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ABSTRACT
Honoring the variation theory principle that meaning springs from differences, in this article we will show how two different strands of theorizing emerging from the mutual base of phenomenography have developed into developmental pedagogy and variation theory, respectively. Through looking at texts from these two strands, we will illustrate how they differ from (and are similar to) one another and argue that these differences can be explained through their different institutional embeddedness in preschool and school, respectively. The discussion will emphasize the important complementary contributions of both strands of theorizing.

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Phenomenography; developmental pedagogy; variation theory; preschool; school

In this article, we will illustrate how, from a mutual base in phenomenography, two different theoretical strands have evolved. These strands are variation theory and developmental pedagogy. There is also a third theoretical strand, the kind of phenomenographic research developed by Lennart Svensson and his colleagues, looking at the use of language and contexts (Anderberg, Svensson, Alvegård, & Johansson, 2008; Svensson, 1997; Åkerblom, 2011). However, in this chapter we will focus on the two former strands of theorizing. We will argue that these two theories, while sharing a theoretical foundation in phenomenography, have been shaped in response to different institutional arrangements in the form of school for variation theory and preschool for developmental pedagogy. This institutional embeddedness is important to understand the development into these different theoretical strands. Furthermore, we argue that the evolution of these theories has led to different models of development. This difference also has practical consequences for a teacher. In fact, we will argue, the role of the teacher will be partly different when working informed by one or the other theoretical framework. This is, briefly put, the nature of our reasoning. Finally, we will raise the questions of whether these strands can be re-integrated and if this is desirable.

It should be noted at the outset that variation theory and developmental pedagogy are not entirely comparable, that is, they have somewhat different ontological standing. Variation theory is a distinct theory of learning, albeit with clear implications for organizing teaching. In contrast, developmental pedagogy is not a clear-cut theory of learning, but rather a theoretically informed pedagogical approach for studying and promoting learning. In the case of developmental pedagogy, the theory has been developed in tandem with developmental work and empirical research. Developmental pedagogy is not merely an application of a theory. It therefore cannot be placed on equal standing.
with Learning Studies, that is, the practical application of variation theory in schools. Since, in the context of the present discussion, we focus on what notions of development are inherent in the two traditions and what their implications are for organizing teaching, the ontological difference between variation theory and developmental pedagogy is not critical.

**A mutual theoretical base in phenomenography**

In this context, we will not extensively present phenomenography. We will only describe some features that we consider fundamental points of departure. Looking at the article that launched phenomenography, Ference Marton’s (1981) “Phenomenography: Describing conceptions of the world around us”, a critical distinction is made between what is referred to as the first- and second-order perspective. The first-order perspective orients us toward making research about something in the world, for example, writing. In contrast, taking a second-order perspective, the question concerns how someone (e.g., teachers, parents, and/or children) experience or make sense of writing. At the time of formulating phenomenography in the early-1980s, it was not very common in research to investigate phenomena as experienced by people, while today there are many different perspectives for studying how people experience phenomena in the world around them (e.g., membership categorization analysis, see, e.g., Housley and Fitzgerald [2009]). While many perspectives today share an interest in and a focus on people’s conceptions, experiences, or sense making (the preferred terms differ), the epistemology and ontology differ between these perspectives. From the theoretical position of phenomenography, there are numerous empirical studies, including how students at the university read and understand texts (Dahlgren, 1975; Säljö, 1982), and many other phenomena, for instance, learners’ conceptions of electricity (Kärrqvist, 1985), gravity (Lybeck, 1981), basic mathematical principles (Björklund, 2007), student teachers’ conceptions of didactics (Mårsjö, 2005), and preschool children’s conceptions of learning (Pramling, 1983, 1988).

The interest in people’s experiences does not lead to an individual subjectivism, which would make it irrelevant to scientific investigation. Rather, as argued from the theoretical point of view of phenomenography, and illustrated empirically through many studies, regarding every phenomena there will be a variation among people experiencing it, and, furthermore, every person may hold several conceptions. This means that the results of a phenomenographic study are constituted of a limited number of categories of conceptions about the studied phenomena. The results are not related to specific individuals, but represent the variation of conceptions found in a specific group of children or adults. Marton (1981) expresses this as:

>This superindividual system of forms of thought, this perceived world, is, we believe, descriptive of human thought in two ways. It can be used as an instrument for description of the way people think in concrete situations and, from the collective perspective, it can be seen as a description of thinking. (p. 198, emphasis in original)

Since people’s experiences are experiences of something, phenomenographic results are always relative to an experienced content. Giving the subjects in the study room to express themselves freely, in open-ended questions or tasks, is a prerequisite for generating a result. Since people’s experiences are investigated, closed categories of responses (multi-choice tasks) cannot be used. The categories of conceptions are generated inductively from the empirical data.

When conducting this kind of research study, it became obvious that teachers and children have not only different understanding but also different perspectives on what is going on in the teaching situation (Pramling, 1983). For example, the teachers thought that they were teaching children in primary school about temperature, while the children thought they had learned to make thermometers. Another, similar, example is when teachers were trying to develop preschool children’s understanding of time, the children experienced that they had learned to make clocks. These different perspectives need to be coordinated in order for the teacher to contribute to the child’s development. Hence, in metaphorical terms, where the teacher’s intention crosses the children’s experiences...
arises a meeting-place for the teacher’s teaching and children’s learning. Teaching and learning fundamentally become a question of negotiating meaning (Doverborg, Pramling, & Pramling Samuelsson, 2013).

**Variation theory and the object of learning**

In this section, we will present some critical features of variation theory (Björklund, 2014; Kullberg, 2010; Lo, 2012; Marton, 2015) and give some examples from empirical studies. Variation theory is described by Marton, Runesson, and Tsui (2004) as a *theory for learning specific skills and knowledge*. The object of learning is the key point of departure; both the teacher and children’s attention is directed toward what the child is going to develop skills and knowledge about. Since it can be argued that there are some ways of experiencing or seeing something that are more powerful than others in order to develop a certain knowledge, what learners discern of the object of learning is central. Building on variation theory in instructional settings, the design of the learning object is to keep some aspects of a phenomenon invariant while another varies, in order to make it discernible to the learner. The final notion of variation theory that we will refer to in this brief presentation is simultaneity in awareness, which means that people experience a phenomenon in relation to previous experiences. It is in relation to something other (previously or presently encountered and experienced) that awareness is changed. These notions are some of the key concepts of variation theory, as we here relate to it.

One of the most central and widely cited texts on variation theory is *Classroom Discourse and the Space of Learning*, edited by Marton and Tsui (2004). In addition to introducing the theory of variation to an international readership, the volume contains a number of chapters exemplifying empirical work carried out within this theoretical framework. In their introductory chapter, Marton et al. (2004) write about their concern in the book being with “learning to see certain things in certain ways” (p. 23). In variation theory, the concept of the object of learning is central, as we have already mentioned. This concept is actually further differentiated into the intended, the enacted, and the lived object of learning (Marton et al., 2004), that is, what the teacher intends to develop in children, what he or she actually makes possible to learn (in terms of providing patterns of variation), and what children experience from participating in the teaching activity, respectively (a similar distinction is made in curriculum theory, see, e.g., Goodlad [1979]). Objects of learning tend to be rather well specified. Some examples from published studies are: when to use “have” or “has” and when to use the word ending “-s” in English, or when to use the “tj” and the “k” spelling in Swedish (Ashouri et al., 2006). In addition, some examples of questions asked students in the studies reported in the book *Classroom Discourse and the Space of Learning* are: “What fraction of the diagram is shown by the shaded area” (Lo, Marton, Pang, & Pong, 2004, p. 198), “Is ½ of a cake (greater than/smaller than/equal to) ½ of a cake?” (Lo et al., 2004, p. 198). Being able to answer such questions and to discern when to use “have” or “has” or spell with “tj” or “k” are important to develop knowledge in mathematics and languages, respectively. These examples also stand in clear contrast to the objects of learning in many studies conducted in preschool, as we will exemplify in the next paragraph. It may also be noted that the variation theory approach to orchestrating and studying learning puts great demands on monitoring speech and other actions in the classroom. The framework is certainly easier to apply in the laboratory than in the classroom, or in the preschool group, since it requires controlling patterns of communication in a detailed way. However, this difficulty does not imply that it is not useful.

**Developmental pedagogy and engaging children in dialogues**

In this section, we will present some features of developmental pedagogy as illustrated by paradigmatic studies. In one of the founding studies within the frame of developmental pedagogy (the term, which we will came back to, was not coined at that point), Pramling (1990)
investigated how to enhance children’s understanding of their own learning. This issue was raised against the background of studies showing how a learner’s conception of learning, that is, what it means to learn from the learner’s perspective, is instrumental to how they go about learning and, consequently, what they learn (Pramling, 1983; Säljö, 1975). The approach to promoting—and studying—the development of children’s notion of learning was based on: (1) children’s expressions, (2) metacognitive dialogues, and (3) making children’s various experiences and ideas visible and used as a content in developmental activities in preschool. In an empirical study (Pramling, 1990), four teachers and their group of children were followed for two years. Two of the teachers worked according to the approach mentioned above and two worked the way they normally did. The evaluation was conducted by someone who did not know what had been done in either group. The following activities were investigated: teachers reading books to children and the children then being interviewed about the content, as well as a visit to the natural science museum and a follow-up activity. Consistently, the children from the “experiment” preschool (i.e., the children engaged in the developmental pedagogy activities, see above) showed a more advanced understanding. What is in this context referred to as a more advance level of understanding can be illustrated by the following example: Young children are working with a theme concerning an ecological cycle and are asked what they know about nature. This question is answered in qualitatively different ways by the children: by (1) listing what they know about the natural world, such as birds and elephants, (2) expressing what they know about various animals or plants, (3) relating nature to recreation and enjoyment, or (4) giving an ecological explanation about the trees in the rainforest and so on. The latter answer would be considered a more advanced understanding. Even when asked a simple question about nature, various aspects appear in the children’s minds, despite having participated in the same activities (Pramling, 1990). Another example of a more advanced way of interpreting something can be illustrated by children and their approach to dividing up 10 buns, so that fairness does not enter their thinking in the context of a task in mathematics (Doverborg & Pramling Samuelsson, 1999). However, it is when children’s ideas are confronted with others’ ideas that their own ideas become visible and children can become aware of their own ideas.

We will give two examples of how this work was carried out in practice, both focusing on learning about symbols. The first situation is when the children were practicing singing a number of songs for a specific seasonal celebration, and were given the task of finding out with a piece of paper how to remember which songs to sing and the order of the songs. The children came up with many different ways to illustrate various songs: through drawing pictures and writing words. The children’s various ways of solving the task were then made visible to, and discussed in, the group of children. The second example is from a project about weather, where children had to invent symbols for rain, sunshine, snow, storm, hail, and so on. They all made symbols and the teacher showed a book by a meteorologist, with standard symbols, and they compared what was similar and what was different and why (Pramling & Mårdsjö, 1994) between these symbols.

A replication of the above research project was made with a larger number of preschools, teachers and children, where also the curriculum was developed in terms of the objects of learning that children’s awareness should focus toward (Pramling, 1994, 1996). This study also found that the children who worked in accordance with the principles we have described solved various problems more successfully than the children in the comparison group (see, e.g., Pramling, 1994, 1996). This approach in work with younger children has then been further developed into an approach called developmental pedagogy (Pramling Samuelsson & Asplund Carlsson, 2008, 2014). In addition to the three principles (i.e., focusing on an object of learning, engaging children in dialogues, and conducting meta-level talk), preschool pedagogy includes the use of variation in another, more traditional way, in trying to teach children about, for example, seasons: they sing about it, read stories, use drama, and provide new toys and other props for playing with the theme.
Variation, meta-communication and metacognition

In what ways does the phenomenographic approach form the base for both variation theory and developmental pedagogy? It is possible to point out important features shared, such as (1) a focus on a learning content; what in preschool could be, for example, anything from language and communication to learning about poetry (Pramling & Pramling Samuelsson, 2010), (2) the learner’s perspective as a necessary starting point and outcome of learning, and (3) the use of variation, but variation partly used for different purposes. If working within the framework of variation theory, a feature critical to understanding a phenomenon (concept) is varied while other features of the phenomenon are held invariant. The goal is to provide a necessary pattern for the learner to be able to discern the defining feature of a phenomenon. In contrast, if working from a developmental pedagogy perspective, variation of learner’s conceptions of a phenomenon is made explicit to children in order to provide them with support to learn to see the phenomenon in more ways than they did initially. Hence, the goal is primarily to support the learner in appropriating a richer repertoire of ways of understanding something, not to discern the defining features necessary for a particular understanding. A feature of developmental pedagogy that is not emphasized in variation theory is the use of meta-communication to get children to think and talk (Doverborg & Pramling Samuelsson, 2012).

One thing that is particularly important when we talk about young children compared to adults is play (Foss & Lillemyr, 2013). Based on empirical studies of young children, in developmental pedagogy the conception of the child as a “playing-learning child” is used; that is, a child who plays and learns simultaneously if there is “room” for it in the pedagogical setting (Johansson & Pramling Samuelsson, 2006; Pramling Samuelsson & Asplund Carlsson, 2008). This points to the importance of allowing children to express themselves and play with their ideas, fantasize as well as talk about reality in the course of the same activity. Closely related to these open dialogues are the notions of meta-communication and metacognition.

Meta-communication is here used in the sense that children spontaneously communicate not only in but also about their play (Sawyer, 1997), while the concept of metacognition is here used in the sense that children, with the teacher’s support and directedness in the learning situations, think and reflect about their own ideas.

These are two analogous processes, one put into practice by children themselves and the other generally introduced by the teachers. Communicating on two levels, that is, communicating and meta-communicating, testifies to the theoretical influence of sociocultural theory. An important feature of learning in an institutional setting such as preschool or school is to become conscious of what we do and how we do it. Verbalizing as well as being confronted with others’ different conceptions are important premises to practicing developmental pedagogy.

Developmental pedagogy as an approach to early-years education

The notion of developmental pedagogy shares the ontological premise of phenomenography of a non-dualistic perspective on knowledge, where the object and the subject are inter-related. When the child discerns something in the world, the world changes for the child. The child’s understanding of the world becomes a part of their personality and knowledge becomes deeply personified. Knowledge is, from this perspective, not taking over information from others that is stored and accessed when needed. A non-dualistic perspective means that there are not two worlds, one objective and one subjective. There is only one world, and it is experienced differently by different people, contingent on their varied experiences. When the child makes knowledge his or her own, that is, makes sense, they also exceed themselves and become involved in collective knowledge (Marton, 1992). Children cannot create knowledge about something they do not have any experience of or reference point to (i.e., what they cannot in some manner relate to). Children’s awareness also changes with every new experience, which makes the child relate him- or herself to the world in a new way. Hence,
learning something among other things means to stand in a changed relation to the world, that is, one’s world changes.

Every child experiences his or her world on the basis of previous experiences. Children’s various ways of experiencing a phenomenon, in terms of a sample space, are, according to Marton (1992), logically related to each other since they become the phenomenon, that is, how something appears to a group of children. If we use an earlier empirical study about a shop (Pramling, 1991) to illustrate the point, it was clear that most children had an idea about what it means to be a customer in a shop, for example, that one pays for the goods one buys. Other children had noticed big trucks coming to the shop for deliveries, and understood that the shop had to pay for the goods. But it is not until children have experienced both these aspects that there are conditions for understanding the shop as a system. For children to grasp how these two aspects interact in the function of the shop as a system there must be opportunities and support for children to focus on the phenomenon of the function of the shop as such—that is, both money flows are related to each other between the customer, the shop, and the delivery.

Understanding children’s sense-making in this way leads to learning and development being closely related, since children as psychological individuals are in a constant process of change due to changing experiences, and children’s experience, as these are formulated in their minds, become both the means and the goal of developmental pedagogy (Pramling, 1994). It is in the flow of ideas in the communication and interaction that potential learning and development take place. In other words, it is therefore neither the child’s psychological skills and capabilities nor the knowledge content as such that is in focus for educational activities, but the phenomenon as experienced by the child.

Based on this reasoning, developmental pedagogy can be understood as the conditions created by the teacher for supporting children’s understanding of the world, as a question of qualitatively different meanings created in dialogue and interaction with others. That is, the pedagogy, as such, is supposed to facilitate children’s awareness and sense-making of a wide repertoire of phenomena (and associated values, skills, and knowledge) during the early years. This stands in sharp contrast to a traditional way of looking at preschool pedagogy as a question of adapting activities to the child’s psychological level of development. One example of the latter approach is Developmentally Appropriate Practice, founded on Piagetian theory, where pedagogy is adapted to the needs and interests of the child (see, e.g., Sanders & Farago, in press, for an in-depth presentation of this approach).

Some similarities and differences between variation theory and developmental pedagogy

We may now illustrate some of the similarities and differences between variation theory and developmental pedagogy, as we understand them. This can schematically be presented as in Table 1.

<table>
<thead>
<tr>
<th>Variation theory</th>
<th>Developmental pedagogy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning as discernment</td>
<td>Learning as discernment and sense-making</td>
</tr>
<tr>
<td>Point of departure in the question of the what of learning</td>
<td>Point of departure in the question of the what of learning</td>
</tr>
<tr>
<td>Object of learning</td>
<td>Theme (with objects of learning)</td>
</tr>
<tr>
<td>Increased differentiation as finer discernment of something from something else</td>
<td>Increased differentiation as increased repertoire of different ways of seeing (understanding) something</td>
</tr>
<tr>
<td>Studies primarily conducted in school—an institution for teaching children a first-order perspective</td>
<td>Studies primarily conducted in preschool—an institution for introducing children to various domains of knowledge and facilitating their emergent skills within these</td>
</tr>
<tr>
<td>Central concepts: object of learning, variation, differentiation, discernment</td>
<td>Central concepts: act and object of learning, variation, the learner’s conception, play and learning, meta-communication and metacognition</td>
</tr>
</tbody>
</table>
As illustrated in Table 1, there are both clear similarities and differences between variation theory and developmental pedagogy, as these have developed from phenomenography.

Conclusion

In this article we have argued that from a mutual theoretical base in phenomenography, two different strands of theorizing have evolved: variation theory and developmental pedagogy. Conceived as two branches on the same tree, these share many features but there are also important differences. We further argue that the term “differentiation,” as important to both theories, is conceptualized differently in these theories and that they lead to different models of development. From a variation theory perspective, development is described as increased differentiation of a concept, leading to a more powerful way of seeing a phenomenon. Certain conceptions are more powerful than others in the learner having discerned and integrated more defining features of a concept. In the context of school, a scientific conception is considered more powerful than an everyday one. In contrast, from a developmental pedagogy perspective, differentiation is conceived as appropriating a wider repertoire of different ways of seeing (understanding) a phenomenon, and not least in order to make something visible to children that still does not exist in their awareness. For example, “the Moon” cannot only be understood as a celestial body with certain properties, it may also be understood poetically, visually in a drawing, as “round,” as a mystical object or creature in a fantasy story, and so on. Accordingly, what it means to develop one’s understanding—or learn—from a variation theory perspective, is to single out more features of a phenomenon, while from a developmental pedagogy perspective, development is a matter of discovering phenomena and increasing one’s repertoire of different ways of seeing a phenomenon. If we return to the study by Ashouri et al. (2006), they focus school children’s learning on how “has” and “have” should be used in the English language. In contrast, looking at preschool children’s learning, they first have to become aware of the fact that language (talk) can be written down, and that there is a meaning in doing so. This is a process that cannot be carried out in a few specific lessons, but has to be both communicated verbally and become a part of their play worlds with props and material and work with language in stories and books. It can be noted that a similar line of reasoning is provided by Vygotsky (1978).

These different conceptions of development, we suggest, can be explained by the fact that these two theories are embedded in different institutional arrangements, but also related to age and forms of knowledge. Studies from a variation theory perspective have typically investigated learning in school. This institution could be conceived as society’s way of making sure that the growing population is introduced to and learns to understand important bodies of knowledge in particular ways, for example in scientific terms. In contrast, studies taking a developmental pedagogy perspective have investigated learning in the institutional setting of preschool. The demands and expectations on this institution are different. In Swedish preschool, there is no requirement that children should have developed certain knowledge by the time they leave the institution, but to get children interested in and beginning to make sense of various content areas as stated in the curriculum (National Agency for School, 2011). Furthermore, this institution arranges for children’s learning in very different ways to school-based instruction with lessons in different topics. In preschool, there are no lessons. Instead, more overarching themes are orchestrated. These themes may contain many different objects of learning of very different kinds. Building on the group of children, rather than expecting each child to develop a certain understanding, the use of variation of conceptions of the same phenomenon is commonly used as an asset to: (1) make children aware that there are phenomena worth thinking and talking about, (2) make the child aware that not everyone understands the way he or she does, and (3) that phenomena therefore can be understood in different ways. These principles are important for democratic learning; the second means that an important feature of development is to become aware of more ways of understanding, that is, to appropriate a richer repertoire of ways of conceiving something. This also implies the important later learning of being able to identify when a certain way of seeing something is relevant and interesting and
when a different perspective is required or expected. In school, this problem may not be actualized in the same way, since the topics (subjects) of the lessons provide this structure for the learner; when in a physics class, phenomena should be seen in the terms of physics, for example. Of course, the learner may still have difficulties identifying the appropriate perspective for the school subject. In passing, it may be argued that current concern with inquiry-based learning also in school (see, e.g., Lilja, 2012) implies that developmental pedagogy could be useful for thinking about school education, not only preschool pedagogy.

While variation theory is distinct in stating that it is variation in a dimension critical to discerning a concept that is the explanation of learning outcomes, developmental pedagogy emphasizes metacommunication and metacognition in tandem with variation. Since developmental pedagogy is developed in the context of, and in response to, the conditions of the institutional arrangements of preschool, it is more holistic in character. In that context, there are no lessons and hence no subjects. Rather, children are meant to be supported in developing basic capabilities and skills of different kinds (communicative, mathematical, ecological, etc.) but also to develop as learners, that is learning to learn, and to become aware that not everyone understands in the same way, as a foundation for developing basic democratic insights. All this in the context of a play- and theme-based activity setting implies the need to incorporate more than only patterns of variation of an object of learning to understand and facilitate children’s learning.

To conclude, we have tried to show that the two strands of theorizing referred to as variation theory and developmental pedagogy that have emerged from a mutual base in phenomenography, share critical features as well as some important differences. We have argued that important differences are contingent on the institutional embeddedness of these in school and preschool, respectively. Preschool and school have different histories and ideological bases that can account for these differences (Pramling Samuelsson & Pramling, 2014). While variation theory provides a theoretical framework and principles to put to work in school to provide good support for learners to discern important phenomena/concepts in a more powerful way (e.g., to discern a scientific concept), developmental pedagogy as theorizing and providing means of supporting children’s learning in preschool allows for children to become aware of and increase their repertoire of different ways of understanding a phenomenon. To develop a finer (i.e., more differentiated) understanding of a phenomenon, on the one hand, and to develop a richer repertoire of ways of understanding a phenomenon, on the other, implies different notions of what it means to know and be knowledgeable. Our final point is to emphasize that children need to be supported in developing both these forms of knowledge, appropriating a more powerful way of perceiving phenomena (through discerning and reintegrating more critical features of it) and the insight and ability to perceive phenomena in different ways. Learning both means to take over an established understanding (definition) and to learn to see things in new ways (and learning to learn). In institutional practices such as preschool and school, both the principles of variation theory and the principles of developmental pedagogy are therefore important tools for teachers in supporting children’s learning. Finally, these facts could provide incentives for developing cooperation between these two institutions in order to mutually support children’s learning.

Disclosure statement

No potential conflict of interest was reported by the authors.

References


Föregående referenser om lärande och undervisning:


Referenser på svenska om lärande och undervisning


