

Identifying Critical Aspects from Learners' Perspective

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1. INTRODUCTION

ABSTRACT

This paper discusses what it takes to identify critical aspects from learners' perspectives. The critical aspect is a vital component of variation theory, and can be described as "a particular way of seeing something ... defined by the aspects discerned, that is, the critical features of what is seen" [1]. In order to experience reading, for example, you have to discern all the aspects in reading, such as the shapes of letters, the sounds in different contexts, the meaning of a word and the direction of a text as well as the semantic value of a word. Without discerning these aspects of the phenomenon 'reading', it is not possible to experience reading. That is made possible by discerning aspects when they vary, like letters that in a way are similar, but yet have different shapes. For someone with impaired reading, all aspects are not discerned. The difference between aspects and critical aspects is that the latter are those needed to develop learning.

In the current study, respondents with dyslexia describe what they experience when they read. From this data as well as from earlier studies using variation theory, the focus turns to whether it is possible to identify each person's potential critical aspects. In this study the object of learning is reading ability. The questions the paper responds to are:

- How do the respondents themselves explain their reading deficit?
- What potential critical aspects could be found by analyzing what the respondents already have discerned?

Keywords: critical aspects, variation theory, reading ability, dyslexia.

Variation theory concerns what it takes to learn; it is not a theory of how to teach. Learning is defined by variation theory as a new way to experience — an ability to see something from another perspective [2]. To obtain this shift in perspectives, aspects that need to be varied and discerned are called critical [3]. Critical aspects are not possible to find by the learner her- or himself: as soon as the learner discerns such an aspect it is not critical anymore because the learner has gained learning about it. And before the learner has discerned them, that person cannot be aware of them.

One example is how to find the critical aspect for a child who confuses the letters *b* and *d*. What is it actually that separates the letter *b* from the letter *d* and what similarities do children see when they don't see the differences? Both letters consist of a half circle and a straight line, but the critical aspect is in which direction the half circle is pointed. For the learning child, the importance of the direction is not obvious. The child sees the parts of the letter but might not discern the critical aspect for naming it either *b* or *d*, especially if the child only knows one of the letters, e.g. the letter *d*. And as a chair is still a chair, even if it is turned around, why is a *d* not a *d* if it turns around into a *b*? If the learning child wants to use the letter to make others perceive it correctly, the critical aspect of the direction of the half circle has to be discerned, as well as the difference between *b* and *d*. Another person, let us say a teacher, by contrasting the two letters can steer the child's awareness towards the two half circles' directions, preferably by presenting them at the same time. If the child doesn't discern the critical aspect, it might very well think *b* and write *d*; the difference in direction of the half circle is not experienced, only the components the letter consists of. So, a more knowledgeable person, by studying a learning person, can start to consider what the critical aspects *might* be. What can't this person discern yet, what is it s/he has to discern to fully

understand this phenomenon? In other words, what is the critical aspect and how can it be found for each person and each learning situation? To know what something is you also have to know what it is *not*. A *d* is a *d*, but a *d* is not a *b*.

These questions will be elaborated more thoroughly in this paper through an example of interviews with respondents diagnosed with dyslexia. The results will try to explain what aspects the respondents discern and what aspects have yet to be discerned.

To read is to experience several aspects of the letters (recognition, sound, semantic) at the same time, which gives the letters a meaning. A person who experiences this has discerned aspects of the phenomenon in focus, aspects that are critical to understand the phenomenon. The scribbles become more than mere scribbling: they become revealed and filled with a meaning. For persons with dyslexia some of these aspects are not clearly discerned.

Dyslexia is a diagnosis with a broad and so-called continuous definition [4], which makes it hard to establish the exact transmission from poor reader to dyslexic reader. Dyslexia can be expressed differently within different individuals. However, there are findings showing a common pattern of reading capacities and strategies in some areas. A study from Canada [5] of dyslexic and non-dyslexic readers at university and college level used self-evaluating questionnaires to find out if the participants from these groups were learners with a deep or a superficial approach [6]. The results showed that dyslexic readers had problems finding the main ideas in a text and preparing for tests. Furthermore, eye-tracking studies concerning differences in eye-movements between dyslexic readers and skilled readers have shown that fixations for dyslexic readers last longer and are more numerous; meanwhile saccades tend to be shorter in length than saccades performed by skilled readers. The dyslexic readers make more regressive eye movements [7, 8].

All the above findings show some common reading patterns, but since the diagnosis can have several causes and is more or less severe within different people, it is still essential to find out more exactly what each person's reading ability consists of, that is, to identify that individual's critical aspects concerning reading and the difficulties they have

with reading. Identifying critical aspects of an object of learning, that is what shall be discerned and varied simultaneously to experience that object of learning, needs to be grounded in empirical data, as the learner discerns the object of learning. The critical aspects can be found by neither the learner nor the teacher themselves.

2. THEORETICAL ASSUMPTIONS

Reading is a culturally developed skill in which a person combines signs with sounds, puts sounds together to make meaningful words, and interprets them in the context in which they are found, and at the same time uses the context to correctly interpret the phonemes. A person who is reading a text processes it visually, phonologically and semantically simultaneously. It is possible to mechanically encode letters without transforming them into words and filling them with meaning, but that capacity is not discussed here. Reading is here understood as both encoding letters *and* grasping the meaning of a text.

Drawing on variation theory about how knowledge is attained, a person who is reading needs simultaneously to experience the parts and the whole. This seems to be a problem for many weak readers or readers diagnosed with dyslexia [9]. Their reading deficit aggravates some of the needed processes, and they tend to focus almost exclusively on parts — sounds or signs, or a part of a text or a word, and thereby fail to assemble the parts into a meaningful whole and understand the parts by a conception of the wholeness. Using the concept *critical aspect*, vital in variation theory, is one way to elucidate what an individual needs to discern when experiencing an object of learning. When a person shall read a word, it is necessary at the same time to understand the word, hear the sounds the word is made up of, know how to represent these sounds with the help of established signs, understand the concept of both books and texts and have an intention with the reading. All these aspects need to be discerned at the same time to be able to read the planned word. When one or two of these aspects cannot be discerned, the person has not fully experienced the phenomenon.

Asking a person why he or she can't read or write properly is useless. If the person already knew what it was *s/he* could not discern, *s/he would* already had

discerned it and know it. Identifying the critical aspects, what is not discerned or what is not discerned simultaneously, is therefore necessary. Since we all perceive situations differently according to previous experiences and knowledge, critical aspects for a certain learning object cannot be presupposed to be transformed from one individual to another.

There is some resemblance between the concept of *critical aspects* and Vygotskij's *zone of proximal development* (ZPD) [10]. Vygotskij talked about the possibility for an individual to gain new knowledge if s/he met the right artefacts and could mediate knowledge from them. The artefacts could be a more knowledgeable person or some material at the right level for the learner, helping the learning individual to do something that s/he will be able to perform on its own when s/he has gained the knowledge needed. This is a more obtuse reasoning than the concepts of variation theory, in which the teacher tries to find the critical aspects for a specific object of learning – what needs to be experienced and discerned simultaneously to fully understand that object of learning for a specific student group. The ZPD of Vygotskij could be understood as unsharpened knives, and the critical aspects of variation theory as sharp-edged knives. Once identified, they are used with precision to carve out the learning object and make it possible to see it from different perspectives — to fully experience it.

An earlier study [11] shows that teachers, when using their pre-understanding, often fail in identifying their students' critical aspects of an object of learning; they misjudge the students' comprehension of the object of learning. When the teachers are confronted with the learning outcomes of the students, they reconsider their understanding of what the critical aspects are [11]. In learning studies [12, 13] the procedure normally includes several steps; teachers jointly choose one object of learning, and then carefully interview students concerning their experience of that particular object of learning [14, 15]. Thereafter the teachers construct a pre-test, and analyse the results from the pre-test to try to find out what the critical aspects are. Teachers then jointly plan a lesson, conduct it and give a post-test. The whole procedure is done twice more with new students groups, to refine and sharpen the design of the instructions and really capture the critical aspects students need to discern.

In one way the learning study procedure could be described as looking at the pupils' current knowledge and understanding of the chosen learning object from a "back-door". What mistakes do the students make? Why? What is it that they don't see, that causes them to make these mistakes? What is it the teacher must clarify and present in a varied way to pinpoint exactly that the aspects needed to be discerned are in fact discerned?

It is not a question about "telling" the pupils, it is a question of arranging the content in such a way that it enables the students to discern the pattern and the critical aspects and thereby experiences the object of learning. This procedure has proven to have a good impact for students' deep understanding of the object of learning, as well as for teachers' understanding of what critical aspects can be [11, 16]. It has also proven to be powerful concerning the students' learning outcomes [17, 18]. This paper is based upon six in-depth interviews with dyslexic readers who themselves try to express how they read and what the problems are with their reading abilities.

3. METHOD

The interviews were performed during spring 2009. The respondents ($n=6$) were found through a webpage ($n=1$), through personal contacts ($n=2$) and through a reading counsellor at a University College in Sweden ($n=3$). Two of the respondents had an academic degree; four of them were students at the time for the interviews. Two of them had comorbidity with ADHD. The respondents were all adults and had long experience of reading, which was important for receiving rich and developed answers. They had all continued to study after upper secondary school, which means they had had to deal with their reading deficiency and probably thought a lot about it, which was also a good condition for sophisticated answers. All respondents came forward voluntarily. Since dyslexic readers often have bad school experiences, and can be traumatised, it was ethically important they freely volunteered. As it turned out in the interviews, all six had experienced bullying and/or feelings of being strange and left out. Table 1 presents data concerning the respondents: age, sex, when the dyslexia was diagnosed and the duration of the interview.

Name	Age	Sex	Diagnosed at	Interview duration
Pete	23 years	Male	10 years	00:53:09
Jeanie	24 years	Female	19 years	00:44:58
Sarah	57 years	Female	8 years	00:45:51
Mary	47 years	Female	30 years	00:44:50
Cathy	35 years	Female	34 years	01:03:49
Eddie	24 years	Male	10 years	00:49:08

Table 1. Data concerning respondents.

The method used to collect the data was qualitative interviews [19]. Questions were designed to get in-depth answers in detail regarding reading and how text is perceived, for example how words are read out and how sounds are discerned. The interviews were conducted by telephone and in face to face. They were recorded via a digital tape recorder and thereafter transcribed and analyzed. The analysis in the first step was based on phenomenography [20] and in the second step on Variation Theory [21]. The answers were categorised based on phenomenography, constituted by the qualitatively different ways the respondents expressed their understanding of the phenomenon “reading” [20]. The individuals’ expressions were grouped into categories, but as dyslexia is a broad diagnosis, which can express itself in several ways, it is of importance to understand each individual’s specific problem. In phenomenography we seek as many different experiences as possible and hence the divergence is important. The categories in the second step are analyzed based on Variation Theory [21] to understand what kind of critical aspects are not yet discerned. The critical aspects concerning reading must be discerned and kept in focal awareness simultaneously in order to be able to read.

4. RESULTS

Many studies concerning dyslexia are made from a first order perspective [20] in which statements or opinions about reality are made. In contrast to such studies, this one departs from the respondents’ expressions. They are interviewed about how they experience reading.

To analyze and interpret interviews in a phenomenographic approach means to “search for and describe the critical differences in the ability of people to experience the phenomenon we are interested in” [20, p.161]. It is not about pairing one way to experience a phenomenon with one individual; the intention is to reveal the variation in how the phenomenon can be differently expressed. Thereafter categorizations of the different variations are made. This will allow a deeper understanding of how the phenomenon can be understood — in this case the aim is to better understand how people with dyslexia experience reading. Phenomenographic studies often have a small numbers of respondents and do not claim to uncover all the variations of a phenomenon, but the goal is that the categories should reflect the examined groups’ experiences [20].

The categories are composed of the expressed qualitative differences concerning the respondents’ problem with reading. They express how their reading is impaired, not what the impairment consists of. Five categories were found in the interviews — I don’t discern letters, I don’t discern sounds, I mix up words and syllables, I don’t find words, I don’t remember. All of the categories describe in one way or another difficulties with reading, why reading does not take place. Even with the same diagnosis, the description of the respondents’ capacities and impairments differ from one another and, of course, in some sense, differ for the same individual. The categories co-operate with each other in a negative way: if an individual has problems with remembering combinations of letters, that will obstruct the possibility to discern a word. If the word is not discerned, it is harder to know how a specific letter shall be pronounced, since the context sometimes determinates pronunciation. So, even if the core impairment, according to the respondent is, for example, “I don’t discern sounds” this does not mean that the other categories are not relevant at all. In fact, one person could express meanings in several categories. Cathy, for example, has troubles with word order and grammar, but she also forgets words.

Another way to describe the difference between the six respondents’ expressions is described in Figure 1. “Easy” should here be understood as relative, since neither reading nor writing is easy for a person without dyslexia. Nevertheless, the results stem

from their utterances and some express a difference in these capacities.

	Reading easy	Reading hard
Writing easy		Mary
Writing hard	Cathy	Pete Jeanie Eddie Sarah

Figure 1

The respondents know that their reading is impaired, but have difficulty finding the reason and thereby identifying the critical aspects. Mary, for example, thought her capacity to recognise words had improved, but a recent test showed she was still guessing many words". *So I had to put that aside, my reading problem couldn't be explained according to that,*" she concludes. Eddie gives another example; *"Some days I can't read a text. Quite impossible. . It, it just doesn't work...I don't know what happens...I can see the words but I don't understand them."*

However, the main issue in this study is to describe and discuss in what way it is possible to identify critical aspects (the second step of the analysis) from a learners' perspective in combination with the perspective of the already learned. This will be illustrated by an example.

Pete is a young man of 23 years who got his diagnosis at the age of 10. His reading problem became obvious in grade four. He could not and cannot read his own handwriting. Pete expresses both that he does not discern letters and that he does not find words. He has to read a word letter by letter *"I read up the word in my head, the whole word, I have to take it letter by letter"*. This takes quite a long time, so Pete guesses a lot on words, but sometimes he notices in the context that his guess was wrong and then *"I have to go back to the word, and, ah, it was that!"* Pete is aware of that this is a bigger problem when he meets new words; *"completely new words that I read take a really long time to read and, yes, the context gets incredibly important"*. Pete is trying to understand what is happening when he is reading, but he cannot see what he cannot do. He says also *"lately I have understood that people without dyslexia can see constellations of letters and directly understand them, so to speak"*. It is obvious that he has not this ability. He is touching upon what could be a critical

aspect, but he cannot define it and does not know what he has to discern to acquire that capacity. Where shall he start? What shall he do to obtain the capability others have to automatically read a word? For him words do not pop-out of the text. If he sees a text he can refrain from reading it. It is actually the other way round; to read is an active decision, whereas people without dyslexia have problems NOT reading a text placed in front of them. It's like having to think about every movement when you walk. When Pete describes his reading ability, it is done with blunt knives — he is stuck in a cul-de-sac. It is impossible for him to discern the critical aspects. It is also impossible for the researcher or teacher to find an object of learning's critical aspects without the connection between the learner and the object of learning. In this case, we can guess that Pete would need teaching to enhance his phonological skills as well as his vocabulary, but not merely teaching as such. He needs instruction that pinpoints the aspects critical for his understanding. The result from the interviews shows the respondents' awareness of their impairments, but not how their knowledge can be developed, as they do not know the missing information. Both the teacher and the person who is going to learn need to make joint input for identifying the critical aspects. The interviews contribute information about how the object of learning is perceived, and show why it is impossible for the learner alone to identify what must be learned. An identified critical aspect is only the first step to new learning: of great importance is the way the critical aspect is presented and offered to the learner. Small differences in the way the critical aspects are varied, contrasted and made possible to discern have shown to have big impact on students' outcomes [22, 23]. Learning is not a simple activity; it is a complicated process about how we acquire possibilities to see the phenomena around us.

5. CONCLUSIONS

Locating critical aspects of an object of learning requires collaboration between the learner and the object of learning. The learners themselves have a hard time finding out what they don't know. But if they knew, they had already gained the needed knowledge. Critical aspects cannot be found solely through theoretical studies, nor can they be transformed without careful interaction between one person and another; critical aspects are learning dynamite that reveals new learning when found, and

they need to be empirically grounded and vigorously sought.

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