material also provide the teachers with a further sense of confidence in their material. This confidence helps for the next phase where the material will be published as an OER.

5.2.3. Phase 3

After the material is sufficiently adapted and improved to comply with copyright laws and adheres to the quality standard set by the support team, it is published as an Open Educational Resource. Once it is published as OER, it is available to a broader audience which gives additional opportunities for discussions about the material and continued improvement of the material. OER are living documents and should be evaluated regularly for quality and to keep them up to date. The quality control will be the responsibility of the support team, while the teachers themselves are responsible for keeping the material up to date.

6. Conclusion

This research aimed to find how a communication tool could be used to help increase the creation and/or publishing of (little) OER at the Industrial Design Engineering faculty, answering the main research question.

MRQ: How can a communication tool be used to help increase the creation and/or publishing of (little) OER at the Industrial Design Engineering faculty?

Motivational factors according to literature

RQ1: What are factors that influence the motivation of teachers to create and/or publish OER according to literature?

Literature showed multiple factors that are important in influencing the motivation of teachers to create or publish OER. Based on the combined theoretical framework and my personal experience with the IDE faculty, the following motivational factors were emphasised: Background factors, attitude toward behaviour, subjective norm, perceived behavioural control.

Barriers and drivers for IDE teachers

RQ2: Which drivers and barriers influence the intention of Industrial Design Engineering teachers to create and/or publish little OER?

From the interviews it became apparent that there are many different factors that influence the willingness of teachers to create or publish little OER. Some of these factors could be both a driver and barrier depending on the situation. Based on the interviews some critical nodes were identified which described the most important barriers and drivers for teachers at IDE. The most important barriers that were identified were: (lack of) available time, perceived time and effort it costs to publish OER, (un)clarity in expectations of what OER are, and the (lack of) perceived Institutional Support. The most important drivers were: sharing educational resources with colleagues and the social responsibility to create and publish OER.

Development of a communication strategy

RQ3: How can the identified drivers and barriers be implemented in a communication tool that increases the creation and/or publishing of (little) OER at the Industrial Design Engineering faculty?

Based on the outcome of the interviews a design goal was formulated which focuses on lowering the barrier for teachers to publish little OER and making the institutional policies and institutional support more visible. This design goal was used during initial brainstorming sessions with the goal of designing an appropriate communication tool. Ultimately, I decided that the communication tool would be a roadmap to guide the IDE faculty and teachers through the phases of publishing OER.

A Communication Tool to increase OER

MRQ: How can a communication tool be used to help increase the creation and/or publishing of (little) OER at the Industrial Design Engineering faculty?

The proposed roadmap outlines the different phases through which the IDE faculty can support their teachers in the creation and publishing of OER. By publishing initially in a closed system, the barrier to publishing OER is lower, since teachers already share their material with others on request. With a lower barrier, teachers are more willing to publish little OER, which increases the amount of OER published. Additionally, the role of the IDE faculty is also described in the roadmap. The IDE faculty should create a support team which is responsible for spreading awareness about OER and helping teachers create and publish OER. This is a way to make the institutional policies and institutional support more visible to teachers.

7. Discussion and Recommendations

7.1. Validation of the design

The roadmap can currently not be validated or tested in the designed circumstances, since there is not yet a platform for OER from the TU Delft. When the TU Delft starts developing the OER platform the roadmap could be re-evaluated to see its relevance at that time. This should be done in collaboration with the TU library, the people developing the platform, and teachers who are already involved with OER on different levels. I recommend validating the design with different focus groups consisting of teachers from both the bachelor and the master program. The purpose of making the roadmap a 'praatplaat' is also for it to be discussed in such a setting with a focusgroup and to make changes where necessary.

7.2. Different viewpoints within the faculty

In order to apply this roadmap, the IDE faculty should look into any differences between viewpoints from bachelor teachers and master teachers as well as possible differences between professors, associated professors, assistant professors, and lecturers. The participant group included mainly course coordinators from the bachelor program (although some of them also taught master courses or were coordinators for master courses). The opinion on OER practices from teachers for master courses might also be different since the material they teach is often more specialized in nature than in the bachelor courses. Unfortunately, the participant group did not include any of the professors or associated professors, due to lack of availability or response. Therefore, it is unclear if professors or associate professors have a different view on the OER practices or things like available time or institutional support.

7.3. Inclusion of directors and managers

In future development of the roadmap and the communication strategy, there should be additional focus on the organisational level. The TU Delft has already created a vision for OER, but this still needs to be adopted by the IDE faculty. The IDE management team, support staff, and mangers should also get on board with the development of the OER platform and creating an environment where OER is common practice. This should be more incorporated into the roadmap and communication strategy as well. Additional research should be done to find the best way to provide support staff and managers with the right tools to help facilitate teachers in creating and publishing OER.

7.4. Generalization of the results

Since the final roadmap design is created based on interviews with the staff from the Industrial Design Engineering Faculty, the interview results and subsequent design is not applicable for other faculties with other types of educational materials. The IDE faculty uses mostly educational material created by teachers. It is less common that the used educational materials are published books. The educational material consists mostly of PowerPoint slides, video's, worksheets, and (group) assignments throughout the courses. IDE mostly has project-based courses, which differs from the practices at other TU Delft faculties. Most other faculties have separate project courses and 'learning' courses, which might change the way they see sharing their material as OER. Additionally, different faculties probably have different focus points around publishing OER. Faculty 1 might want to publish OER to supply additional material to students, while faculty 2 might be motivated to publish OER to have their teachers write educational books they want to publish.

7.5. Recommendations for an OER platform

Even though the focus of this research was not on the creation of an OER platform, the possibilities for an OER platform were still discussed during the different stages. Based on the insights gained during the research, I do have some recommendations for a future OER platform for the TU Delft.

Recognition

The interview results showed that the participants wanted to be recognised for their efforts. To incorporate this, the OER platform should include a system that makes it visible when other people use your material (even if they only use it as inspiration). Some examples where this principle is also applied are: Thingiverse where you can 'remix' existing 3D models into your own, Pinterest where you can make collections of other people's uploads, and Flickr where you can 'fave' or create galleries with other people's photos.

Easy interaction

Interaction with others, both students and colleagues, is a driver for teachers to publish their material. Participants mentioned that they believed the educational material's quality could increase through discussion with others. Therefore, the platform should include a system to make interaction between the publisher and the consumer of the material easy. For example, a way to leave comments and have interaction where both parties can learn more.

Usability

Lastly, the educational resources should be tagged based on the subjects that are discussed. This will make a platform more usable since things are easier to find. This also increases the accessibility of the materials, which is something teachers found important.

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Appendix A. Literature Review

First Round of Literature

Date:	may 2023 - august 2023
Source	Michiel de Jong and Robert Schuwer's Blog/website (M. de Jong, personal communication, May 24, 2023; https://www.robertschuwer.nl/)
Documents found	7
Records screened:	7
Records excluded:	0
Reports retrieved:	7

nr.	Article	Included in the final report?
1	Opening Up Education Inamorato dos Santos, A., Punie, Y., & Castaño-Muñoz, J. (2016). Opening up Education: A Support Framework for Higher Education Institutions. JRC Science for Policy Report, EUR 27938 EN; doi:10.2791/293408 https://op.europa.eu/en/publication-detail/-/publication/c52b6cab-a82c-4e75-8420-d2431196d11d/language-en	Included
2	Open Pedagogy https://communities.surf.nl/open-education/artikel/open-pedagogy-aanjager-voor-betekenisvol-leren	Excluded > Focus is on students and their involvement with OER
3	Do open educational resources improve student learning? Implications of the access hypothesis https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0212508	Excluded > focuses on earlier studies of student's benefits from OER and concludes that these studies provide not much insight.
4	An OER framework, heuristic and lens: Tools for understanding lecturers' adoption of OER Cox, G.J., & Trotter, H. (2017). An OER framework, heuristic and lens: Tools for understanding lecturers' adoption of OER. Open Praxis, 9(2), 151–171. https://doi.org/10.5944/openpraxis.9.2.571	Included
5	Innovation Opportunities for Academic Libraries toSupport Teaching Through Open Education: A CaseStudy at TU Delft, The Netherlands	Included

nr.	Article	Included in the final report?
6	Regie op leermaterialen https://www.versnellingsplan.nl/Kennisbank/verklaring-nationale-aanpak-digitale-en-open-leermaterialen/	Included
7	OPEN (HET) ONDERWIJS 5 components of open education: (Mulder & Janssen, 2013) in hun Five Components of Open Education (5COE) model Mulder, F. & Janssen. B. (2013). Open (het) onderwijs. In R. Jacobi, H. Jelgerhuis & N. van der Woert (Eds.), Trendrapport Open Educational Resources 2013 (pp. 38-43). SURF. https://robertschuwer.nl/download/mulder-janssen-5coe.pdf	Excluded > not really specify and doesn't fit wit my research subject.

First Round of Structured Literature Search

Date:	15-8-2023
Source	Scopus.com
Keywords	Open AND Educational AND Resources
Years	2013-2023
Language	Limited to English
Documents found	1,594 documents found, sort by new
Records screened:	40
Records excluded:	31 (Personally filtered on awareness, adoption, academic library involvement, motivation)
Reports retrieved:	9

nr.	Article	Included in the final report?
1	The Affordability Solution: a Systematic Review of Open Educational Resources https://link.springer.com/article/10.1007/s10648-023-09793-7	Included
2	A STUDY ON AWARENESS AND USAGE OF ICT AND OPEN EDUCATIONAL RESOURCES (OERS) AMONG COLLEGE STUDENTS IN RURAL PARTS OF INDIA https://www.researchgate.net/publication/372722899_A_STUDY_ON_AWARENESS_AND_USAGE_OF_ICT_AND_OPEN_EDUCATIONAL_RESOURCES_OERS_AMONG_COLLEGE_STUDENTS_IN_RURAL_PARTS_OF_INDIA	Excluded > focuses on Students and not faculty/teaching staff
3	The engagement of academic libraries in open science: A systematic review https://www.sciencedirect.com/science/article/pii/S0099133323000502?pes=vor	Excluded > mainly a literature review with no additional insights for me
4	What's in it for me? A mixed-methods study on teachers' value creation in an inter-institutional community on open educational resources in higher education https://link.springer.com/article/10.1007/s10639-022-11424-7	Included
5	3E Model: How to Use OERs to Enhance Teaching/ Learning https://ieeexplore.ieee.org/ielx7/2/10098125/10098195.pdf?tag=1	Excluded for time constraints
6	Faculty Motivation for OER Textbook Adoption and Future Use https://link.springer.com/article/10.1007/s10755-022-09625-6	Excluded for time constraints

nr.	Article	Included in the final report?
7	The Process of Developing a Digital Repository for Online Teaching Using Design-Based Research https://link.springer.com/article/10.1007/s11528-022-00795-w	Excluded for time constraints
8	The importance of copyright and shared norms for credit in Open Educational Resources https://www.frontiersin.org/articles/10.3389/feduc.2022.1069388/full	Excluded for time constraints
9	Transformative course design practices to develop inclusive online world language teacher education environments from a critical digital pedagogy perspective https://www.sciencedirect.com/science/article/pii/B9780323955003000079?pes=vor	Excluded for time constraints

Second Round of Structured Literature Search

Date:	23/10/2023
Source	scopus
Keywords	open AND educational AND resources AND motivation
Years	-
Language	Limited to English
Documents found	246
Records screened:	100
Records excluded:	91
Reports retrieved:	9

nr.	Article	Included in the final report?
1	The political economy of digital educational content and the transformation of learning and teaching in global higher education https://link.springer.com/chapter/10.1007/978-981-19-9980-2_8	Excluded for time constraints
2	Faculty Motivation for OER Textbook Adoption and Future Use https://link.springer.com/article/10.1007/s10755-022-09625-6	Excluded for time constraints
3	Motivations and barriers in the adoption of OERs: The role of subject librarians https://www.sciencedirect.com/science/article/pii/S0099133322000581?pes=vor	Included
4	Faculty Perceptions of an OER Stipend Program https://www.tandfonline.com/doi/epdf/10.1080/13614533.2021.2000452?src=getftr	Excluded for time constraints
5	Understanding participants motivational factors for the design of a teacher community platform https://ieeexplore.ieee.org/document/9499772	Excluded for time constraints
6	Teachers' beliefs about the role of digital educational resources in educational practice: a qualitative study https://www.mdpi.com/2227-7102/11/5/239	Excluded for time constraints
7	Business models of sustainable Open Educational Resources (OER) https://www.igi-global.com/gateway/chapter/274384	Excluded for time constraints

nr.	Article	Included in the final report?
8	Supporting Teachers' Motivation and Preparedness for Online Education: A Case Study – CRED Large-Scale Programme https://www.scopus.com/record/display.uri?eid=2-s2.0-85168601967&origin=resultslist&sort=plf-f&src=s&sid=d8fd2fdb58aae01a1f3a8c6a7e74ec1d&sot=b&sdt=b&cluster=scolang%2C%22English%22%2Ct&s=TITLE-ABS-KEY%28Open+AND+Educational+AND+Resources+motivation%29&sl=40&sessionSearchId=d8fd2fdb58aae01a1f3a8c6a7e74ec1d	Excluded > can't get easy access to full paper
9	Faculty Perceptions and Usage of OER at Oregon Community Colleges https://www.tandfonline.com/doi/epdf/10.1080/10668926.2020.1838967?src=getftr	Excluded for time constraints

Appendix B. Interview protocol

The interviews were only conducted with participants who consented to be recorded with at least audio, so all the interviews could be transcribed and coded in a similar fashion.

All interviews were conducted one-on-one with just the participant and the researcher present. Interviews were either conducted in person, or online on Zoom or Teams. All interviews were recorded with audio and the online interviews were also recorded with video. The recordings were saved locally to the researcher's personal device and the informed consent forms were digitized and were saved locally to the researcher's personal device as well. The interviews took between 30-60 minutes.

Before the interview the following step were taken:

1. First, the informed consent form (see Appendix D) was sent to the participant via email so the participant could read it before the interview. Attached to the consent form was an information sheet with more information about the research and the interview.
2. Before the start of the interview, participants were asked if they had any questions about the information sheet or the informed consent form. Any questions were answered to the best of the researcher's ability.
3. If the participants had no further questions they were asked to sign the informed consent form. Then the recording started, and the interview began.

During the interview the following steps were taken:

1. The participants were asked the prepared questions (see Appendix C).
2. When needed follow up questions were asked.
3. After all questions were asked, the participants were asked to rank the different factors involved in their willingness and ability. "Which of these factors is most important to you in relation to the idea of creating/publishing OER"? (see Figure B1)
4. Some factors were already written down on paper, but left intentionally vague so participants could interpret them and add to them when they wanted. The participants were also given empty cards to write down their own ideas.
5. After the interview a picture was taken of the cards with the ranking for each factor.

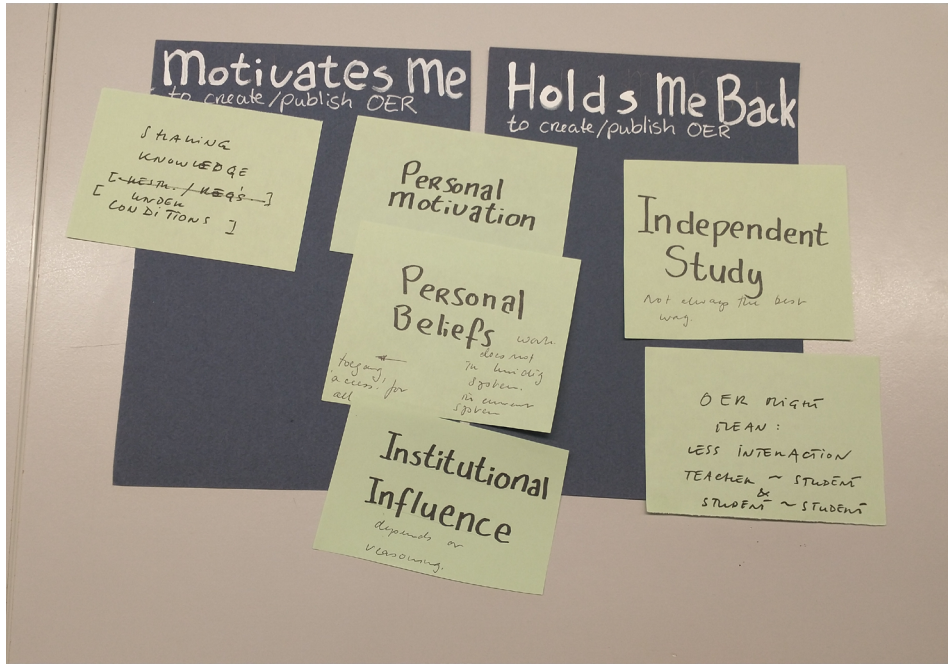

Figure B1. The set up for the exercise in the second part ot the interview.

After the interview, the following steps were followed for the recordings:

1. The recordings were saved locally to the researcher's personal device.
2. The recordings were transcribed and anonymised and uploaded to a drive shared with the research team, as well as saved to the researcher's personal device.
3. The recordings were deleted from the researcher's personal device after transcription.
4. When requested transcripts were sent to participants for approval of anonymity.

After the interview, the following steps were followed for results of the second part of the interview:

1. The outcome of the second part of the interview was photographed.
2. The photos were digitally recreated for readability and extra anonymity.
3. Quotes from the audio recordings were added to the digital images for clarity and additional nuances.

Appendix C. Interview Questions

Before the Interview:

1. How many students follow your course at a time?
2. Are they working/studying individually? or in groups?
3. Is there an exam, a project report, or both?
4. Are there lectures in the course?
5. Are there workshops in the course?
6. What type of education material do you use in the course (for example: student manual, published books, online books, (youtube) videos, lecture slides, rubric, work book, etc)?
7. Which, if any, of these materials are openly available for everyone (for example on youtube, or a (personal) website)?

During the Interview:

0. Can you give me a short description of the course (or a course) you are the coordinator for?
1. How familiar were you with Open education resources before this interview?

OER is: Open Educational Resources (OER) are learning, teaching and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open licence, that permit no-cost access, re-use, re-purpose, adaptation and redistribution by others (UNESCO)

2. How important do you find Open education?
3. Do you publish any of your education material open access? (for example on a personal website or youtube channel?) (do you have experience…)
   a. *Why or Why not?*
4. Do you publish any of your education material accessible to the faculty only (not just brightspace)? (collegerama bijv.)
   a. *If yes, are you creating your education material with the intent of publishing them openly*
5. Do you know colleagues who publish their material openly?
   a. *Why do or don't they publish their material openly*
   b. *Is this a standard practice with your colleagues?*
   c. *Does your colleagues publishing make the material more available to you? How do you feel about that?*
6. What do you think are benefits from 'classic' classroom education that you don't get from publishing OER?
7. What do you think are benefits from publishing OER that you don't get from 'classic' classroom education?
8. The benefits you mentioned (for classic classroom education that are missing from publishing OER), would they influence your motivation for creating and publishing OER?
9. Is your material ready for open publishing right now? (Do you think it takes extra labour to change your material?) (Maybe: How many Hours of extra work would it take to change your material to be open? and would this be a one time thing or would it be a continued effort?)
10. Are you willing to put in extra time to convert your material into OER? (assuming you would be compensated for your time and effort)
11. Do you find it important to publish your materials open access?
12. Is there institutional support for OER?
    a. *Are you aware of the stance towards OER from the institution?*
    b. *Aware Of things happening surrounding OER within the faculty?*

13. Are there hours available for this?
14. Do you feel pressure to publish OER?
15. Do you feel like it's your own decision to get involved with OER?
16. What kind of support would you want to receive from faculty, colleagues, or others with the creation and publishing of OER?
17. If someone would create/publish it for you what kind of skills would they need to have?
18. How important is Quality control
19. How do you think current students from the TUDelft might benefit from you publishing OER?
20. How do you think old-studenten from the TUDelft might benefit from you publishing OER?
21. How do you think students from other universities might benefit from you publishing OER?
22. Who else do you think might benefit (and how)?
23. Who do you think would use your online education resource the most?
24. Have you gotten feedback from students about what kind of material they (would) like to have access to?
25. Considering these groups of people who might benefit, how does that impact your motivation for creating OER?
26. How comfortable are you with letting (external) students read/use your material by themselves?
27. How permanent do you want your online resources to be? (during the course, multiple years, forever)
28. How much control would you want after publishing your material? (fixing mistakes, making changes etc.)
29. What do you see as the added value to creating/publishing OER?
30. How do you think using/accessing OER would benefit you?
31. How do you think publishing OER would benefit you?
32. (How) do you think it would benefit your colleagues?
33. What do you think is the biggest benefit of publishing your education material open access?
34. Final question, from all the aspects we talked about, what are the top 5 aspects that would influence you the most when deciding whether or not you would create/publish OER?
35. Acknowledgement? How important is it that your name stays attached to your educational Material? (or that the TUDelft's name stays attached?

Appendix D. Informed consent form

Information Sheet

20/11/2023

This interview is part of a thesis research on the creation and publication of Open Education Resources within the IDE faculty conducted by Alies Scharroo, master student at the TU Delft. The interview will take approximately 45-60 min.

The questions will be about the participant's personal experience (or lack of experience) with Open Education Resources (OER). The purpose is to gain insight into the possible drivers and barriers for adapting OER in their educational practices. Participants may choose not to respond to any of the questions asked and can decide at any moment to withdraw from the study.

The interview will be recorded after consent of the participant (either video and audio, or just audio). The recordings will only be seen/listened to by the researcher (Alies Scharroo) and the thesis supervisors and will not be shared. The recordings will be stored at a secure TUD data storage platform until they are transcribed. The recording will be transcribed into anonymized transcripts (personal data such as name, age, etc. will be removed; Job titles such as 'Course Coordinator', 'Lecturer', 'Associate Professor', etc will be included after consent of the participant), to make sure that transcripts and results cannot lead back to personal interview data. The anonymized transcripts can be shared with the research team. After the transcription, the recordings will be deleted. After consent from the participant, quotes obtained from the transcripts can be used in the final thesis. The participant may request access to the notes and transcripts from their interview and ask for the rectification or erasure of personal data.

Results of this study will be published in the thesis of Alies Scharroo, which will be made available online, in the TU Delft repository. The results can also be used by the supervisors in publications (conference talk, posters or scientific articles) as well.

Any questions, remarks, or request for access to recordings, notes or transcripts can be sent to Alies Scharroo by emailing a.scharroo@student.tudelft.nl

Or to the thesis supervisor Caroline Wehrmann by sending an email to C.Wehrmann@tudelft.nl.

Consent form

Participant nr:

Please tick the appropriate boxes	Yes	No
I have read and understood the study information sheet dated 20/11/2023, or it has been read to me. I have been able to ask questions about the study and my questions have been answered to my satisfaction.	☐	☐
I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and can withdraw from the study at any time, without giving a reason.	☐	☐
I am aware that any audio/video-recordings will not be made available to anyone but the researcher, Alies Scharroo and the thesis supervisors.	☐	☐
I understand that these recordings will be transcribed into an anonymised transcript that will be shared with the research team. After which the recordings will be deleted.	☐	☐
I understand that I can request access to the notes or transcripts from my interview and ask for the rectification or erasure of personal data.	☐	☐

	Yes	No
I consent to being recorded with Audio	☐	☐
I consent to being recorded with Video	☐	☐
I consent to my responses, views or other input to be quoted anonymously in research outputs	☐	☐
I consent to my job title being linked to my responses	☐	☐

Signatures

.....	.....	.....
Name of participant	*Signature*	*Date*

I, as researcher, have accurately read out the information sheet to the potential participant and, to the best of my ability, ensured that the participant understands to what they are freely consenting.

Alies Scharroo	.....	.....
Researcher name	*Signature*	*Date*

Study contact details for further information: a.scharroo@student.tudelft.nl

Appendix E. Digitization of the interview exercise.

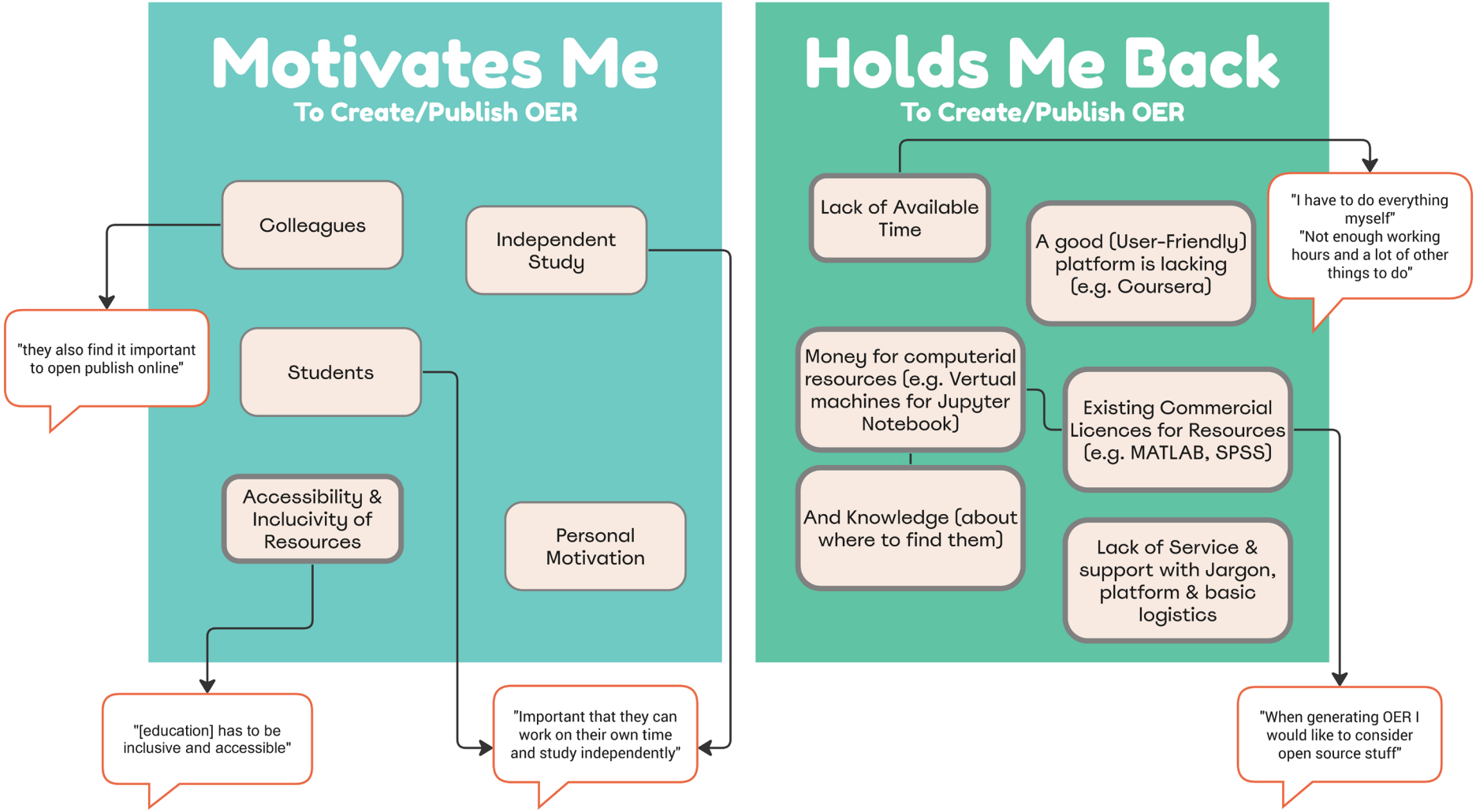

Figure E1. Participant 1

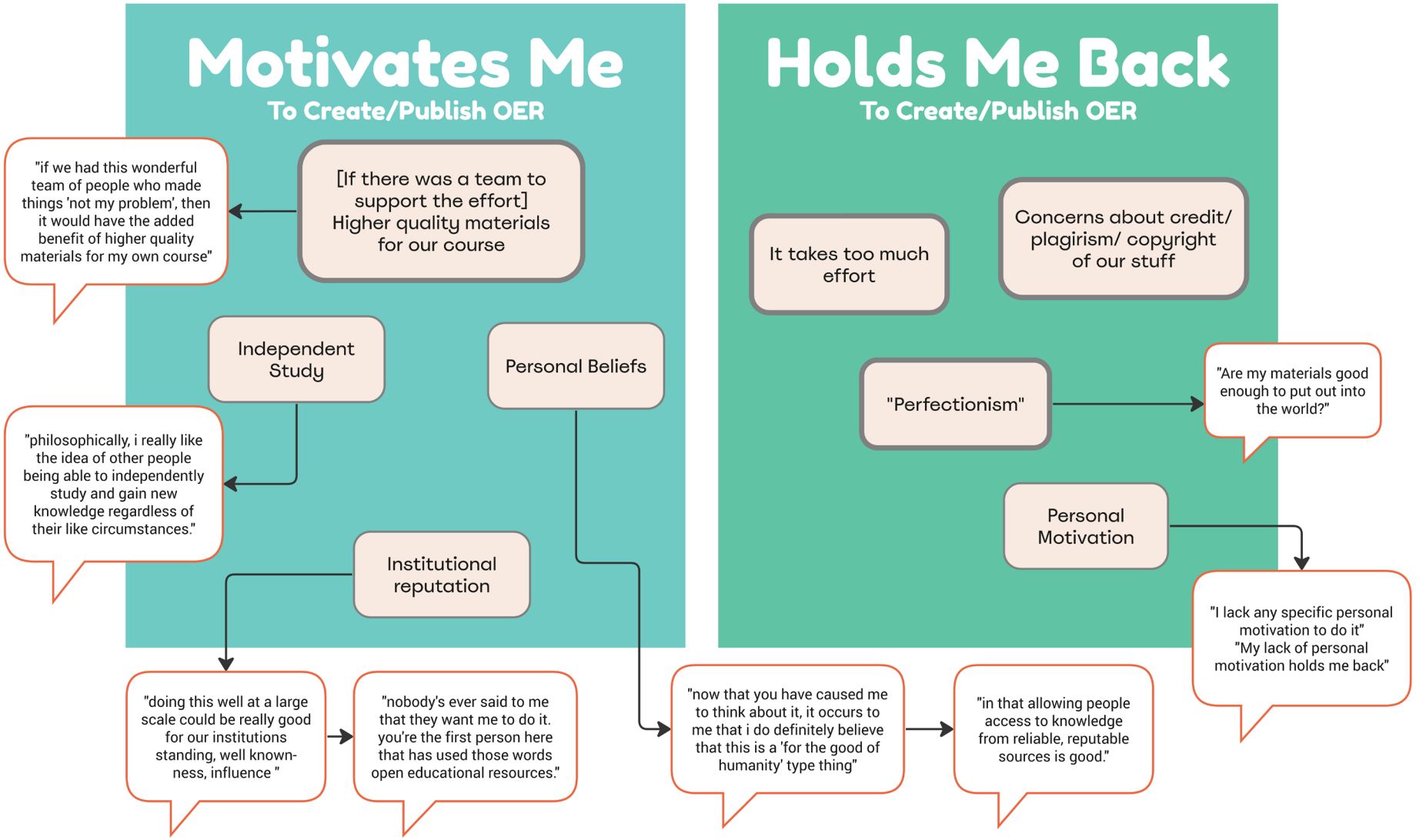

Figure E2. Participant 2

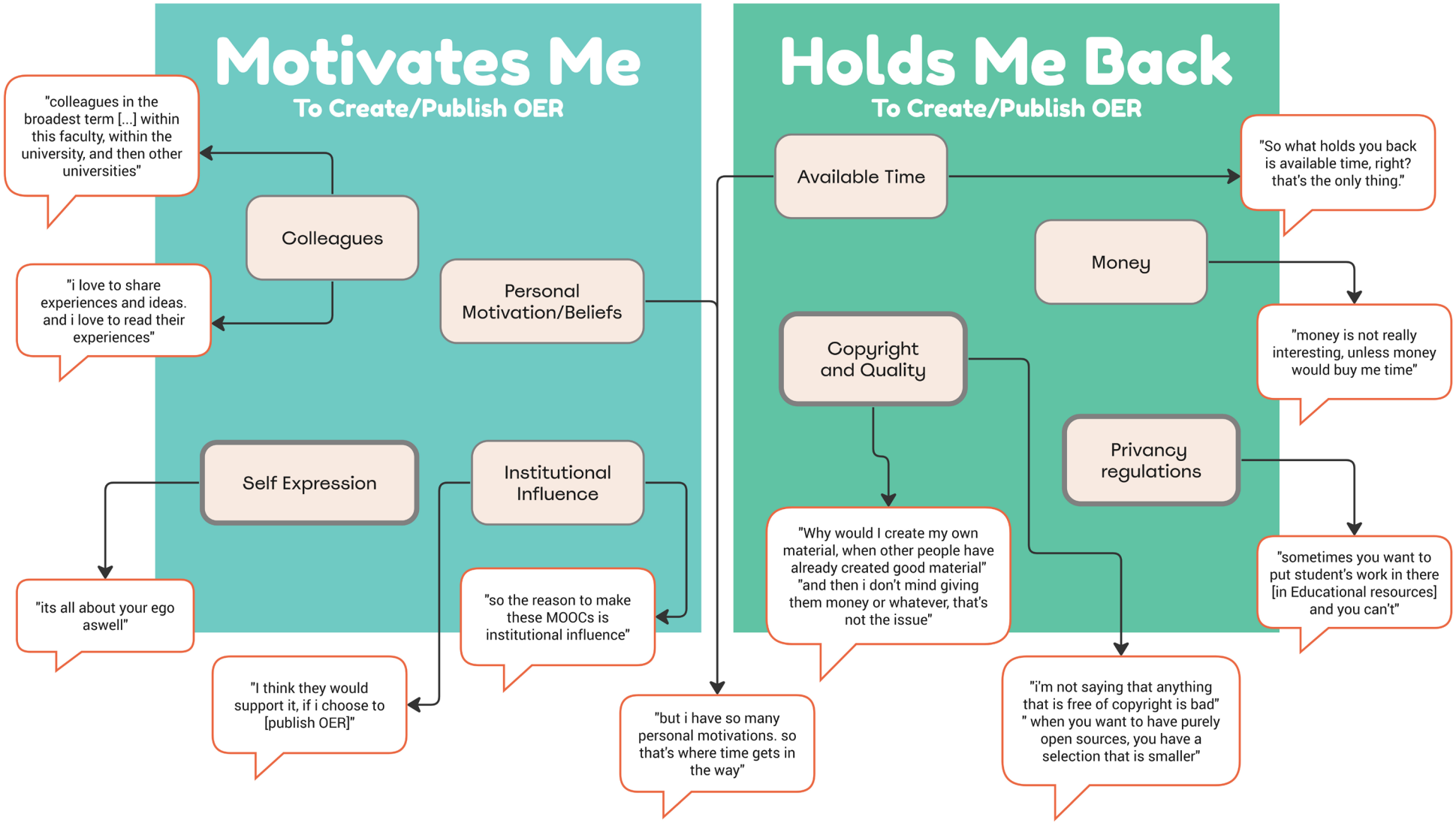

Figure E3. Participant 3

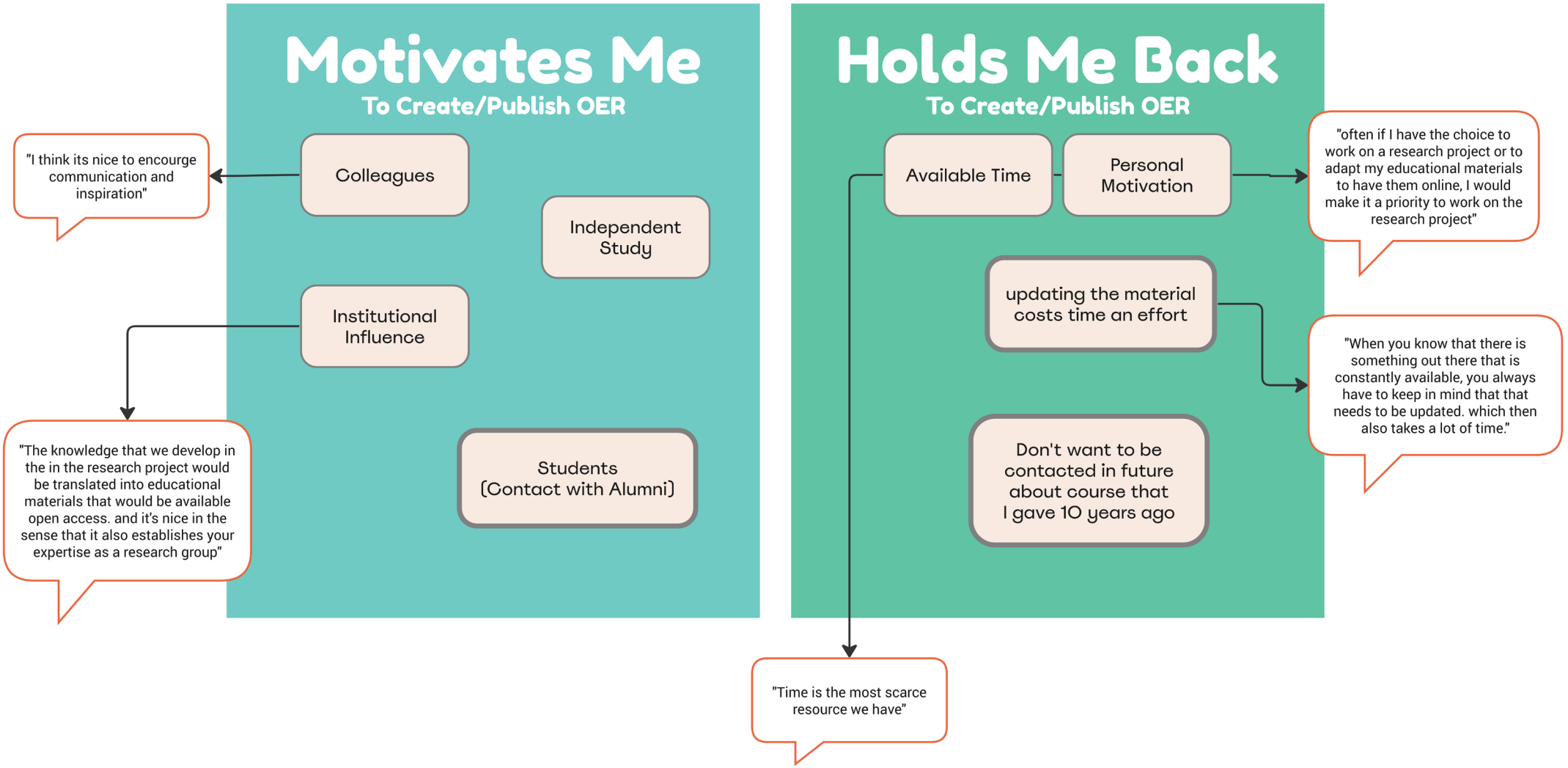

Figure E4. Participant 4

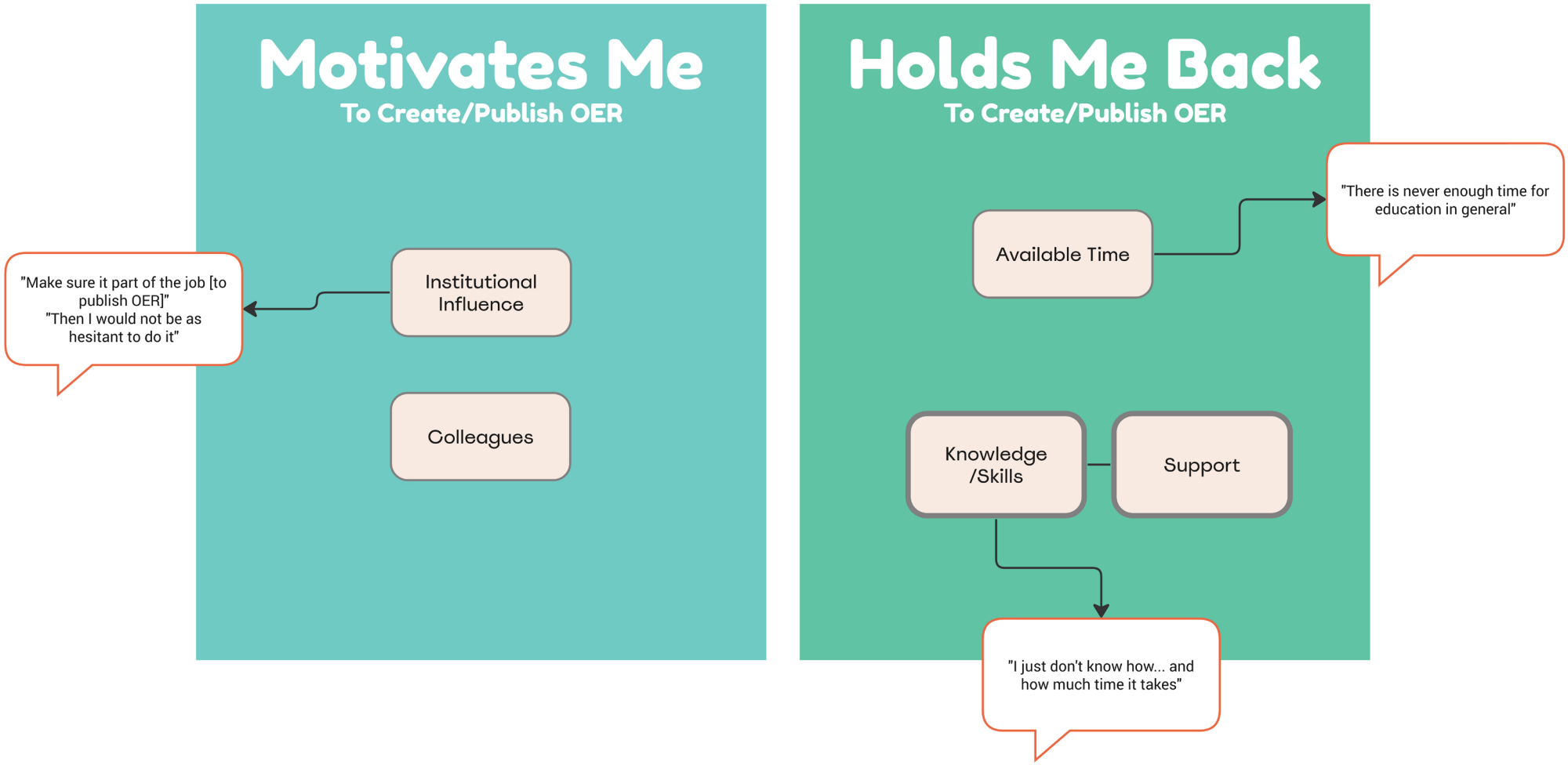

Figure E5. Participant 5

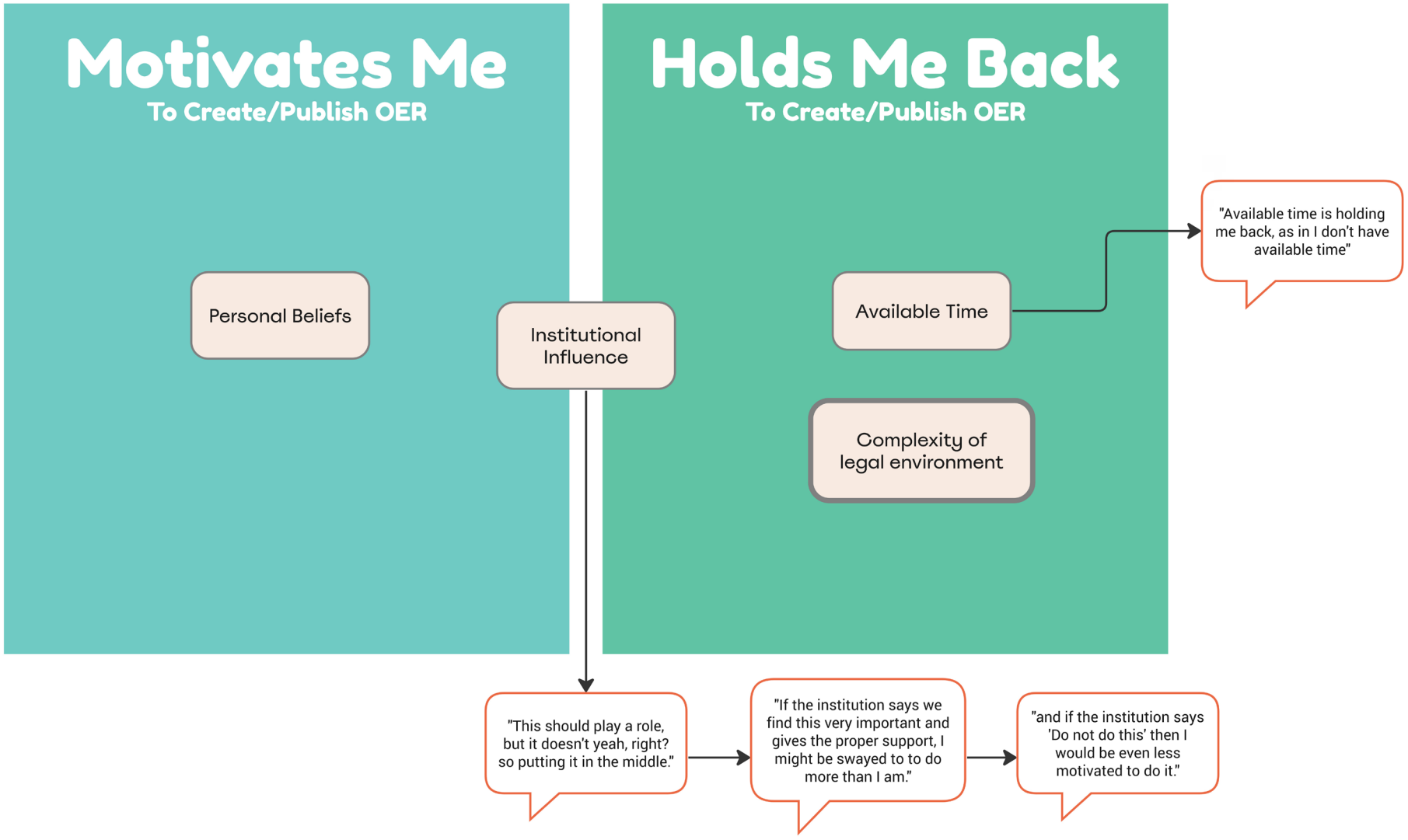

Figure E6. Participant 6

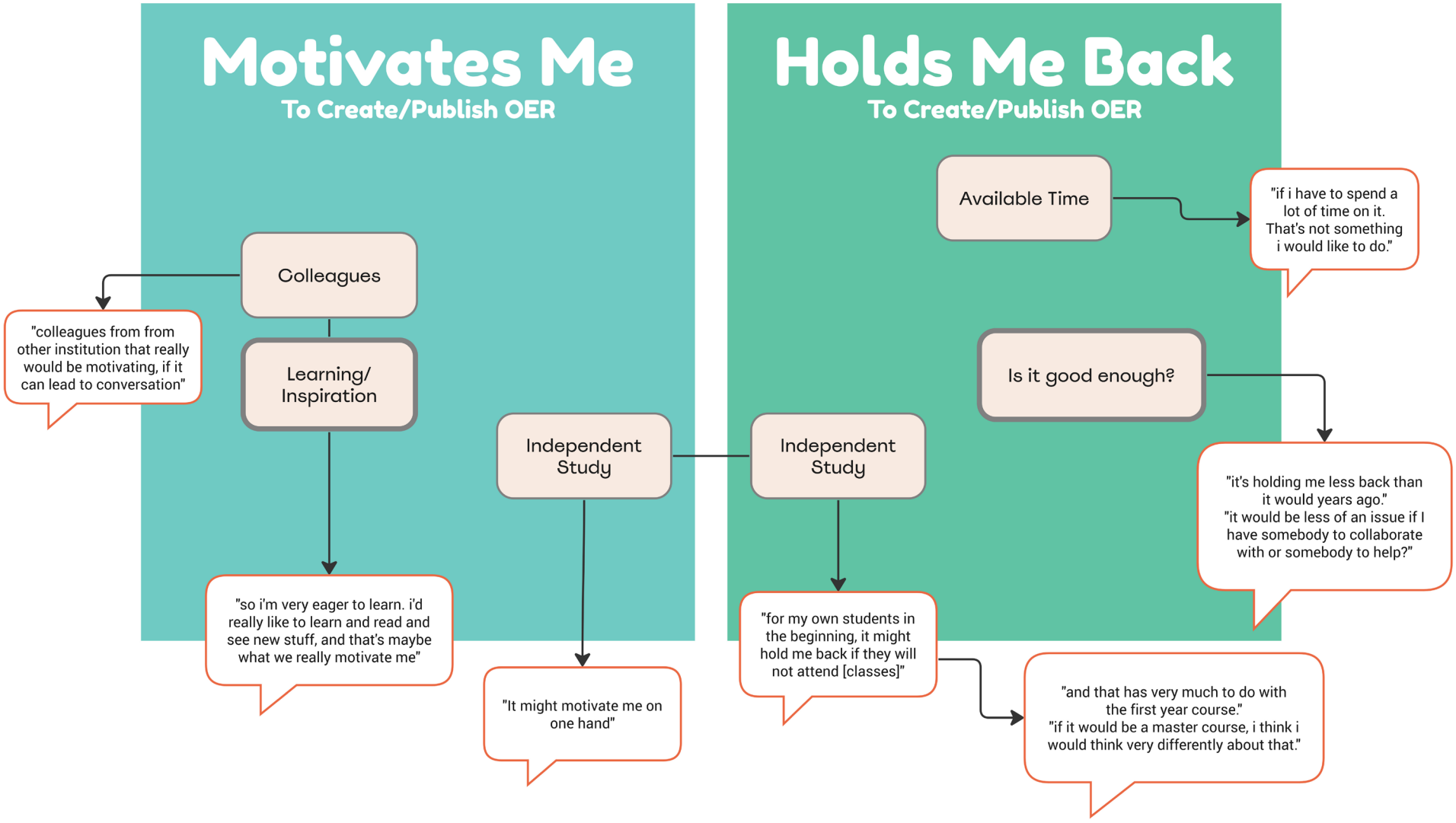

Figure E7. Participant 7

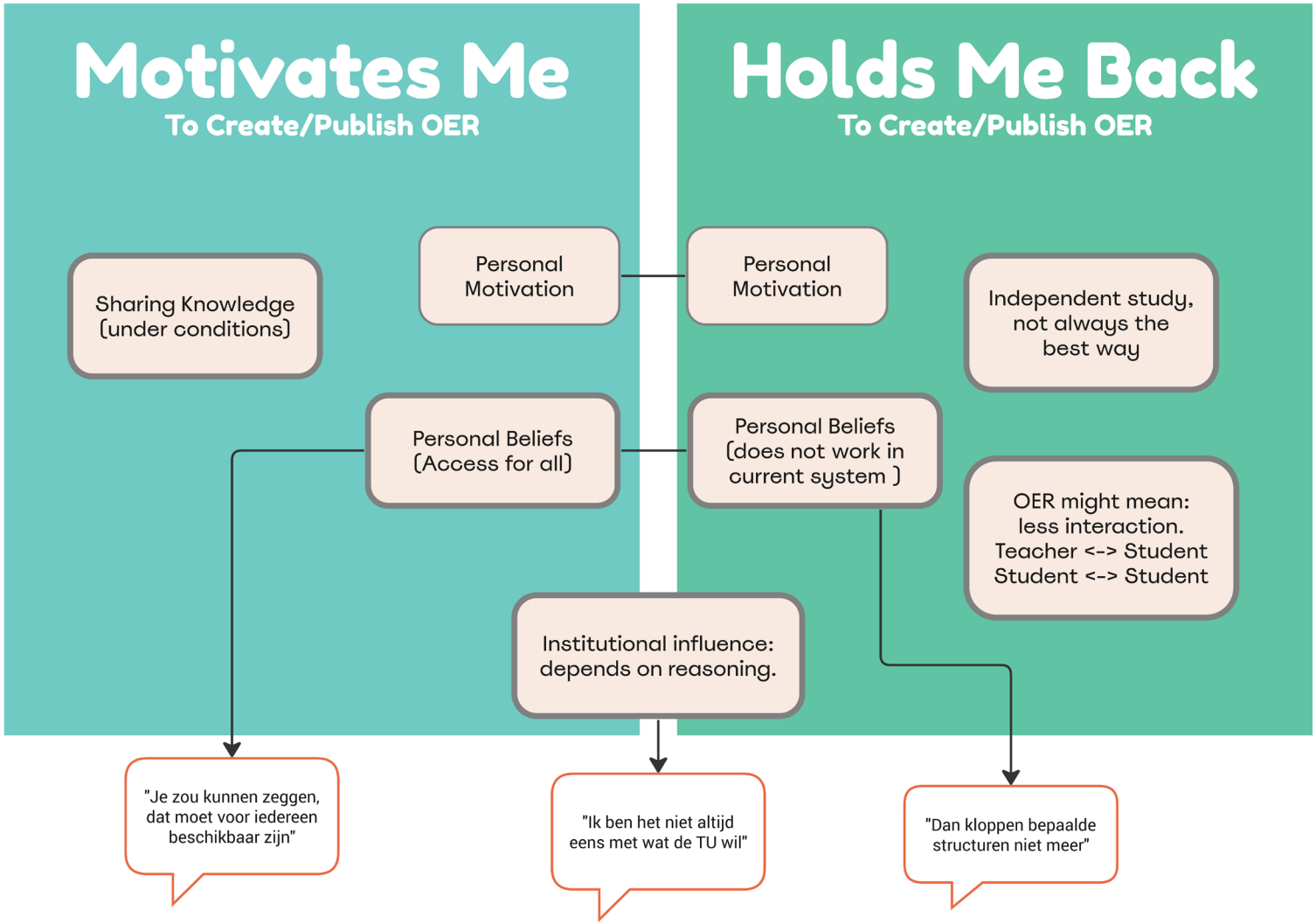

Figure E8. Participant 8

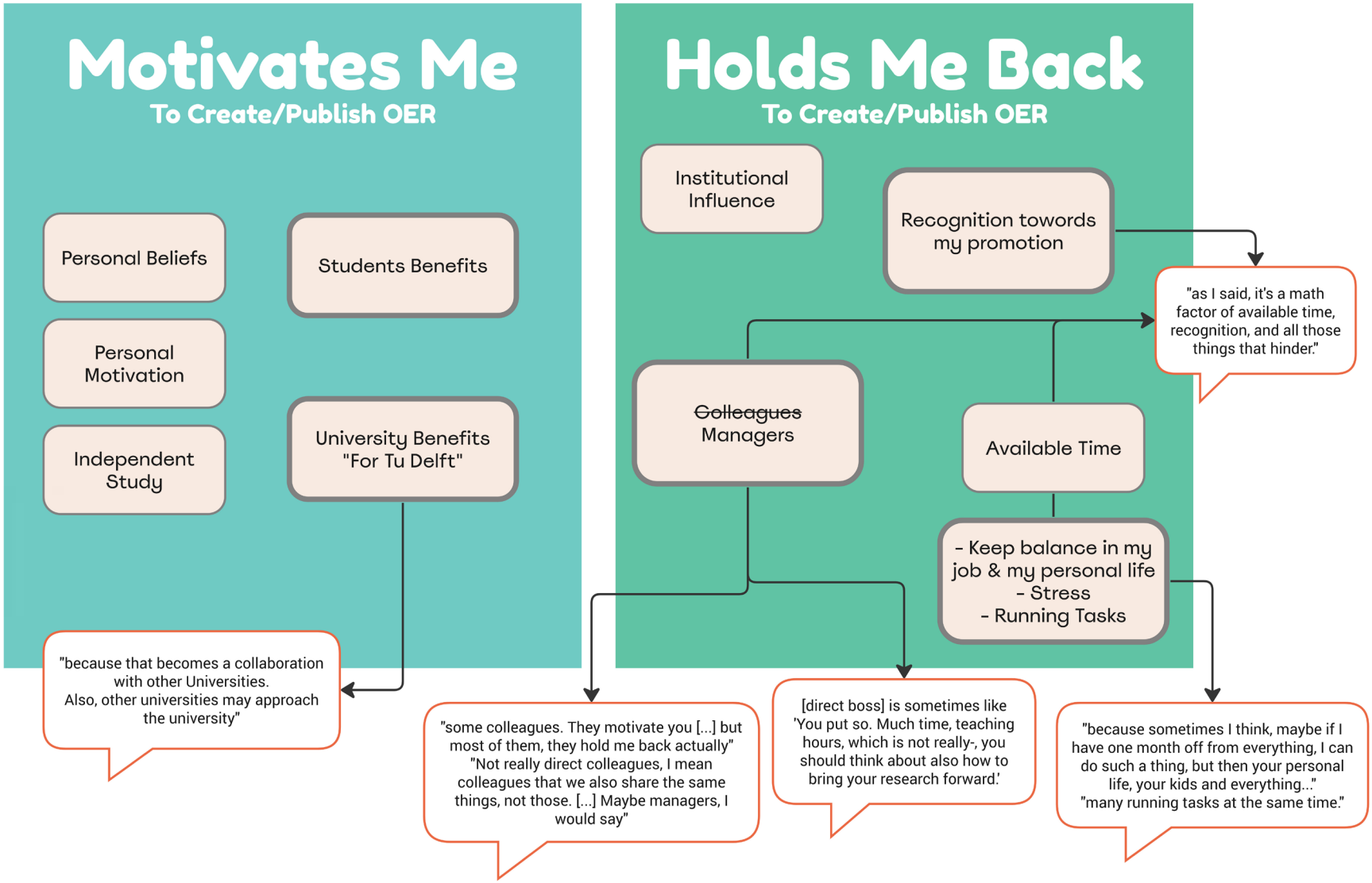

Figure E9. Participant 9

Appendix F. Supervisor Brainstorm

Big and Little OER

Martin Weller
Institute of Educational Technology, The Open University

Abstract
Much of the attention around OERs has been on institutional projects which make explicit learning content available. These can be classified as 'big OER', but another form of OER is that of small scale, individually produced resources using web 2.0 type services, which are classified as 'little OER'. This paper examines some of the differences between the use of these two types of OER to highlight issues in open education. These include attitudes towards reputation, the intentionality of the resource, models of sustainability, the implicit affordances of resources and the context of their hosting sites.

Keywords
OER, granularity, attitudes, reuse, openlearn, user generated content

Recommended citation:
Weller, Martin (2010). Big and Little OER. In *Open Ed 2010 Proceedings*. Barcelona: UOC, OU, BYU. [Accessed: dd/mm/yy].<http://hdl.handle.net/10609/4851>

Figure F1. Preparation

Problem

Most course coordinators of the IDE faculty at the TU Delft, are not creating/publishing their educational material as Open Educational Resources (OERs).

Goal

1. gaining insight into the drivers and barriers for the motivation of IDE course coordinators to create/publish OER.
2. Design a communication tool
as part of a communication strategy
that creates awareness among
IDE course coordinators about the benefits of OER
and motivates them to create/publish OER.

Research Question

What are drivers and barriers for IDE course coordinators that influence their motivation to create/publish Open Education Resources (OERs)?

- What are barriers/problems in creating/publishing OER?
- What is the biggest barrier/problem?
- What are drivers in creating publishing OER?
- What is the biggest driver?
- What sort of communication tool could help increase the creation/publishing of OER?
- What is the context that the communication tool can be effective in?

Figure F2. Problem, Goal, Research Questions

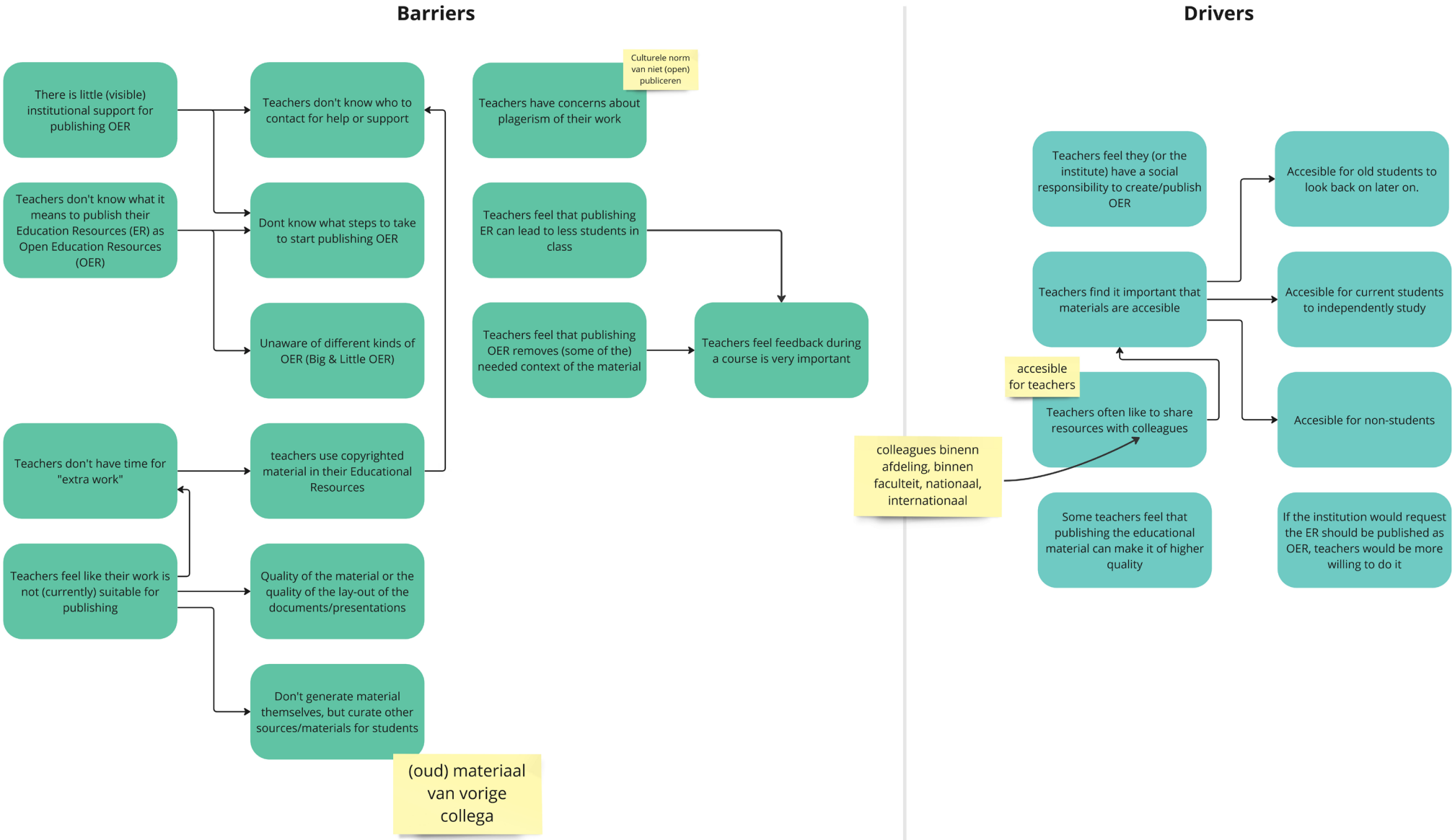

Figure F3. Barriers and Drivers

Gebrek aan awareness?

What is the Problem?

The problem is that Teachers don't know what it means to publish their Education Resources (ER) as Open Education Resources (OER). They associate OER with only MOOCs and other open only courses that are complete courses.

- They see it as a lot of work.
- They are unsure about the level of quality of their work
- ~~They dont know the steps to take to publish OER~~

Who has the problem?

Course Coordinators from the IDE facutly.

What are the goals?

The goals are to design a communication tool
as part of a communication strategy
that creates awareness among
IDE course coordinators about the benefits of OER and
motivates them to create/publish OER

- Make sure publishing OER takes less time for teachers.
- Create awareness about OER
- Provide clarity about the (possible) contents of OER and/or the different kinds of OER (Big & Little)
- To assure teachers that their ER are valuable when published
- To make the benifits of publishing OER (more) tangible to the teachers

misconceptions

Figure F4. (Design) Problem Definition

Persona

Course Coordinator from the IDE faculty

Course Coordinators are responsible for creating the educational material for a course. They can do this by themselves or in a team of other teachers and student assistants. But they have the final responsibility for the material and its completeness and correctness.

Key Drivers

- To create quality educational material.
- To teach and support students during the course.
- They like the idea of sharing resources openly and freely

Key Barriers

- They are very busy
- They are not familiar with the proccess of publishing OER
- They use copyrighted material in their educational Resources

Context

- We want course coordinators to share their educational material as Open Educational Resources

Key activities and tasks

- Create Educational Material
- Teach and support students during the course.

Other Stakeholders

- The faculty coordinator (FaCo) (José Hekkens)
- The Open Education Team at the Library

Figure F5. Persona

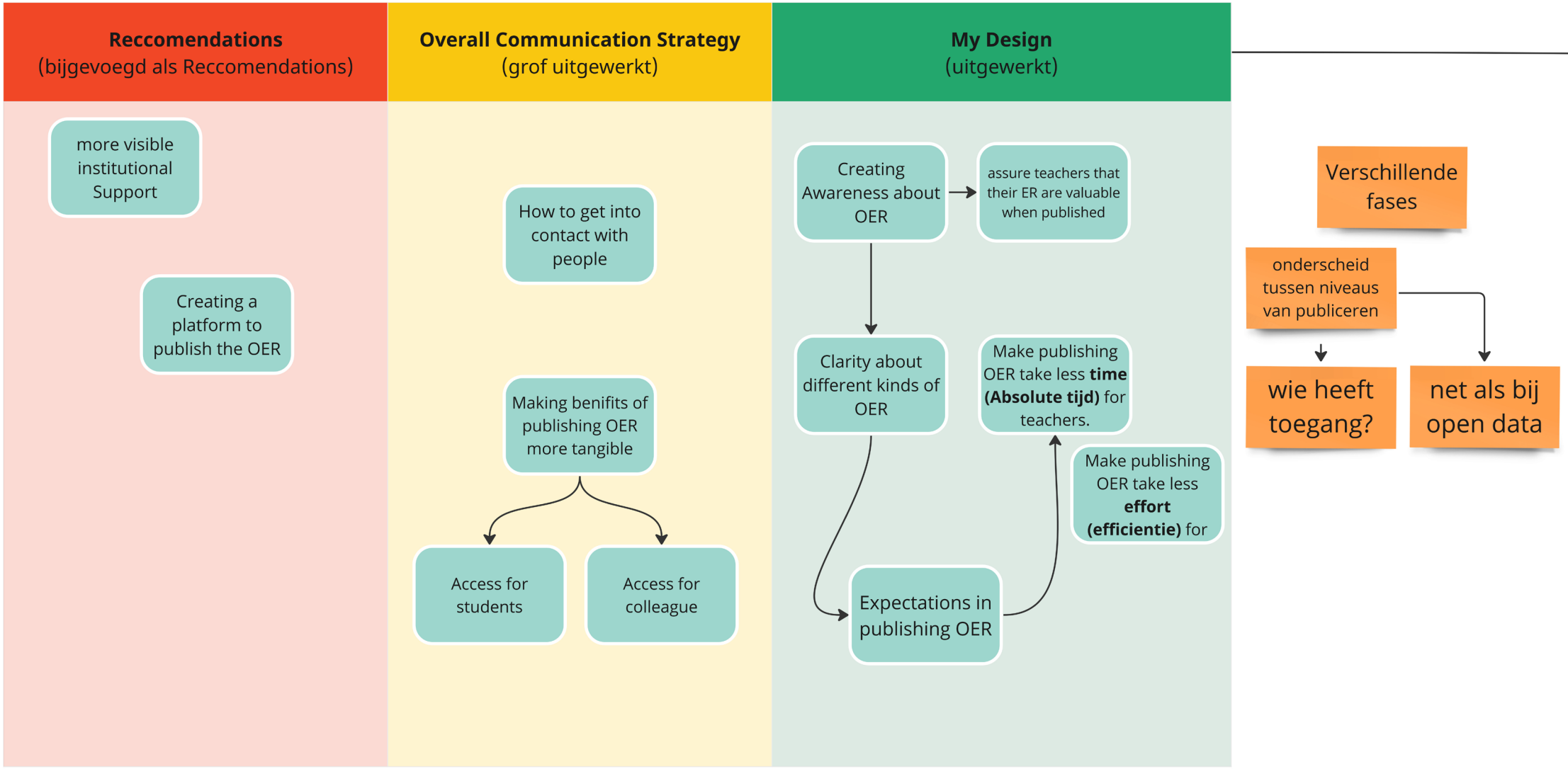

Figure F6. Project Scope

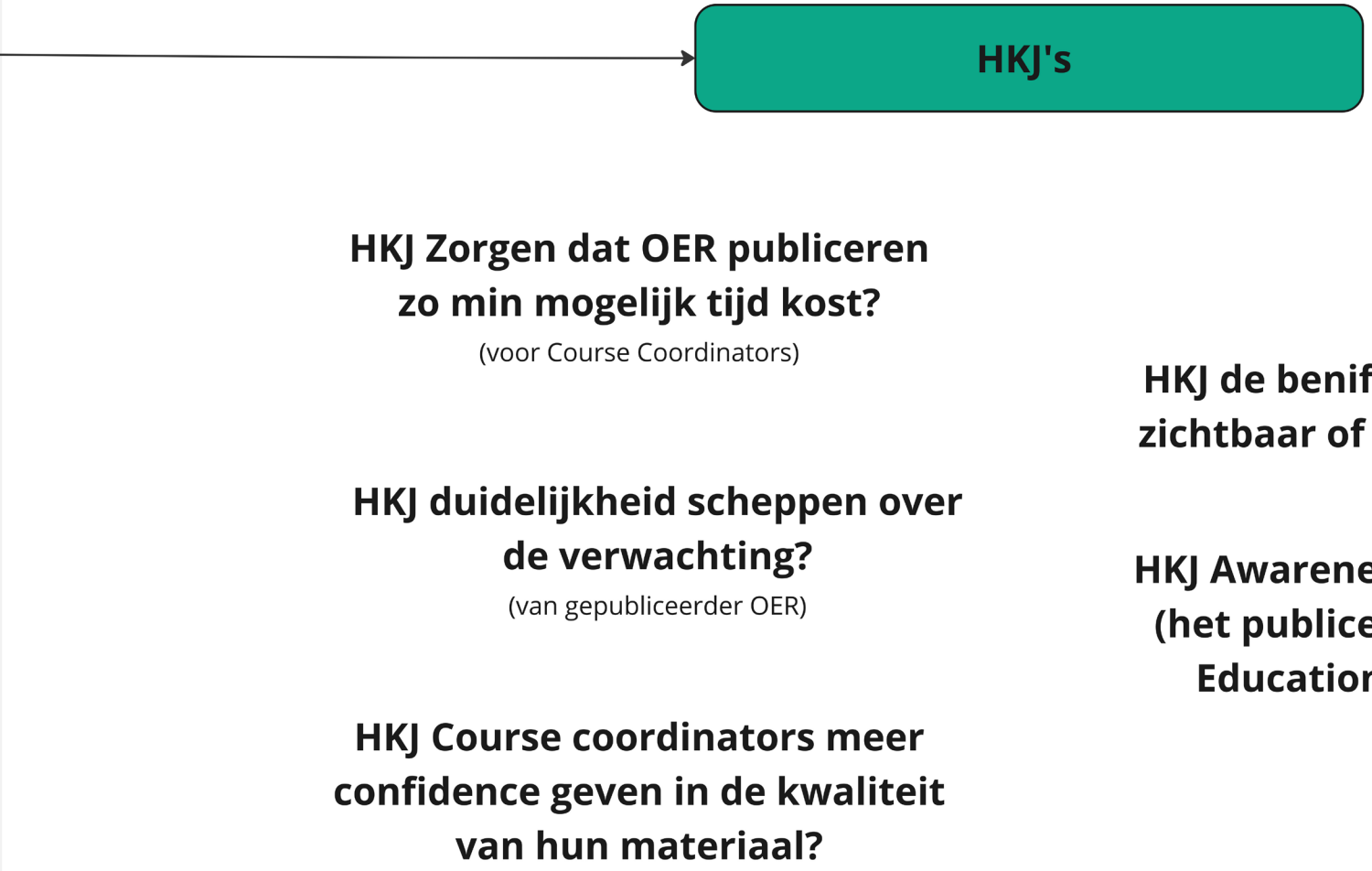

Figure F7. HKJ's

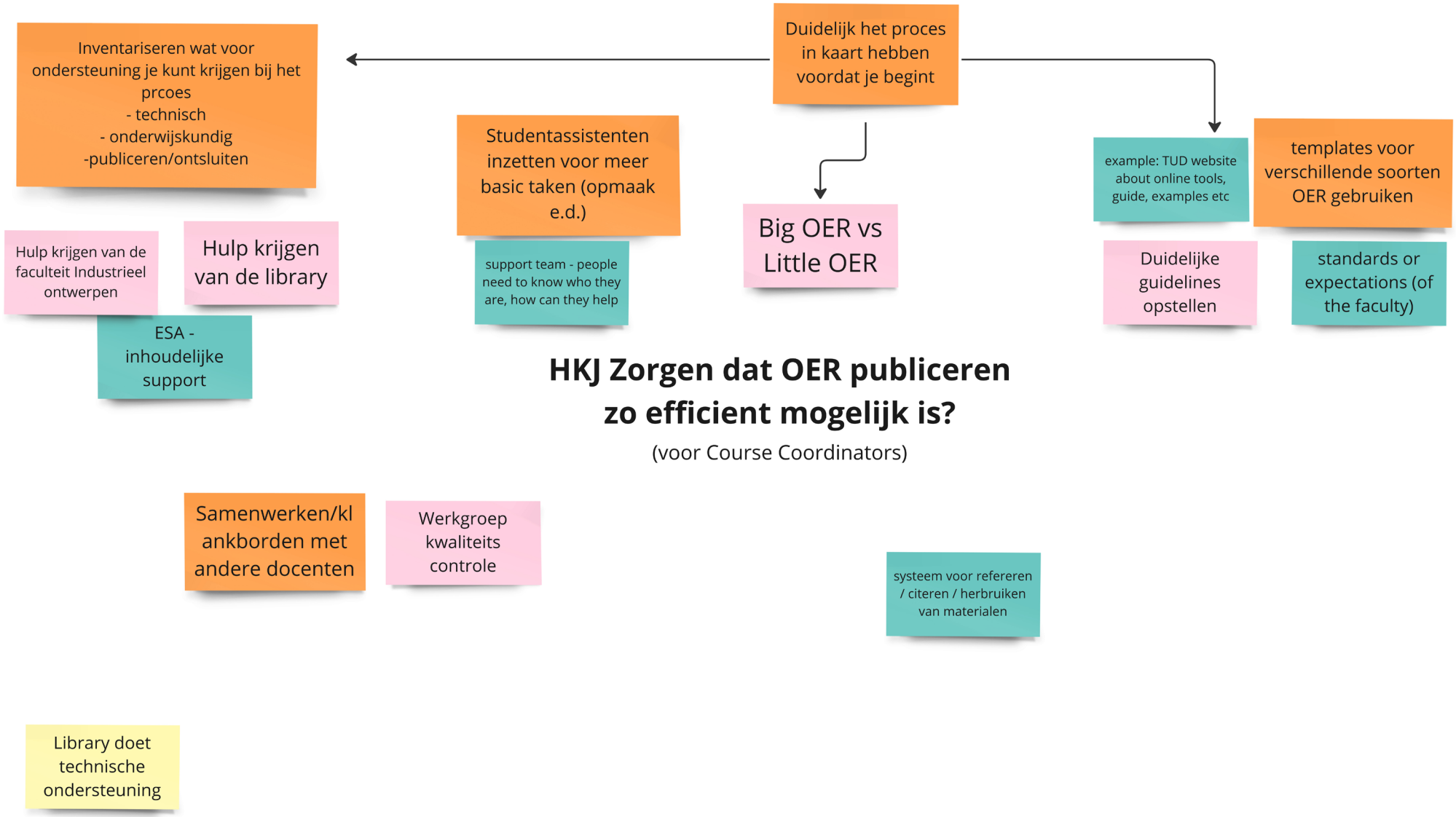

Figure F8. HKJ 1

Figure F9. HKJ 2

Figure F10. HKJ 3

Appendix G. Roadmap Iterations

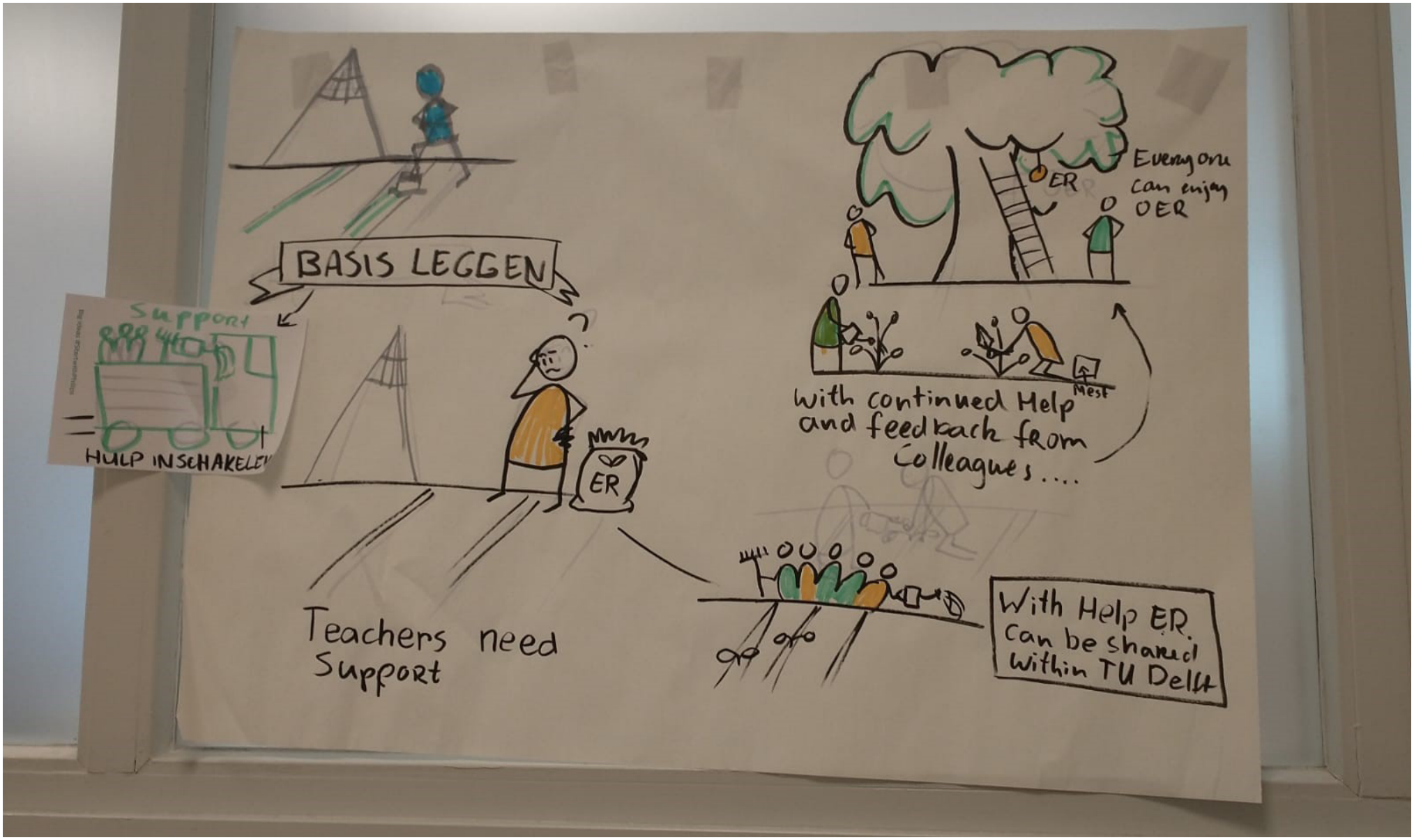

Figure G1. Roadmap Sketch

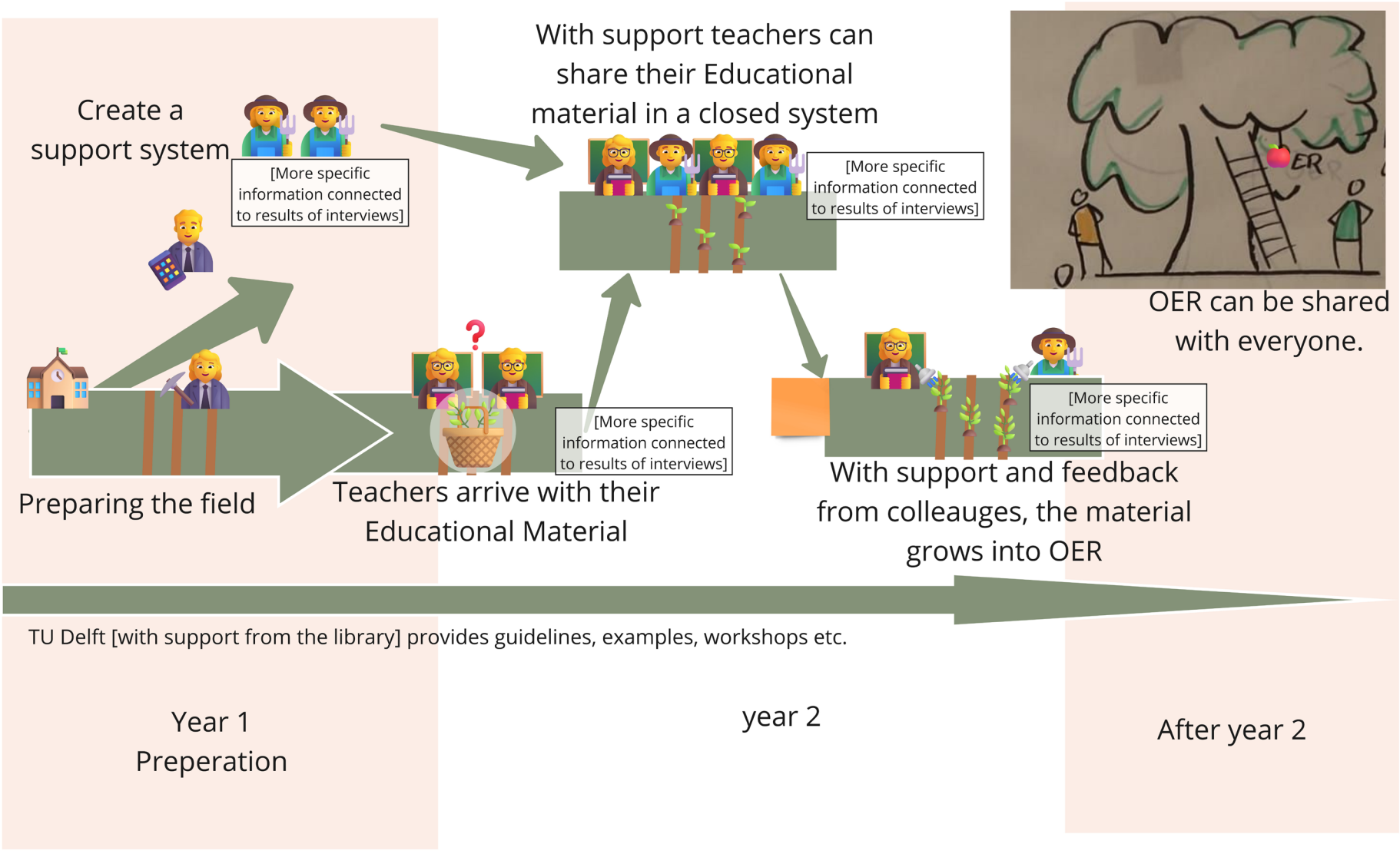

Figure G2. Roadmap Iteration 1

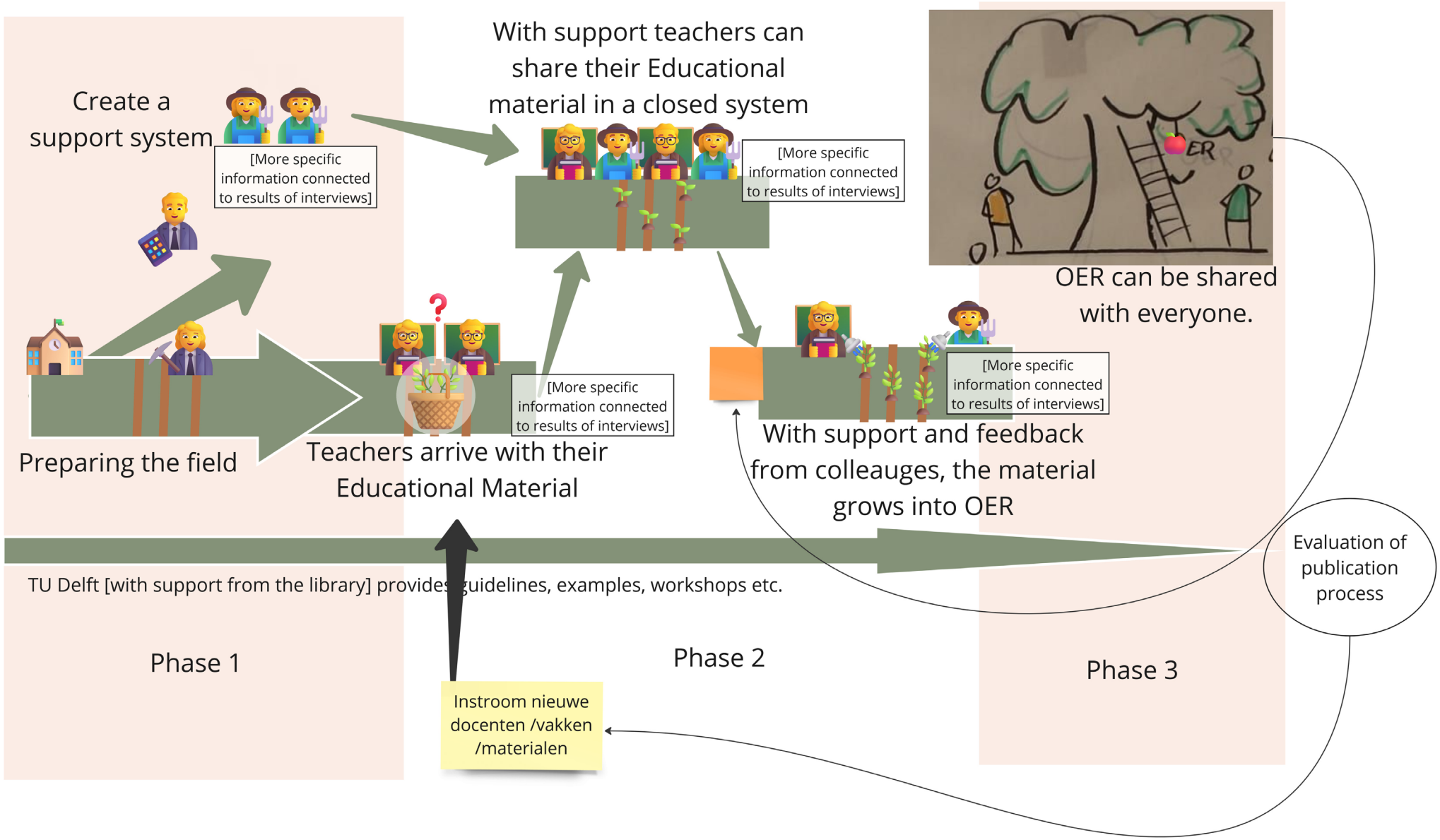

Figure G3. Roadmap Iteration 2

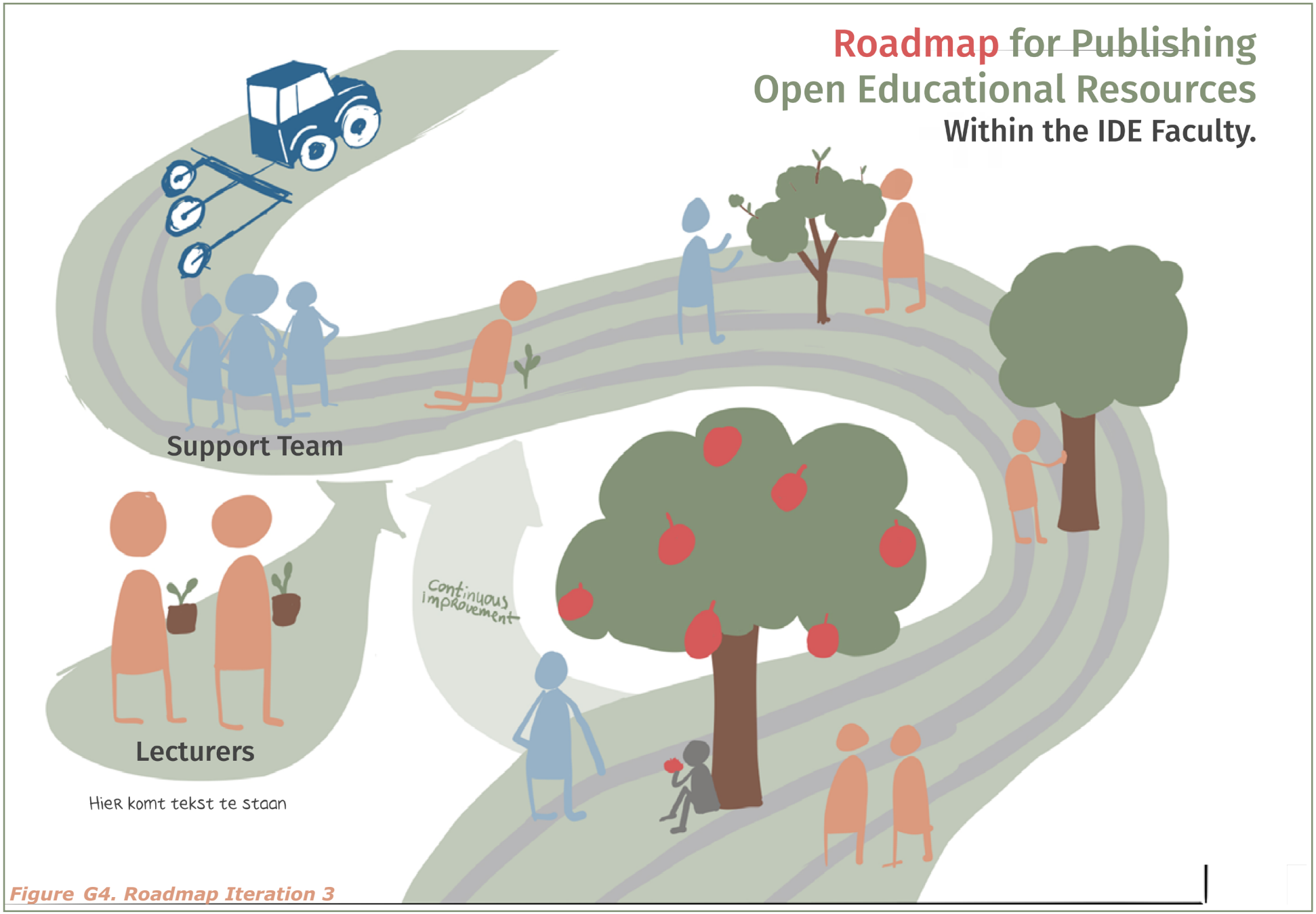

Figure G4. Roadmap Iteration 3

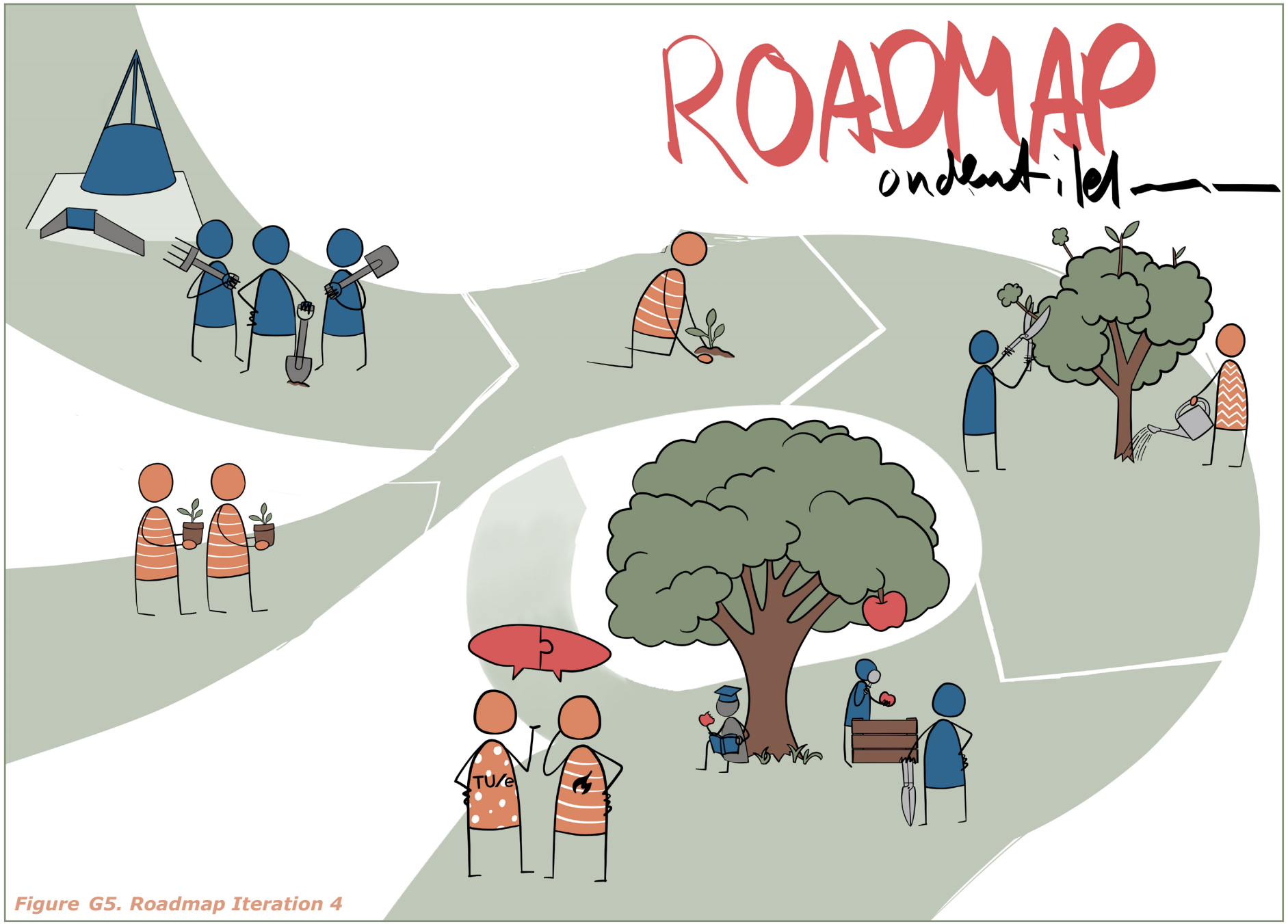

Figure G5. Roadmap Iteration 4

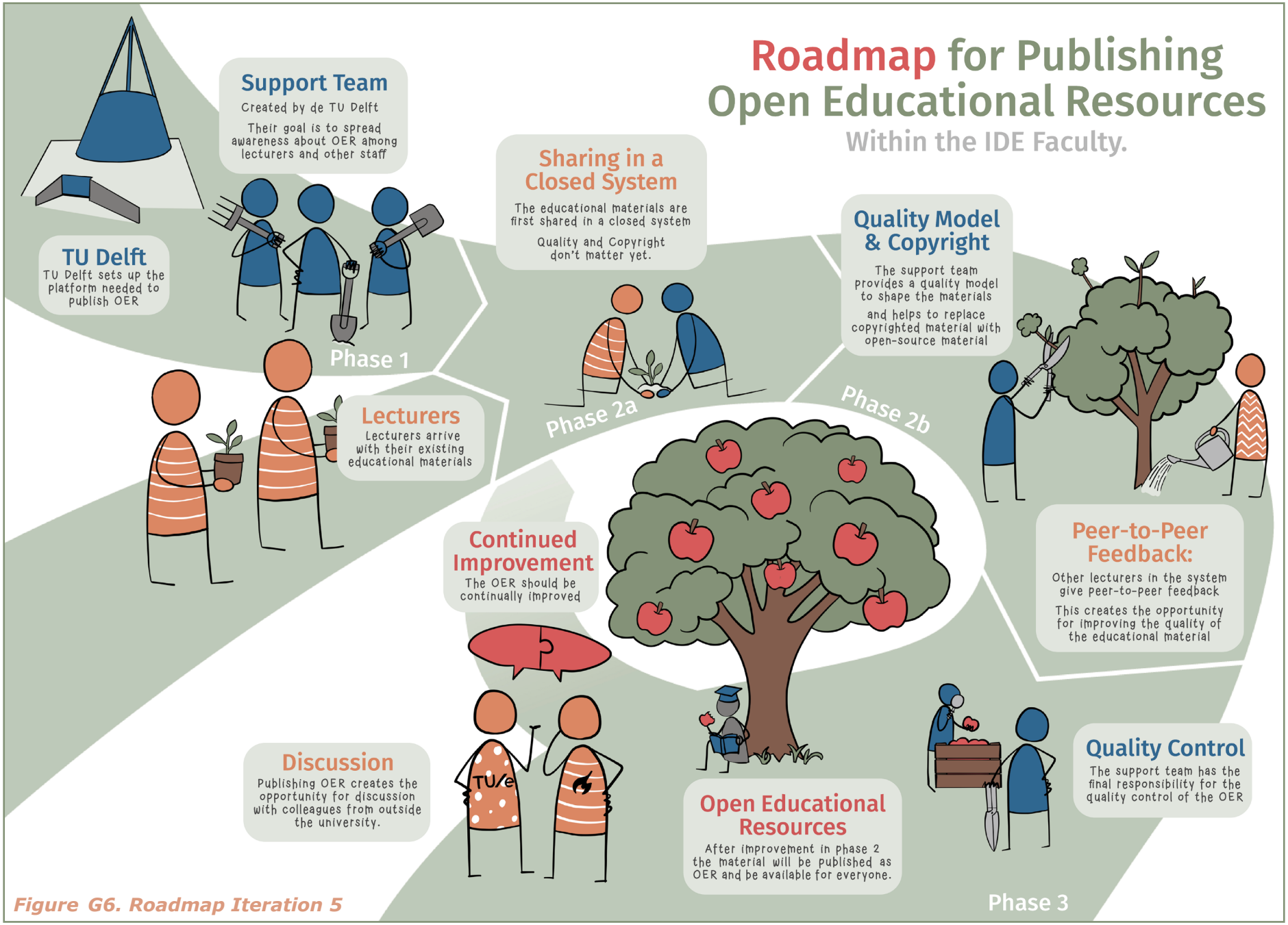

Figure G6. Roadmap Iteration 5

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