EMPHATY ORIENTED ‘CREATIVE’ TEACHING AND LEARNING METHODOLOGIES

Ali Guney, Arch
Lecturer Precedent Analysis
Delft/The Netherlands
A.Guney@tudelft.nl

Abstract

Understanding learners’ minds has become one of the major issues of some methodologists in education system. The entire matter is learning.

It seems obvious to me it is necessary to explain what learning is in terms of knowledge, in the widest sense.

We should also try to find out what kind of cognitive structure is behind of it regarding all learning ways; such as learning by discovery, analogy, research, design, instruction, being taught, experience, repeating, e-learning, etc. These should be applied through a ‘creative’ learning and teaching style.

Could educators ever teach well enough unless they have a proper empathy for students? It is all known to us that common sense helps teachers without much effort to understand what’s on student’s mind; yet, it seems to me more fruitful if we understand more about what and how learners think besides trying to imagine the ways they reason.

It is also essential to create internal (eliminating emotional blocks, activating students’ knowledge, etc.) and external (richness of teaching material, environment, structure of education, easy access to learning materials, etc.) learning environment to free learners’ minds from blockings so that they and educators can have better understanding of mutual state of minds. What are these emotional blocks and how can they be minimized? Do learners need, necessarily, psychotherapists to get rid of those emotional blocks; or should educators be well-educated and trained to struggle with them?

Learners need clear representations. Well-representation of teaching material is the backbone of teaching method through Socratic interactive way so that learners can owe the knowledge.

Educators should act creatively to train and educate learners how to learn and think efficiently with a great pleasure. Creativity is a very complex mental act; it needs definitely, to be explained in terms of cognition. What is the cognitive structure of creative process? Can it be instructed up to a certain level?

Whatever ‘creative’ method, depending on subject, educators may use is plausible if they have a good enough empathy for learners in the course of Socratic behavior by taking emotional blocks of students into account.

Keywords - Learning, teaching, knowledge, cognition, empathy, creativity, Socratic Method.
1 LEARNING AS GAINING KNOWLEDGE

How do the learners gain knowledge? Do they really need teachers? I think learning and teaching are dialectic activities; though, I can imagine learning without teaching or being taught and not teaching without learners. Learners need to gain knowledge in several ways like learning by being told, by being taught, by discovery, by analogy, by being instructed, etc. The main issue of this paper is about teaching, even though not isolated from the above mentioned learning instructions. Before going in depth with empathy oriented teaching method, I should summarize my understanding of knowledge, since the whole education is about it. I will do it regarding its epistemological and cognitive aspects.

Epistemologically, I believe it is "justified true belief", concerning propositional knowledge; as Plato and Kant would support. We can take the component justification as evidence, truth as being the case or how reality is, how things really are, and belief as having psychological state related to that propositional knowledge. [1]

We can also understand different sorts of knowledge in terms of some philosophical worldview and cognitive science which can be summarized as following:

1- **Propositional/Declarative knowledge**, which can be either empirical (a posteriori), or non-empirical (a priori) meaning knowing what or something is so. Stillings et al. describe two kinds of declarative knowledge as language like representations and image like representations,

2- **Procedural Knowledge** (knowing how),

3- **Tacit Knowledge**, also called non-propositional knowledge (some thing like implicit knowledge, knowledge by acquaintance or by direct awareness), and

4- **Linguistic Knowledge**, which is also a kind of tacit knowledge, because even if we can not explain all rules of our native language, we still can use it and can be understood by people who use the same language as his own native one. [1], [11]

Although it is not very sharp distinguish between declarative and procedural knowledge, we can use this distinction as an instrument. I believe also, by my own observation though, much of our knowledge is declarative as supported by Stillings et al.: “Traditional epistemology distinguishes between ‘knowing how’ and ‘knowing that’. Though this distinction is not the same as the one psychologists draw between procedural and declarative knowledge, the two are closely related. Much of our knowledge- that is probably encoded declaratively, since much of it is mobilized in controlled processes.” [11]

Implicit (or tacit) knowledge is a very complicated issue; we may not be able to explain what we know explicitly, nonetheless, it is a very effective in thinking process, as Holyoak and Thagard state it: “Implicit knowledge often allows quicker reactions than does explicit knowledge and in some cases is actually more accurate. Moreover, even when explicit knowledge is being manipulated, the process that uses it may itself be implicit.” [7]

Some people may confuse intuition with tacit knowledge. I tacitly understand intuition as a kind of ‘built-in’ form in our mind as an innate mental ability. It is, I guess, a kind of cognitive capability that allows human’s first reaction to any kind of object or anything whatsoever, so that we operate on them, then we have explicit or implicit knowledge thereof [5]. Stillings et al. state Implicit (or tacit) knowledge further: “There is a classical intellectualist suggestion: if an agent regularly employs rules in the integration of behavior, then if the agent is unable to report these rules, then it is necessarily true that the agent has tacit knowledge of them.” [11] Fig. 1 schematizes knowledge and its sorts:
Teaching within an education system should take all above mentioned sorts into account to exploit entire mental abilities of learners. It should be so due to the possibility that students can have different strong and weak points in their cognitive devices. Some students can be strong in possessing language-like representations, some those of image-like ones and some tacit knowledge, etc. Teachers should not give up on students who might not be very convenient -in certain teacher's opinion- within a domain; they should, instead, try to exploit all mental abilities of these students’ weak or strong parts. I guess it is more fruitful if I explain this with a fictional example: a teacher has, let us say, sixteen students in the design studio. Some of them have good compositional sense but not that of representational, some of them can express themselves well but with less sense in third dimensional space, and the others may have a nice story about design ideas, etc. Educators, naturally, have a tendency to expect all strong skills from all students concerning design domain. They might have their own themes to emphasize, too. Should they stop teaching and run away, because they have no good enough students; or rather should they encourage learners to use all abilities what they got?

What I would do as a teacher is, first of all, trying to understand if the problem is because of the lack of skill or ability; or just student has emotional blocks. Afterwards, I would stimulate their going on with their strong sides while advising to improve their weak points without avoiding the confrontation with their weaknesses. It can probably be a powerful point of view if teachers create such platforms that learners could use as many as possible abilities within the relevant domain. Nevertheless, well developed abilities can compensate the less developed ones analog to the task of damaged part is taken over by the other ones [8].

When we instruct these students, we should also take their internal and external conditions into consideration like Gagne states it: “Instruction means arranging the conditions of learning that are external to the learner”. Read further: “In the most general sense, instruction is intended to promote learning. This means that the external situation needs to be arranged to activate, support, and maintain the internal processing that constitutes each learning event” [3].

Concluding those issues, educators, in general, should have an appropriate empathy with the learners. Empathy is a complex state of mind which can not be imagined without intersubjectivity I will discuss below.

2 EMPATHY AND INTERSUBJECTIVITY

Diverse philosophers have been involved with the matters empathy and intersubjectivity. Some of them took it as the relationship between subjects and the external world, in general; the others between different subjects. This paper does not go in depth with the entire philosophical enterprise of empathy but only its relevant parts:
“Einfühlung” (German, ‘feeling into’), empathy. In contrast to sympathy, where one’s identity is preserved in feeling with or for the other, in empathy or Einfühlung one tends to lose oneself in the other.” [1]

Husserl, from phenomenological point of view, discusses empathy in relation to intersubjectivity. According to him, intersubjective experience forms the basis of our understanding of ourselves as objectively existing subjects, other experiencing subjects, and the objective spatio-temporal world.

He explains the relation of empathy and intersubjectivity as follows: “From a first-person point of view, intersubjectivity comes in when we undergo acts of empathy. Intersubjective experience is empathic experience; it occurs in the course of our conscious attribution of intentional acts to other subjects, in the course of which we put ourselves into the other one’s shoes.” [10]

Empathy is also helpful for intercultural understanding, which is to understand the other minds that are different from one’s familiar world or culture [10]. After summarizing some ideas of Husserl, it seems to me useful to quote his student Edith Stein’s idea of empathy which is: “a blind mode of knowledge that reaches the experience of the other without possessing it.” [1]

I can imagine above mentioned ideas have powerful point of views; such as replacing oneself into other minds or access to others state of mind. These are all reasonable statements, although there should be a more sound explanation about the cognitive structure of empathy and intersubjectivity. In my philosophical worldview, processed information becomes a kind of representation of the external world (either other minds or any kind of object) which is constructed in human minds as objective and subjective knowledge. I believe our minds’ cognitive properties (which are also interwoven with emotions) have a lot in common because of being human. We have also some different representations of the external world which is not common to all mankind, but what it is common to some of them. Subjects (minds) have, thus, two sorts of representations of the external world; which are called as human object (most of it common to all minds) and human subject (common to some subjects/minds) as shown in Fig. 2:

Fig. 2. A possible schematic representation of representational mind [5].
3 CREATIVITY OR INTELLIGENCE

After discussing learning, teaching, knowledge, etc., it may be fruitful to study creativity and intelligence in the course of creative education, as being empathy oriented way. We should discuss this twin also to have better access to learners’ mental abilities. Empathy, however, can be realized better if we comprehend cognitive abilities such as creativity and intelligence.

It is plausible to imagine the cognitive structure of creativity and that of intelligence may have a lot in common, if not the same. They may employ different instruments; creativity more of images, and intelligence propositions. Some might say creativity is of synthetic nature and intelligence is that of analytical. I think creative problem solving is because of intelligent mental act, and intelligent synthetic novel composition, is very creative mental act which we use in design education. Anyhow there is much power in propositional knowledge (not only in image one) as Holyoak and Thagard state it: “With propositional thought, one can still appreciate the richness and diversity of experience yet nonetheless be able to extract and make explicit the similarities that connect distinct situations to one another” [7].

Finally, both mental acts mentioned above operate basically the same but we name them differently; if images are used, creativity and language-like representations, intelligence. The more intelligent, the more creative vice versa, thus. Some might say: “all creative mental acts are intelligent, but not all intelligent ones are creative.” In this situation we should agree with the meanings of the twin which have many (conflicting, too) varieties. Any how, I understand intelligence as being quick and novel analytic and synthetic operations, and creativity is also the same. There are though varying understanding of these concepts but I am not going to list them here, except a sketch of creativity that I have in mind.

“Fig. 3” represents the mechanism of the creativity. In creative learning and teaching process, analogy is one of the prominent and creative mental ability, I think; nevertheless, it is not enough by itself as Holyoak and Thagard state it: “Although we do not believe that analogy is the only cognitive mechanism involved in creative thinking, it does play an important role. It has often been suggested that creativity is based on some mental mechanism for combining and recombining ideas in novel ways, where the recognition of viable new combinations depends in part on a kind of aesthetic judgment that the juxtaposed ideas fit well together [7].

The scheme below represents briefly ‘creativity’ as combining and recombining in a novel way and aesthetical judgment is also included. However, learning is mostly combining new ones to old ones, and transforming them to novel combinations, etc. as Motloch describes it: “Since most learning is based on connecting the new to the familiar, education should develop the courage and skills necessary to connect new with familiar, extend existing patterns, and build new ones”[8].

Analogy deserves a lot of attention for its using abstracted forms of objects (physical and/or conceptual ones) to make our minds work efficiently; because otherwise we would be lost in trivial details. This is so, just simply because its being a matter of physical constraint of our cognitive devise which would have to deal with too much information. This is the reason why we abstract concepts to handle and prevent the combinatorial explosion by minimizing variables, at hand.

Our brain, inflates the information when there is too little of it, otherwise, compresses it; physically. Two supportive following ideas tell about the power of analogy: “Thus analogy helps to form new and more abstract concepts, which in turn help to see even more remote analogies, which in turn help to form yet more abstract concepts” [7]. And read further: “Although the individual concepts in a person’s semantic network are important for thought, the full power of human thinking depends on its capacity to combine concepts to create more complex structures”[7].

Analogy is a very complicated issue which exceeds the scope this paper concerning its entire enterprise; yet, it is necessary to be aware of its instrumental help in terms of avoiding superficial global similarities. As Holyoak and Thagard put it: “The capacity to focus selectively on a particular attribute of an object, and hence on particular similarities between objects, is an important cognitive advance, because it breaks the dependence on global similarity” [7].
Fig. 3. A sketch of a possible cognitive structure of creativity or intelligence [5].

Analogy is useful to see the hidden similarities which may not be seen, superficially. Vosniadou supports this idea: “For example, on the basis of readily accessible properties that can be seen, people presumably will not judge whales to be very similar to other mammals not fish, they will probably acknowledge that with respect to some important, although less accessible property or properties whales are similar to other mammals. This observation suggests that restricting oneself to relatively accessible properties may make it difficult to account for the perceived similarity of whales to other mammals. If one can not appeal to “hidden” properties, it is difficult to explain the fact that people might recognize such similarities” [12].

4 EMPATHY IN CREATIVE EDUCATION

Empathy is one of the essential underlying elements of creative education. As mentioned in previous pages, empathy orients our approach to teaching; it sheds bright light on our choices of teaching material. By trying to understand learners’ state of minds, from general to specific cases, we focus on affiliating and harmonious teaching ways; not those of only standard established ones. We should not confuse, in my opinion, our own mental state towards the learning material at hand, with those of learners’ ones. I believe empathy is partly imagining yourself in learners’ situation in terms being just human, but also try to understand how learners’ state of mind is towards the issue at hand. Fig. 2 summarizes my approach to this matter. Goldie says: “Empathy thus involves what is often thought of as ’imagining being X’, where X stands for the narrator with whom I empathize, (…);”he disagrees with it and goes on: “…empathy, if successful, does not involve any aspect of me in this sense, for empathetic understanding is a way of gaining a deeper understanding of what it is like for him, not of what it would be like for person with some mixture of his and my characterization.” [4] I think the core issue is here imagining other minds which is also a subject of philosophy of mind, read: “…philosophy of mind- a debate about the source our ability to explain and predict the thoughts, feelings, and actions of others.” [4]

I have acquired by my own teaching experience that if teachers are attentive and skillful enough to struggle with students’ emotional blocks. Educators had better exploit as many abilities of learners as possible to let them deal with their weaknesses by offering them appropriate learning environment that can help them in using as many sensorial abilities of them as possible. A supporting idea comes from Motloch: "Failure to uses all our sensory stimuli, is also a perceptual block…Generally, we emphasize the visual the exclusion of other sensory stimuli. But the perception of place can be much richer if the
place is designed so that all senses contribute to, and intensify, the experience...According to Adams, emotional blocks are perhaps the most inhibitive of all thinking blocks."[8] However emotions should be taken into account and empathy must be done; two of them are necessary conditions for internal concentration of the student. Ortony et al. point to cognitive structure of emotions: “Instead we have proceeded on the assumption that progress in psychological research on emotion can be attained through an analysis of the cognitions that underlie emotions.”[9]

It would be ideal if there were a creative education system that would follow solely creative ways that occupy students’ minds with new information to add their present knowledge, but instead, as Motloch supports; education system should not overload students’ minds just with a lot of data, on the contrary; they should help them to develop skills for interpreting information, searching for alternatives, improving their insight, and synthesizing responses. It is fruitful if educators help students to improve their abilities to self-educate and to engage in learning for life[8].

I depart generally from the point of view of the statement ‘human is human, and has basically a lot in common’ also during my teaching. I try to make students participate the process, actively. I believe this is the basic and the specific cases, through the perspective of intersubjectivity and empathy, need to be considered, simultaneously. I follow Socratic method to get access to students state of mind, in the widest sense. Socratic method is explained as following: “More generally, Socratic method is any philosophical or pedagogical method that disinterestedly pursues truth through analytical discussion.”[14]

5 EDUCATION IN DESIGN AND ANALYSIS

I have mentioned knowledge sorts in former pages; propositional, non-propositional, tacit, etc. We benefit from our logical operations in corporation with our intuition on knowledge that we got to realize intelligent and/or creative solutions. We use our rationality to solve algorithmic problems and to check the appropriateness of ambiguous solutions in global sense. I have explained that there is a lot power in ambiguity which human minds mostly move during creative mental processes. We check, thus the structures and semantics of the creative products, thank to our rationality which is common to all men. We should support learners to integrate their intuition and logical thinking, which is in a way, creativity. Educators should train learners to get free from their prejudgments and, by using all their mental abilities freely, to become more creative; this is thus ‘defamilirization’ which is shown in Fig. 3.

Following this approach, I want to show some schemes (concerning analysis and design of an artifact) which show some methods to analyze precedents (in the widest sense) and to design we use in our Faculty of Architecture. ‘Knowledge Representation’ is one of the core issues in our teaching methods. We understand ‘knowledge representation’ being a kind of representation relates data structures to each other; as Winston puts it: “...a representation is a set of conventions about how to describe a class of things” and it has four parts: a lexical, a structural, a procedural and a semantic[13]. We ask from students to represent their analysis by a semantic net which is one of the techniques within which there are lexical, structural and semantic parts, also including other ones like: associational, structured object, formal logic based, procedural, common sense knowledge representations and other approaches[2].

“Fig. 4” shows the cognitive mechanism of design and analysis as an integrated mechanism. Our students are asked to use a kind of ‘Semantic Net’ to represent what they analyze and design. It has been very effective and efficient ever since 2004, that the ‘Bridge Class’ between bachelor and master programs would get ready for masters. These will be explained below:
Theoretically, it seems possible to assume this twin to be exactly the opposite of each other; yet, they may vary concerning instances since a party may yield a set of parametric alternatives.

"Fig. 5", delineates briefly, how 'Form-Operation-Performance' are inter-related to each other within a 'Semantic Net' which explains itself.

Performance (P): a (open) set of norms(depending on scale and case) to be satisfied.
Operation (O): the way how the function is realized; not FUNCTION, thus.
Form (Morph) (F): emerging and adapted morph in relation to P and O.
“Fig. 6”, delineates briefly, how ‘Performance-Operation-Form’ are inter-related to each other within a ‘Semantic Net’ which explains itself.

**Fig. 6. A schematic representation of design [5]**

- **Performance (P):** a (open) set of norms (depending on scale and case) to be satisfied.
- **Operation (O):** the way how the function is realized; not FUNCTION, thus.
- **Form (Morph) (F):** emerging and adapted morph in relation to P and O.
Fig. 7 delineates briefly, how ‘Design Phases’ are inter-related to each other within a ‘Semantic Net’ which explains itself.

| Explanation: All phases involve consideration: program of requirements, context, background knowledge (including precedent knowledge), design strategies (including design by study and study by design). All the phases also include PORM and creativity. |
| Parti: dominant underlying characteristic idea |
| Recursive: 2: sf, relating le, or being a procedure that can repeat itself indefinitely or until a specified condition is met (M.W.) |
| Iterative: 1: marked by or involving repetition or recitation or repetitiveness or recurrence (M.W.) |

Fig. 7. Some possible design phases [6]

Well-represented knowledge is actually based on empathy with human being in general, since its being shared and understood clearly by other minds, depending on the domain and language. Intersubjectivity, then, takes care of the rest of empathy among narrow groups or individual subjects. I believe also the entire idea of affordances is possible because of these two interwoven mind properties, within the domain of human kind.

Concluding from all these, I support the idea of freeing students’ minds from their prejudices, training them in making defamilirization to gain knowledge properly and encouraging them in using all what they possess to activate in learning process; briefly, motivate them to synchronize their mental abilities by being aware of the synergetic effect of them.
Fig. 8. An example of architectural precedent analysis through 4 methods by my students.
References


