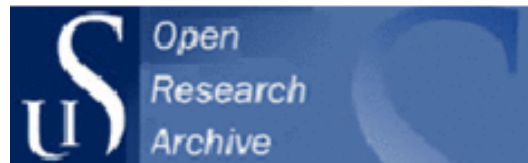




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Reidar Mosvold · Raymond Bjuland

Abstract Learning study has been used by many to develop exemplary teaching in school, and this approach has recently been adopted for use in kindergarten as well. When using such approaches in different settings than they were intended for, several challenges potentially arise. This article discusses the implementation of a learning study approach in a Norwegian kindergarten setting and employs activity theory as a framework for this theoretically based analysis. Several potential limitations of the approach are discussed and suggestions for further development are made. Differences between the learning culture of Norwegian kindergartens and, in particular, the view on learning in the theoretical framework of learning studies is emphasized.

Keywords Learning study · Activity theory · Kindergarten · Learning cultures

Introduction

In many countries, kindergarten is a part of the school system and learning has been an integral part of the focus of kindergartens for years. Norwegian kindergarten belongs to a so-called “social pedagogy tradition” wherein kindergartens are seen as institutions that are supposed to prepare children for life rather than for school (OECD 2006). In relation to this tradition, the national framework plan for kindergartens in Norway has a clear focus on taking “a holistic view of care, upbringing, play, everyday activities and learning. Kindergartens help to create our culture, and play an important role in promoting cultural values” (MER 2006a, p. 11). Learning is only one of several important aspects, and the fostering of

children's desire to learn appears to be more important than acquiring specific knowledge of content. The understanding of learning within a kindergarten context is therefore not necessarily the same as in a school context and, in the Norwegian tradition, schools and kindergartens have been said to have contrasting or even conflicting views on learning (Juell 2004). Kindergarten teachers are resistant to adopting the view of learning that can be found in schools, and there is still a need to investigate and define how kindergarten teachers are supposed to work in order to promote children's learning. Within this seemingly conflicting arena, research and development projects related to learning in kindergartens have emerged. One approach that is gaining popularity is that of "learning study" (Pramling Samuelsson and Pramling 2008). Learning study builds upon the ideas of "lesson study" which has proved successful in Asian countries, particularly in Japan (Stiegler and Hiebert 1999). A major goal for lesson study is to develop high-quality teaching. Representing a practice-based effort to develop teaching, the lesson study approach initially seemed to lack a theory of learning. When the alternative learning study approach was developed, however, a particular theory of learning called "variation theory" provided an important foundation (Pang and Marton 2003). Variation theory has developed from a cognitive tradition and its roots can be found within phenomenography (Marton 1981).

Although these approaches have been successful in some countries, it is not necessarily straightforward to adopt them for use in a different country or cultural context. Previous research on learning studies has been related to developing exemplary teaching with a focus on particular objects of learning rather than investigating possibilities and constraints of using such an approach in certain settings. This article discusses the possible tensions that might arise when attempting to conduct learning studies in a Norwegian kindergarten context. In order to investigate such tensions, we have used activity theory (AT, Engeström 2000) as an analytical lens. The research question we set out to answer is:

How can activity theory contribute to our understanding of the challenges that might arise when conducting a learning study in Norwegian kindergartens?

The analysis we present is on a system level, and our discussions are theoretically based. Although we use Norwegian kindergartens as a case for analysis, the arguments aim at being relevant on a more general level as well.

Theoretical Background

Before we approach the analysis, a further elaboration of learning study and its theoretical foundation is necessary. The development of learning study and its predecessor lesson study is related to what seems to be a main issue in contemporary educational research: to improve teaching and ultimately learning. Over the years, various approaches have been made to develop methods and tools to achieve this goal. Learning study is one such approach, and it developed as a fusion between lesson study and so-called design experiments (Pang and Marton 2003). When going into a discussion about this tradition, it is also important to be aware that critical voices argue against this strong focus on effectiveness in teaching and learning outcome (Biesta 2009).

Lesson study is a practice-based model for developing better teaching, and it has been used in Japan and other countries in South-East Asia for years (Fernandez and Yoshida 2004). It was introduced to the western world through a famous study of educational practices in different countries and, in particular, through a book called *The Teaching Gap* (Stiegler and Hiebert 1999). In this book, lesson study was described as Japan's alternative to a school reform. This alternative reform, which was instituted by Japanese educators, led to "incremental improvements in teaching over time" (Stiegler and Hiebert 1999, p. 109). A main idea was that the responsibility for educational improvement was left with the practicing teachers rather than with researchers and politicians. In lesson study, groups of teachers normally meet at regular intervals over a period of time. The aim of the lesson study group is to design and implement, but also to test and improve, a particular "research lesson" (Stiegler and Hiebert 1999).

Following the same line as that of lesson study, collaborative efforts from researchers in Sweden and Hong Kong resulted in a new approach called "learning study" (Pang and Marton 2003). The learning study approach has been described by its founders as an alternative to lesson study and in addition to the ideas of a cyclic, practice-based development process, it included ideas from design experiments (*ibid.*). A major distinction between lesson studies and learning studies was that a learning study has a clear theoretical foundation whereas "[t]he theoretical component does not seem to be a defining feature of a lesson study" (Pang and Marton 2003, p. 178). This is one aspect where learning study draws upon ideas from design experiment, which is more of a theory-driven and research-based approach to the development of practice. It is important to add, however, that lesson study has developed further since the learning study approach was introduced and a theoretical model for lesson study has now been proposed (Lewis et al. 2009).

There are two main objectives of learning study:

First, learning study aims to build innovative learning environments and to conduct research studies of the theoretically grounded innovations. Second, it aims to pool teachers' valuable experiences in one or a series of research lessons to improve teaching and learning. The primary focus is on a chosen object of learning rather than the teaching methods (Pang and Marton 2003).

The last point here—the focus on the object of learning rather than on teaching methods (see also Pang and Marton 2005)—is where a distinction between learning study and lesson study can also be made. The connection with a particular theory of learning also becomes visible here. Pang and Marton (2003) described variation theory as the theoretical underpinning of the learning study approach, and the so-called object of learning is of vital importance in this theory (Pang and Marton 2005). It is important to clearly specify the object of learning (Asplund Carlsson et al. 2008).

Variation theory developed within a research methodology called phenomenography (Marton 1981) and it was presented as an alternative learning theory in the late 1990s (Marton and Booth 1997). A distinction is often made between intended and enacted objects of learning. An intended object of learning is identified and focused on by the learning study group in the beginning, but students are only affected by the enacted object of learning (Pang and Marton 2003). Learning studies thus aim at facilitating a setting that provides the student with possibilities to develop experiences where they can discern critical aspects associated with the object of learning. This is often referred to as a space of learning (Runesson 2006). The space of learning can be described as a space or setting where the students are enabled to experience various dimensions of variation in relation to the object of learning. Core concepts in variation theory are discernment, variation and simultaneity (Dahlin 2007) and Runesson (2006, p. 403) elaborates on how the concepts are used: “When the noise is discerned against a background of silence, a dimension of variation is opened. The pattern of dimensions of variation and also invariance that is present in awareness is of decisive significance for learning.”

Lessons are planned with critical aspects in students' ways of understanding as a focal point, and the necessity of creating a pattern of variation and invariance in relation to these critical aspects is important in the design process. The idea is that such an approach should reveal aspects that are critical for children's learning (Runesson 2006). Variation theory thereby becomes a tool that can be used to describe, understand, and ultimately design learning.

The processes that are involved in a learning study are similar to those in the lesson study cycle, and these two approaches can often be carried out in a way that appears to be quite similar. A learning study normally consists of the following steps (Pang and Marton 2003):

- (1) The starting point of a learning study is to choose a particular object of learning.
- (2) When an object of learning has been chosen, knowledge about the children's pre-understandings in relation to this has to be gained.
- (3) Based on the two previous points, a learning activity is planned and implemented. The activity is normally video-recorded for later analysis.
- (4) The learning activity is evaluated and revised.
- (5) The results are analyzed and disseminated and a report is made.

In order to understand more about the learning study approach, we refer to an example from a study by Palme´r (in Pramling Samuelsson and Pramling 2008). This study was carried out in a Swedish pre-school class. The object of learning in this study was related to division. When the learning study group (consisting of three pre-school teachers and the researcher) had agreed upon the object of learning, they decided to observe and document what previous experiences the children (aged 3–5) had with division. Along with these observations and documentations, the pre-school teachers started reading literature on the learning study approach, variation theory and division. In relation to the literature studies, it became important to discuss what they wanted the children to experience and discern. They also discussed what division is, and what it means to the children. In the preparation phase, the pre-school teachers in Palme´r’s study observed the children’s experiences with division in both spontaneous and planned activities. Based on the experiences gained from these observations, a learning activity was planned and implemented. After the first implementation, the learning study group evaluated the results and made a revised plan, which was also implemented. When this cycle had ended, a second learning activity was planned, implemented, revised and implemented again. This time around, the materials that were used in the activity had changed, but the learning object remained the same.

In learning studies, the object of learning needs to be specified in detail. Dahlin (2007, p. 341) explains that “a strictly delimited object of learning is usually chosen, then the teachers’ enacting of this learning object in the classroom is closely observed, recorded and analyzed”. This is interesting, both as a way of developing and improving practice, and also as a research approach. Dahlin (2007, p. 341) argues, however, that “(t)his kind of research is fine as far as it goes—but it doesn’t go far enough.” He goes on to discuss an apparent lack of consideration for the implicit learning objects, and he connects ideas from semiotics, constructivism and creativity theory in a discussion of a hidden curriculum. Dahlin’s work is an important contribution towards a more developed framework for the learning study approach, and it can possibly be described as a shift of focus for research in this area. From a sole focus on the learning object, Dahlin suggests an extended focus towards “possible variations which are not present in the situation but which could be there” (Dahlin 2007, p. 341). We agree with him that researchers have to address issues related to implicit learning objects and hidden curriculum, and we argue that it is also necessary to focus on the learning cultures that are involved (see Hodkinson et al. 2008). It is also important to learn more about the possibilities and constraints of the larger activity systems where the learning study takes place.

Framework for Analysis

there has been a rising attraction of AT in studies concerning educational research and practice (Roth and Lee 2007). According to these authors, AT has shown to be fruitful when focusing on designing change when tensions and contradictions emerge in different cultural settings. This theory “is a model of cognition within socio-cultural tradition that traces its development back to Vygotsky (1978) and beyond” (Goodchild 2007, p. 190). We use AT as an analytical tool in order to learn more about the possibilities and constraints when attempting to implement a learning study approach in a different cultural setting.

In our analysis we follow the approach of Engeström (2000) and we focus on the rules that are involved in order to regulate actions and interactions within the activity system. Some of these rules are formal and national, whereas others are of a more local and informal kind. Our analysis also includes a focus on the “division of labor”, and we discuss how tasks, powers and responsibilities are divided among the different participants (Cole and Engeström 1993).

We follow Jaworski and Goodchild (2006, p. 355) when they emphasize that a key idea in AT is “that human activity is motivated within the sociocultural and historical processes of human life and comprises (mediated) goal-directed action”. These actions are mediated by tools and signs. More specifically, the human subject or group seeks to achieve a goal or object in which the nature of the mediating artifacts is deeply embedded in the activity.

The Activity of the Learning Study Group

In the following, we analyze the different actions within the activity of a learning study group. We set out to analyze the theoretical framework of learning study rather than a particular learning study. The objective of this activity is to facilitate the learning of a certain object of learning in a group of children. The activity in learning study consists of a number of actions and operations, which are described in the five steps above.

Defining an Object of Learning

In a learning study, the first action (see Fig. 1) is related to defining an object of learning. In most educational settings, the teacher is responsible for the pedagogical quality and she is thus identified as the main subject. In this action, the professional knowledge of the participants serves as a mediating tool. In order to define a specific

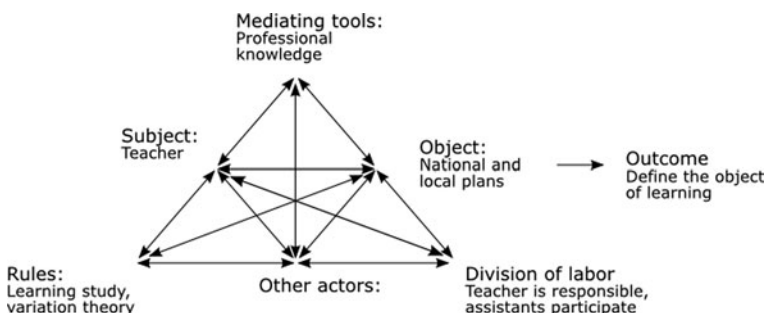


Fig. 1 ACTION 1, setting the goal

object of learning they would have to reach an agreement about how to understand this particular object of learning. They could search the Internet for information about this, read books, look up the specified objectives from the framework plan, etc. All such operations could be involved in the action related to defining a learning object. When trying to define an object of learning for the activity, the group's main focus should be on the national standards or curricula, if such exist. These documents define the overall contents for the activities they are supposed to be involved with throughout the year, and they need to apply their professional knowledge as mediating tools in order to interpret these documents. The outcome of this first action is to define the object of learning for the activity. This could be defined as the intended object of learning, and it constitutes the main focus of the learning study (Pang and Marton 2003).

Documenting Previous Knowledge

An intended object of learning has been set and this has been formulated with a foundation in theory as well as in the professional knowledge of the participants of the learning study group. In order to create an activity that might constitute an enacted object of learning for the students, the learning study group needs to find out more about the students' previous understanding and their needs (Fig. 2). They might use different approaches in this action, and everything from pedagogical documentation to testing is possible. For documentation, various tools like video recordings, field notes, etc. can be applied, but they can also use more formal tools for structured observation. Tests and more formal assessment instruments might also be an option but these are uncommon in Norwegian kindergartens. The national framework plan clearly states that assessment of individual children's achievements should not be made (MER 2006a).

Planning and Implementing

When the learning study group has decided upon an (intended) object of learning and documented the children's previous understanding in relation to this, they are ready for the next action. This action is concerned with the actual planning and implementation of the activity and it could be considered as two actions rather than

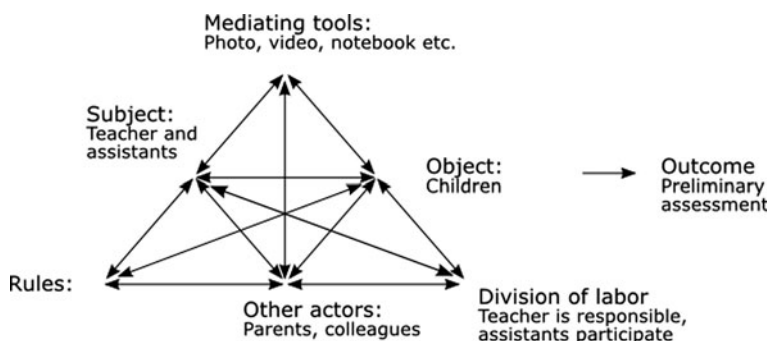


Fig. 2 ACTION 2, documenting

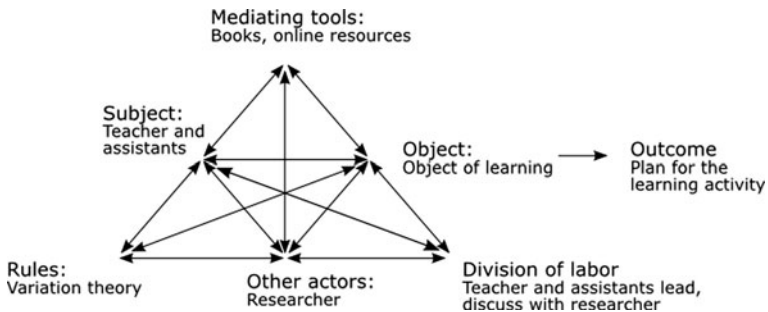


Fig. 3 ACTION 3a, planning a learning activity

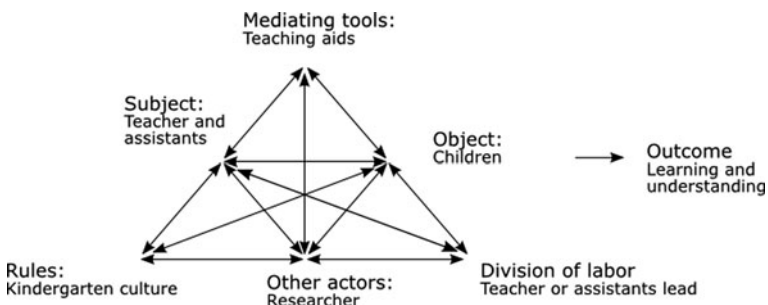


Fig. 4 ACTION 3b, implementing a learning activity

one (Figs. 3, 4, 5). These two parts represent a cyclic process in a learning study and they are therefore seen as one action. It involves a number of operations where different mediating tools can be involved. The plans would be discussed (using books and other kinds of resources as mediating tools) and then written down in a certain scheme (using a word processor or possibly pen and paper as tools). When implemented, some of the members of the learning study group might participate in the activity, whereas other members could be observing the activity, possibly using camera, video camera, notebook, etc. to support the documentation process.

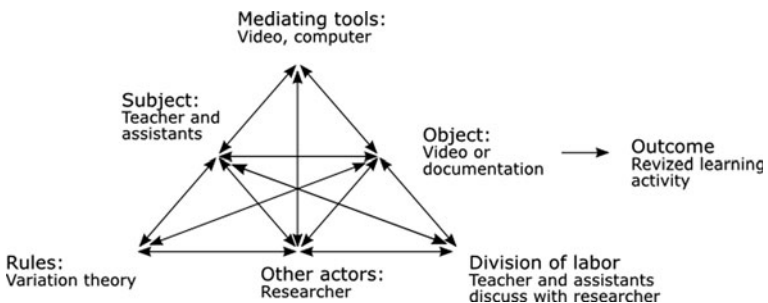


Fig. 5 ACTION 4, evaluating and revising the activity

In the planning phase, a main focus is on the object of learning; now it is the enacted rather than the intended object of learning that the learning study group needs to be concerned with. According to variation theory, the enacted object of learning is related to what varies and what does not. This, again, constitutes the space of learning (Pang and Marton 2003). In learning studies, the planning of activities is strongly regulated by the “rules” of variation theory. When the plans are implemented, however, the kindergarten culture, along with other factors, influences the enacted object of learning. The desired outcome of the learning activity, which is called the lived object of learning in learning studies, will also vary because of how the settings differ.

Evaluation and Revision

Since assessment of individual children is not recommended in Norwegian kindergartens, evaluation of the learning activity thus has to be based on something other than a test. The learning study group might have documented the activity by the use of photos, written notes or video recordings as tools for evaluation and revision. This documentation is thus an object that can be discussed by the participants of the learning study group and the researcher in order to figure out how the learning activity can be revised and improved. In a learning study, a main focus in the evaluation would be on the space of learning that has been made possible by the learning activity, and how the enacted object of learning has been transformed into a lived object of learning with the children.

After such a process of evaluating and revising the learning activity, the group often decides to devise a new implementation. ACTIONS 3a and 3b are then repeated until the group is satisfied.

Presentation of Results

Finally, the learning study group might decide to make a presentation of the results (Figs. 6, 7). Such a presentation could be made for other colleagues in their kindergarten or school, but a wider audience might also be involved (e.g. in conferences or publications).

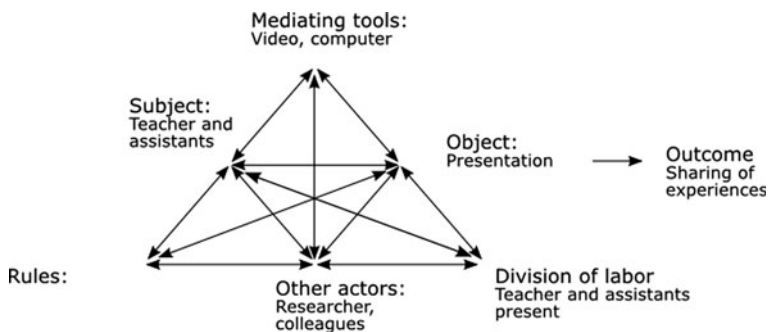


Fig. 6 ACTION 5, presenting the results

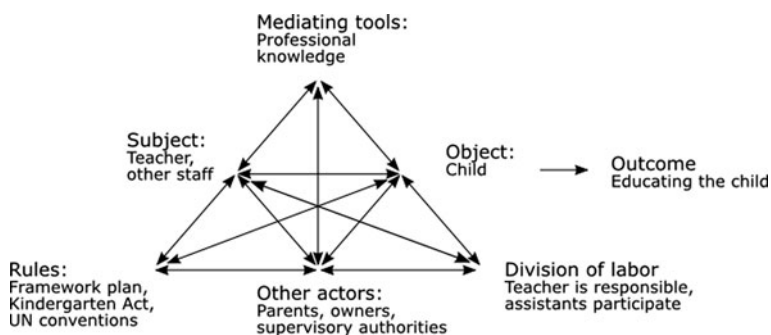


Fig. 7 Norwegian kindergarten as an activity system

The Interacting Activity System

As seen above, the activity system of the learning study group follows a particular pattern. Several things influence the activities, and we are now going to focus on issues that arise when the activity system of a learning study group starts interacting with another activity system: Norwegian kindergarten, or what could be referred to as the Norwegian kindergarten culture. Different actors are involved in the activities of this system and these actors are driven by the objectives that are formulated in the national framework plan. Their activities are regulated by a certain set of conventions, guidelines and rules.

The subject in an activity system is the main actor or the participant(s) towards which our main attention is directed. In Norwegian kindergartens, the subject can thus be defined as the head teachers of the kindergartens, the pedagogical leaders, assistants and other staff. For each group of children, the pedagogical leaders have the main responsibility. They should normally be certified as kindergarten teachers, but as an effect of the politicians' decision to massively increase the number of kindergartens in Norway in 2009, there has been a severe shortage of educated kindergarten teachers in many municipalities (Blomgren et al. 2009). The subject, in this connection, is thus manifold.

In Norwegian kindergartens there are many actors. We argue that from an AT point of view, the kindergarten teachers would be seen as subjects since they have a main responsibility regarding the object(s), which are the children. When children are seen as object in this connection, it does not imply that they are less important or that they are seen as "objects" as such. On the contrary, they can be seen as the most important actors in Norwegian kindergartens. The notions of subject and object are, in this article, used as defined in AT.

In relation to the political situation in Norway, kindergartens are defined as the responsibility of the Ministry of Education and Research. From the first national framework plan for kindergartens, which appeared in 1996, Norwegian kindergartens have been given a responsibility not only related to care but also to learning.

The national framework plan provides a description of the different content areas that Norwegian kindergartens are supposed to work with. The descriptions of the content areas are less specific in the Norwegian framework plan than in many other countries and no achievement goals are presented. Instead, the framework plan simply presents a few bullet points to indicate what experiences children should get in relation to the area (MER 2006a). Being general, the framework plan thus stands in sharp contrast to the curriculum for Norwegian schools where precise achievement goals are formulated for children who have finished grades 2, 4, 7 and 10 (MER 2006b).

Discussion

When the two activity systems meet, the first thing we notice is that there is a possible tension in their different types of goals. The outcome of the learning study group is strongly related to children's acquisition of a particular object of learning. This process is dependent on the teacher's ability to facilitate learning situations where the child gets the possibility to experience variation and stability as far as the object of learning is concerned. Besides being a possible tension in relation to objective, it might reside in a different understanding of learning as such. For the Norwegian kindergarten system, learning is only one aspect of the education of the child, and the national framework plan has a strong emphasis on the child's perspective. Learning is thus seen as a much wider concept, as part of the child's development and maturation, and less focus is given to learning as acquisition of specific knowledge. In variation theory, however, learning is connected with a process of moving from an intended, through an enacted and finally to a lived object of learning. The learning process is described in technical terms related to the input that the teacher brings into a learning situation in order to foster the best possible space for learning. For the Norwegian kindergarten system, the desired outcome is to educate the child into becoming an active participant in society and assessment of individual children's knowledge is something Norwegian kindergartens should not be involved with. Learning within the Norwegian kindergarten tradition is seen not only as a process of becoming but also as a state of being (MER 2006a).

The Norwegian society has changed a lot over the last decades and it has become a society with people from many cultural backgrounds. In connection with

Although many of those with a different cultural background have lived in Norway for several years, they may not necessarily have mastered the Norwegian language. Kindergartens are often faced with challenges related to children from a minority background that have little or no understanding of the Norwegian language when they enter kindergarten. As an effect, kindergartens often have groups of children with different cultural and language backgrounds. Language proficiency among the children might therefore vary a lot, even among children in the same age group. This societal change can be challenging for kindergarten teachers but it is a challenge (or internal tension) that exists for both activity systems.

Another tension that seems to exist within the Norwegian kindergarten context is related to the professional knowledge of kindergarten teachers. In their daily work, kindergarten teachers make use of their professional knowledge as a kind of mediating tool. There are not enough kindergarten teachers in Norwegian kindergartens and many kindergartens are forced to let people without formal education work as kindergarten teachers. Since the kindergarten staff—and in particular the pedagogical leaders—in this case is not a unanimous group, there is a possible tension between the subject and the mediating tools. This tension might, in effect, influence their actions on the object. In more everyday terms we might say that there is a risk that the kindergarten staff is pulling in different directions.

Conclusions

Learning study is an interesting approach in many ways, but different challenges might be faced when trying to implement a learning study approach in certain kindergarten cultures. In our efforts to learn more about the possible challenges of implementing learning study in Norwegian kindergartens, we have used AT as a framework for making analyses on a system level. Doing this, we have addressed some particular aspects of the learning culture as called for by Hodkinson et al. (2008). When using AT in this way, we need to be aware that some concepts have a particular meaning. Most importantly, the concept of “object” has a different meaning in variation theory. In AT object refers to the material or space towards which an activity is directed. The object of learning in a learning study context, however, is related to the objective or goal of the activity. In the context of Norwegian kindergartens, this has a different meaning. On the one hand, Norwegian kindergarten teachers direct their activities towards children. When using the concept from AT, we might thus say that the child is the object in a certain activity. In a Norwegian kindergarten context, however, you would be careful about labeling the child as an object. Children are seen as active and participating subjects and the framework plan has a strong child perspective (MER 2006a). On the other hand, the Norwegian framework plan for kindergartens presents goals for the different content areas. These goals are not presented as objects of learning and it is made clear in the

In addition to issues related to different uses of particular concepts, our analysis has revealed some particular challenges regarding the implementation of learning study in a Norwegian kindergarten context. One challenge is related to an apparently severe tension regarding the rules that regulate the activities of the two interacting activity systems. This tension is possibly due to different views on learning. In learning study and variation theory, learning is seen as acquisition of knowledge. The process of acquiring knowledge is mainly restricted by the space of learning and the extent to which the children are given opportunities to discern important aspects of a particular object of learning. In a Norwegian kindergarten context, however, learning is often viewed as being and acquisition of knowledge is a minor aspect. Such differences might have a negative influence on attempts to conduct learning study in Norwegian kindergartens. We therefore suggest that researchers and practitioners need to pay particular attention to possible differences in the conception of learning in different learning cultures. When trying to implement a learning study approach in a learning culture that has an idea of learning that differs from that in variation theory, this is particularly important.

When approaching a conclusion, it should be noted that the use of AT as an analytical framework has revealed some interesting issues but some challenges still remain. In an earlier phase, Engeström's (1999) conception of AT related to the expansion of a single activity system from the development of internal contradictions and tensions. In our analysis, the analysis of individual activity systems provided interesting information. It was, however, the analysis of two interacting activity systems (the learning study group and the Norwegian kindergarten) that revealed the most interesting results.

Attempts to create a learning study group within a Norwegian kindergarten context involves the conjunction of two different activity systems and, to make things even more complex, the participants in the larger system are also quite different. It might be argued that some of them also come from different activity systems, as there are some assistants, some with background from teaching in school, etc. We do, however, suggest that a process of expansive learning may take place from the creation of a new activity system in which there is a potentially shared constructed object. Following Goodchild (2007), we are aware that theorizing the construction of a new and united activity system introduces further challenges, and our analysis has pointed towards some of these. When using a third generation AT system as our unit of analysis, contact zones (Engeström 1996) between the different activity systems can be established in order to describe how learning and development may take place in a particular learning study group.

Using AT as an analytical framework provides information about some kinds of challenges that might emerge when different activity systems interact. When trying to understand the complexities of different learning cultures such information is important. On the other hand, it is important to be aware of some limitations of this approach. Learning cultures are often complex and placing different aspects of a learning culture into the AT framework might result in oversimplification. Different methodological approaches are therefore necessary in order to investigate the issues

further. In our case, the use of AT has proven useful in order to identify some possible challenges of implementing learning study in a particular cultural context (that of the Norwegian kindergarten). More research is needed to investigate these issues further. Such research might contribute to the further development of the learning study approach and although it might never go far enough (Dahlin 2007), it would be one step in an incremental development of our field.

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