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## **INDIVIDUAL LEARNING IN AND WITH A COMPETENT GROUP STUDENTS' STATUS IN THE CLASSROOM AND THE CONSEQUENCES FOR UNIVERSITY TEACHING**

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**Abstract:** This paper focuses on the possible role of abductive reasoning in the context of learning process. This, however, is not something directed at students in colleges and universities. It is about learning, especially learning within a group or class.

**Keywords:** learning, group, Pierce, abduction.

### **Introduction**

„Can you hear me? Can you understand me? Can everyone hear and understand me?” What is most important for every public speaker or teacher is that the audience hears and understands their spoken words. But it is not enough to be heard and understood. When I was in graduate school, one of my classmates was bored during a lecture given by a distinguished professor. He heard and understood what the professor was saying, but he was not interested in it. While the professor lectured, my classmate formed two letters with his fingers that he showed us: “W” and “C”. These are the initials which form the words: Who Cares? The implied answer was that nobody cares. Presumably everyone has had this experience in his or her life. This is one of the great fears for every teacher, especially in the context of university teaching! The teacher's message is heard and understood, but there is no connection with the students; the message is not received because it is seemingly boring, abstract, meaningless, a set of ideas, and a theory separated from the everyday struggle of life.

Are there adequate principles of teaching a class in colleges and universities today? How should we initiate the learning process while also supervising and controlling what goes on? The concept of abductive correlation provides hints and helpful assistance with this issue. Charles S.

Peirce (1839-1914) first developed the concept of “ab-duction” or “abductive reasoning” which refers to the process in which a person builds a hypothesis when confronted with an experience which is either problematic or needs to be explained. It is through this creative dimension that the understanding of abduction makes it interesting in many areas (Hoffmann 1998).

## Research Results

The numerous sciences (philosophy, scientific theory, artificial intelligence, social sciences, literature, law, criminology as well as educational and pedagogical sciences) all find the Peircean concept of abduction to be of their interest. It justifies the notion that the forming a “new” idea allows the development of new ideas and hypotheses. Abduction for Peirce is “the only logical operation that introduces any new idea” (Peirce VP 115 = Peirce CP 5.171; vgl. ebd. 5.145).

I would like to start by looking at another example from the area of mathematics where the nature of diagrammatic reasoning is most easily understood. My example is the extraordinary and known story of a farmer, who apparently in all modesty, asks the king for a favour. It involves the chessboard. The farmer wanted one grain of rice for the first square of the board, two grains for the second, four grains for the third and the rest of the squares were to be doubled from the one before it. Many politicians found the inventor of the story a rarity and the king agrees immediately and although it seemed easy, by the 30<sup>th</sup> square, he realized that the whole supply of rice was already exhausted. Obviously he had been completely beaten. How many pieces of rice was the farmer allowed to claim? (Voigt 2000).

Abductive conclusions are meant to be possible but not necessary. In abductive reasoning, hypotheses are created through possible circumstances which can lead to a known rule and then to a known result. Abductive reasoning as a hypothesis is always under review (Prokopf & Ziebertz, 2005).

This may become apparent through detective work (Riegel, 2007): the result for the reason why a detective is so committed to his job is presented here. A good detective has a basic knowledge of criminology and the knowledge of different situations and regularities in his repertoire. The task of the detective is to solve a case through investigations and evidence. The detective invents a possible scenario and provides proof for this scenario. We can see from this example that verification is necessary for abductive inferences and that new interpretations may occur. “There will be unrelated elements that are brought together as an explanation for previously unexplained phenomena” (Heil, 2006: 81). Riegel (2007) adds that in abduction the explainable hypotheses form some surprising facts. At the

moment, the results remain hypothetical. Abduction therefore describes a creative perceptual judgment.

The abductive approach insinuates the unexpected, the unknown, and the unpredictable. The course of instruction should therefore be left open. This does not mean that good preparation, didactical and teaching skills are no longer required. On the contrary, they are essential. There needs to be a specific and relevant topic. What it does not need is a topic that follows one rigid, direct path. It is about taking the seriousness of the subject-oriented constructivist method. "Abduction is the process of forming hypotheses to the facts that need explaining" (Ziebertz, 2004: 211).

"Abduction is designed to help social researchers find new logical and teaching paths" (Reichertz 2003:277). In the beginning, abduction is like induction of a specific case, but in contrast to induction, there is no specific rule or result. Now the argument seems to reason backwards. One is not sure that God made all humans speechless and with no perspectives, but one can make generalizations that people are speechless and have no prospect based on traditions or that God identifies with the suffering which is based on the Bible.

Reichertz (1993:285) describes abduction in the following way: "Considering surprising facts, abduction (as previously mentioned) searches for a meaningful and possible rule which eliminates the surprise from the facts. The result of this search is an (oral) hypothesis. A multi-stage assessment process begins". Hermans (2003:45) adds, "We don't work with either the security of a rule (such as deduction) or that of empiricism (as in induction). We tap into both a rule and an experience (the result)". This combination does not happen randomly. It is subject to three different qualities. They have to be related to one another and the whole thing has to have meaning. Therefore the object has a specific quality (the quality of a painting) and something that supports the attributed which represents something specific (the painting always conveys a message). The third qualitative element Pierce calls the interpretation. There has to be a specific reason that the object can support and has a quality for a sign or symbol. "When a person detects and recognizes the reason, then the relation between a specific quality and an object becomes clear. The interpreter suddenly understands and realizes the relationship between the two. They understand the importance (quality) attributed to the object" (Hermans 2003:47).

The following image displays "abductive analysis" in cooperation with deductive and inductive approach (Prokopf, Heil & Ziebertz 2003:96):

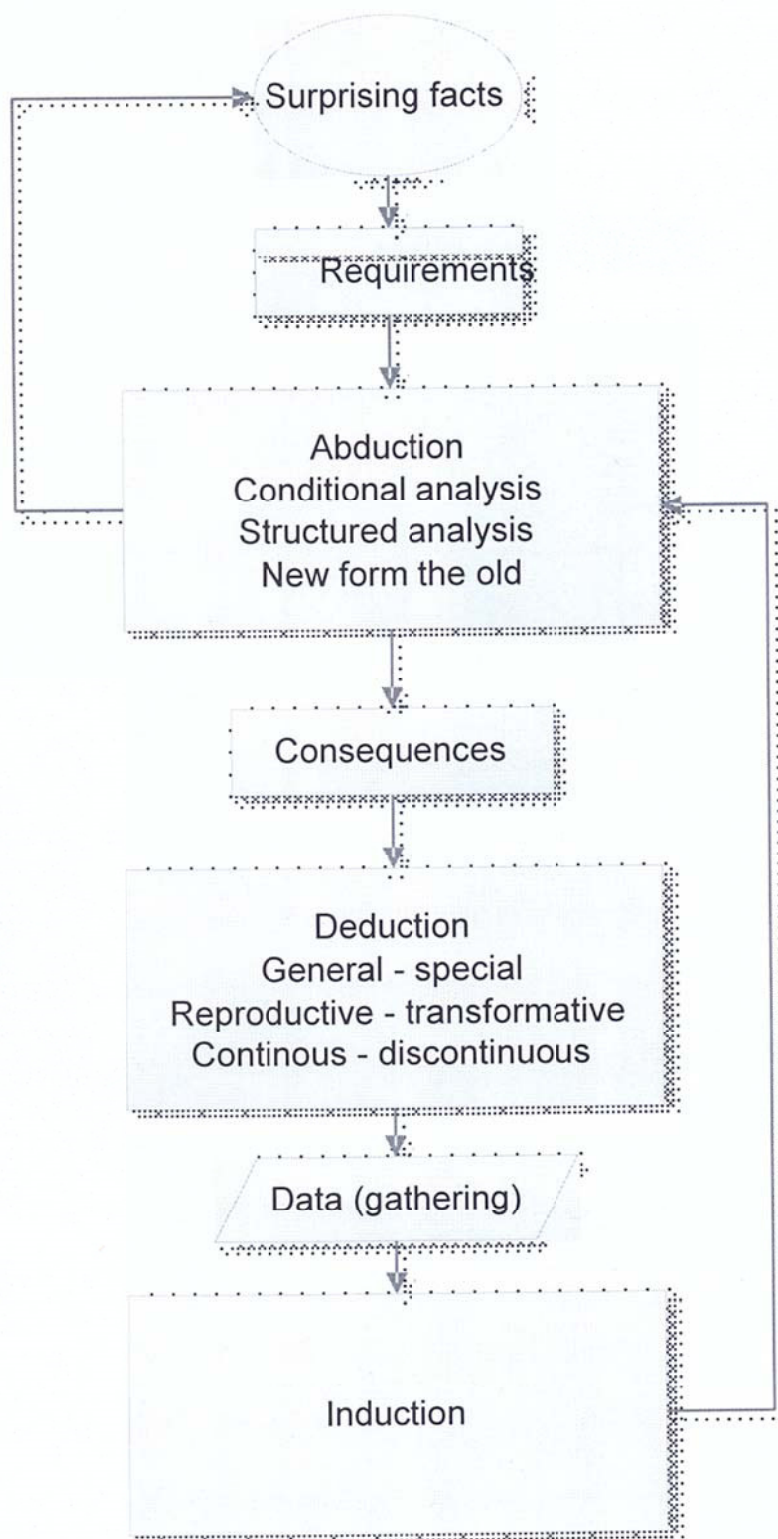


Image 1. "Abductive analysis" in cooperation with deductive and inductive approach

### **Further analysed segments**

When I alter my teaching in the way that there is no dominant “one-way-communication” but that students are learning with each other, then the learning process is more efficient. As a whole, the class becomes more lively and colourful. Both the desire to learn and their learning success significantly increases among the students.

### **Instructor or scaffolder?**

At first glance, planned and educational processes appear to be a hindrance for those who are motivated through experiences and encounters. The essential situations, in which people are able to encounter and be responsible for, happen every day. In an institution, we should be able to think of everyone as goal oriented. Unfortunately, school has become a place which generally lacks experience and has no meaning for the students. Therefore, in my experience, the effort, the meeting- and symbol-oriented-learning-process in which everyone takes on a responsibility for themselves and others, gives a boost to motivation. The willingness of the students has increased due to the planning and design of the curriculum. It amazes me that even the normal tasks of listening, writing, learning and taking tests is the more comfortable and easier for students. They take on topics and literature willingly in order to prepare more for their focus of study. In my experience, they have a high motivation to succeed. This has something to do with the introductory lesson that I teach in the first few classes. Thus I stress the strengths of this kind of learning. An important aspect is the inherent performance structure of the seminar. In this way everyone is clear that they have to work and study for the exam at the end of the semester. They are on task and well prepared so that they are “rewarded” with the good grade. This is perhaps a very sensible and practical form of motivation.

Basically it is about a new kind of cultural seminar which was created through this project. Cooperation is of utmost importance and felt within the classroom. The meetings, the conversations, and creative actions are very much dominant. Interestingly, the students show varying age distributions. The themes that they choose and their discussions correlate with their generation. This naturally makes it more exciting.

Are my students really ready for this change? What happens when the next one responsible (myself) takes it all away? This made me a little unsure in the beginning. Am I actually convinced that I can really let go?

Should teacher be an “instructor or scaffolder”? The starting point here is to attempt to use the strength of the group and to let the competence, the

experience, and the knowledge in designing and planning be known. For the lecturers, does this mean that they see themselves as speakers? Or do they control and direct the learning process? Comenius describes this approach stating that the first and last goal of teaching should be to seek out and discover ways in which the teacher teaches less yet the students learn more.

A self-regulated learning process makes it necessary to redefine the role of teachers and students. The teachers play the role as both specialists for the knowledge of certain materials, property and areas and are experts in learning (the learning companion, helper, and conveyors). The teacher becomes the so called "learning consultant". Here are the following requirements of this new role:

- The "learning consultant" is responsible for learning the concept. It must be understandable for the participants. He/she needs to clarify the organizational conditions.
- The "learning consultant" must adhere to the model of self-directed learning. He/she should reject making decisions for students
- The "learning consultant" should agree with the students whose performances should be provided and when he/she has the right to intervene (ex: when the students cannot reach their goal).
- When the students require help with a problem that is keeping them from accomplishing the task at hand, then the teacher may give them assistance.
- The role of the teacher is that the students take something back from the learning process and that they "run" with their decisions (as long as they make sense and can lead to a goal).
- The teacher should also be able to quickly assess the learning dispositions of the students (capable of making correct diagnostics), to offer assistance with any learning difficulties or motivational problems, and to identify opportunities to further develop or encourage intellectual growth.

### **Consequences affecting the design of teaching and learning processes**

The student becomes the subject of the learning processes. The result is that they must concentrate on the topic. Subject-centred learning is designed to support learners to help themselves. Educational action in this context means to stimulate independency, critical acquisition of awareness, attention of issues, an awakening of interest, the exchange of experiences, and the constant need to discover. Through conferencing, they will be able to address and complete their own acquisition strategies. Therefore the emotional, social, cognitive,

physical, creative, and sensory-motor skills are used and encouraged. Subject based teaching also involves students own backgrounds and experiences so that they are treated fairly. The goal is to gain a kind of interaction between their own life experiences, assumptions and life theories, and also merge this together with practical knowledge and scientific knowledge. Science therefore serves as an intellectual stimulation in which methodological introduction is its base. General knowledge incorporated in conferencing seems to result in self-encouragement to also see one's own experiences in a different and new perspective.

Instead of "Didactic teaching", there appears to be an "enabling didactic" in which the frame enables students and the teachers to be engaged in the, "process of learning development and acquisition of knowledge". This form of self-organized learning needs a modest reform from foreign organizations where the focus is not on the content of learning, but rather on the learning conditions.

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### **INDIVIDUALNO UČENJE U I SA KOMPETENTNOM GRUPOM**

**Sažetak:** Ovaj rad se bavi mogućom ulogom abdukcijskom promišljanja u procesu učenja. Ako sebe doživljavamo učenicima, to onda nije nešto prikladno samo za studente. Radi se o učenju, posebice o učenju unutar grupe ili razreda.

**Ključne riječi:** učenje, grupa, Pierce, abdukcija.

### **INDIVIDUELLES LERNEN IN UND MIT KOMPETENTER GRUPPE**

**Zusammenfassung:** Dieser Beitrag befasst sich mit der möglichen Rolle der Abduktion im Lernprozess. Wenn wir uns selbst als Schüler sehen, dann ist es etwas, das nicht nur für Studenten geeignet ist. Es geht um das Lernen, vor allem um das Lernen in einer Gruppe oder in der Klasse.

**Schlüsselbegriffe:** Lernen, Gruppe, Pierce, Abduktion.