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Socialisation and mathematics education in Swedish preschools

Dorota Lembrér

Malmö University, Faculty of Education and Society, Malmö, Sweden, dorota.lembrier@mah.se

This theoretical paper investigates the relationship between socialisation and mathematics education in Swedish preschools. Socialisation is considered to be the process by which children construct their own childhoods and experiences as a preparation for adulthood. Mathematics education as defined by the curriculum outlines what learning possibilities preschools and the adults working in them should provide to children. The production and reproduction of cultural knowledge as components of socialisation are connected to the global issue of early year's education and schoolification. I suggest that it is important to discuss how learning of content and subjectivities is a key feature in an investigation of the relationship between socialisations and mathematics education in the Swedish preschool curriculum.

Keywords: Learning, mathematics education, preschool, socialisation.

INTRODUCTION

In the research on mathematics education, there is a perception that young children need to have strong mathematical understandings when they begin school (Duncan et al., 2007). However, the implementation of programmes to provide this has led to concerns about the schoolification of preschool. Schoolification is described as:

an emphasis on the acquisition of specific pre-academic skills and knowledge transfer by the adult rather than a focus on broad developmental goals such as socio-emotional well-being and the gaining of understanding and knowledge by the child through direct experience and experimentation. The push-down of grade one materials, specific learning standards and the traditional primary school model of didactic instruction to pre-kin-

dergarten and kindergarten in some US states has heightened concern about the possible schoolification of ECEC [early childhood education and care]. (Doherty, 2007, pp. 7–8).

Increased references to mathematics in the revised Swedish preschool curriculum (Skolverket, 2011) suggest that perceptions of its value as being beneficial to society have increased. In this paper, I contribute to a discussion of the role of mathematics education in early childhood studies by reflecting on its relationship to learning and socialisation. I link socialisation processes and mathematics education with two components: the reproduction of culture from one generation to another; and the recognition of young children in preschool as knowledgeable and active participants in today's society. Learning is a vital component of this investigation because it highlights the connection between content and subjectivities. Therefore, my aim is to offer a theoretical contribution regarding the understanding of socialisation processes and what learning possibilities preschools should provide.

By placing a particular emphasis on preschool as the site of socialisation processes, I argue that there is a need for a discussion on what grounds and in what ways are children modified by the institution of preschool (Kampmann, 2004). Preschool as an institution is a place where children's social context and experiences are formed (Ebrahim, 2011), but with a specific focus on learning and development. Consequently it can be said that society considers preschools to be the necessary institutions for strengthening children's social competence and general ability to develop their childhood so that they can live in a modern world both independently and as part of a democratic society. However this raises the question, how does increasing the importance of mathematics education affect children's socialisation and learning?

SOCIALISATION

Socialisation occurs from living within a society and taking part in activities with others (Thorne, 1987). Given that in 2013, 77 per cent of children aged between one and three years and 94 percent of children aged between four to five years attended Swedish preschools¹, it can be stated that children are socialised within the institution of preschool as this is where they participate in society:

By interacting with playmates in organized play groups and nursery schools, children produce the first in a series of peer cultures in which childhood knowledge and practices gradually are transformed into the knowledge and skills necessary to participate in the adult world. (Corsaro, 1992, p. 162)

Walzer and Miller (2007) stressed that within culturally diverse societies, educational opportunities provide an understanding of some of the meanings to be found in that society. Socialisation provides an educational structure which children learn to recognize and interpret (Trondman, 2013).

Socialisation as replication

Socialisation for young children, including that which occurs in preschools, has been equated with a process or a journey towards adulthood. This journey contributes to children's gaining of knowledge of their own and others' roles in society, in order to reproduce society's key institutions (Lee, 2001). James, Jenks and Proud (1998) stressed that socialisation includes a transmission of culture from one generation to another, in order to ensure that societies sustain themselves over time. As a consequence of the process of change and alteration, the child is seen as developing socially, so that they become the adults that society needs.

Curriculum as a body of knowledge is an example of institutionalisation of the norms and values seen as important by a society, but also as an example of adults determining what skills, norms and values children need to become acceptable adults. The mathematical goals in Swedish preschool curriculum represent some of these institutionalised norms and values. The goals related to mathematics require preschools to provide opportunities for children to:

develop their understanding of space, shapes, location and direction, and the basic properties of sets, quantity, order and number concepts, also for measurement, time and change,

develop their ability to use mathematics to investigate, reflect over and test different solutions to problems raised by themselves and others,

develop their ability to distinguish, express, examine and use mathematical concepts and their interrelationships,

develop their mathematical skill in putting forward and following reasoning (Skolverket, 2011, p. 10)

In these goals, what mathematics is has been already determined. Inclusion in the curriculum means that they take on the aura of being the valuable cultural knowledge which should be transmitted to children so that society can be sustained over time. However, if the process of socialisation is for children to gain valued knowledge about the subject, as part of the reproduction of society's key institutions (Lee, 2001), then children may need to recognise the activity as mathematics.

Yet, a focus on the future may lead to unwelcome consequences. Sarama and Clements (2004) argued that such a focus can limit a child's own hunger for knowledge and their willingness to engage in mathematical activities. As well, it may be that the inclusion of more mathematical goals in the revised Swedish preschool curriculum (Skolverket, 2011) could restrict teachers' possibilities in planning activities which value what children already know and can do. Concerns have been raised that the focus on mathematical knowledge needed for school learning is a form of schoolification regarding the effect on the kind of socialisation that preschool children receive (Alcock & Haggerty, 2013; Gunnarsdottir, 2014; Sofou & Tsafos, 2010).

Socialisation as creation

An alternative view of socialisation is that it can be considered as a process in which children co-create new cultural norms and values together with others (Thorne, 1987). For Ebrahim (2011), socialisation is the process by which people, who inhabit a society, create it. From this perspective, children need to be considered as knowledgeable, active participants in

1 For more information see <http://www.scb.se/en/>

the construction of their childhood and experiences (James et al., 1998). This would include producing norms and values connected to the societies of their childhoods.

In the Swedish preschool curriculum (Skolverket, 2011), the preschool is expected to provide opportunities for children to engage with more general goals. Although many general goals also suggest that adults determine the necessary knowledge and skills for young children to know, some position children as having possibilities to create rather than just replicate cultural norms and values. These include:

Each child should have the opportunity of forming their own opinion and making choices in the light of their personal circumstances (p. 4)

Children should also have the opportunity to explore on their own issues in greater depth and to search for their own answers and solutions (p. 5)

In these goals, children are situated as persons with their own rights, interests and experiences who can influence the acquisition of the necessary skills to perform as functioning members of their society.

Having different emphases in the goals (creating versus recreating societal values and norms) could restrict teachers' possibilities in planning activities (Lembrér & Meaney, 2014). The focus of the goals for mathematics education on replicating cultural knowledge, including valuing certain aspects of mathematical knowledge, may mean that teachers do not consider children as needing opportunities, for example, to form their own opinions and make choices about mathematics. This could be an example of schoolification where the kind of socialisation that preschool children receive is restricted to ensuring that they become the kind of mathematicians needed for school learning.

Replicating and creating through socialisation

Socialisation as a process of creating/recreating society and the transmission of culture is connected to perceptions of what young children are capable of doing. For example, Lee (2001) highlighted how a young child's age affected adults' perceptions of them having rights to have opinions and desires, as often children are considered too young to be worth listening to. Discussions such as these make it difficult to

recognise children as fully human or people in their own rights (James & Prout, 1997). Consequently, researchers have discussed the necessity of making such a distinction. For example, Thorne (1987) discussed the adult/child dualism as being socially constructed and therefore possible to change.

Rather than seeing creating and replicating cultural norms and values as being in opposition, it has been argued that children's own knowledge can be a starting point for initiating social interaction in play and promoting construction of subject knowledge (Edo, Planas, & Badillo, 2009). However, this requires a delicate balance between production and reproduction of societal norms and values, a sense of responsibility for the future of the society while at the same time allowing them to create own values, knowledge and even cultural understanding.

LEARNING

Although curriculum goals frame the operationalisation of mathematics education in preschools, they alone do not determine the socialisation that children gain from participating in activities. Instead, learning, not as a cognitive activity done by individuals, but as that done within societies and in particular in societal institutions such as preschools, needs to be considered in relationship to socialisation. Radford (2008) stated, "learning does not consist in constructing or reconstructing a piece of knowledge. It is a matter of actively and imaginatively endowing the conceptual objects that the student finds in his/her culture with meaning" (p. 223).

Often preschool children's early learning is described as essential for further learning processes. Children acquire the understanding, skills and awareness of different mathematical concepts, developed in the course of their own experiences (for example, Brenner, 1998), through the process of learning and the reproduction of norms and values (Lee, 2001). Studies of how children learn mathematics together with their peers, family, environment and in culture, indicate that interactions around mathematical activities are of importance (for example Carruthers, 2006).

However, within discussions of socialisation, learning is conceived as being about learning knowledge or skills, either already found within a society as valued norms and values or newly created within the pro-

cess of learning. Such discussions fail to recognise that learning cultural norms and values results in children (and adults) learning to become someone, in other words – learning subjectivities. Such a view of learning positions children as human and contribute to an understanding that mathematics learning is socially constructed, not merely reproduced, so that children can explore and thus produce new forms.

Osberg and Biesta (2008) describe learning as something that can occur anywhere at any time but that education was about learning about taking on a particular subjectivity such as being a responsible member of society. Radford (2008) also saw learning as being more than simply learning about ideas. He stated that learning is “not just about knowing something but also about becoming someone” (p. 215). The role of the curriculum in shaping the kind of person that evolves from participating in activities in preschool.

This ‘shaping of subjectivity’ is generally understood to be achieved through the curriculum (and the pedagogy ‘supporting’ the curriculum). With the concept of ‘education’ the notion of curriculum therefore acquires a very specific meaning. It becomes a course by means of which the subjectivity of those being educated is directed in some way. (Osberg & Biesta, 2008, p. 314)

From this perspective, Biesta (2007) considered much of what occurs in institutional settings, such as preschools, to be socialisation, as for him socialisation is the “insertion of ‘newcomers’ into existing cultural and socio-political settings” (p. 26). On the other hand, education as defined by Kant is the self-education needed to achieve rational autonomy in order to become fully human. Biesta (2007) argued that this view of education was also a form of socialisation because it set up what the end product of self-education had to be, that of rational autonomy. Education of this kind results in individuals taking on the attributes of existing members of a society but without a recognition of the role of the community in this process (Radford, 2008). Socialisation, then, must be considered as a not just learning cultural norms and values but living those norms and values, as with becoming a rational human being.

However, this suggests that those who did not have or did not gain the appropriate attributes could not be considered human (Biesta, 2007). Thus, young chil-

dren can be categorised as being non-human as they do not have the necessary desired rationality. As research has come to highlight the importance of mathematics in early years (Ginsburg & Amit, 2008; Sarama & Clements, 2009), this category of being non-human could be extended from not being rational to not being mathematical sufficient or “at-risk” from beginning school without the mathematical knowledge deemed necessary by adults (Meaney, 2014).

In contrast, Biesta (2007) postulated that education should be deemed as preparation for an uncertain future, where freedom “needs to be realised again and again” (Biesta, 2007, p. 32).

In a report for the Swedish National Agency of Education (Skolverket), Johansson (2011) stressed that the Swedish preschool curriculum clearly states that children’s own experiences should be actively drawn upon in preschool contexts because it is a source for knowledge and learning. Activities are to be based on a creative form of play, with opportunities for other kinds of expressions. This can be seen in the following example of goals from the curriculum (Skolverket, 2011):

Learning should be based, not only on the interaction between adults and children, but also on what children learn from each other (p. 6)

The preschool should promote play, creativity and enjoyment of learning, as well as focus on and strengthen the child’s interest in learning and capturing new experiences, knowledge and skills (p. 9)

Take account of children’s eagerness, desire and enjoyment to learn, as well as strengthen confidence in their own ability (p. 11)

In these goals, although children are positioned as having a major role in their own learning, their developing subjectivities are only apparent in regard to the kind of learner they should be encouraged to be. Similar points can be made about a lack of awareness of the subjectivities that preschool children learn while engaged in mathematical activities.

As noted earlier when children’s socialisation is discussed in terms of learning mathematics, knowledge and skills are considered crucial. However, what

young children are capable of doing mathematically is determined by the opportunities provided for them to engage in activities. When preschool children are often actively engaged in mathematical activities (see, for example, study by Lange, Meaney, Riesbeck, & Wernberg, 2012), they can construct new knowledge as well as making sense of existing knowledge in a process of cultural reproduction. Becoming aware of the knowledge they are learning can be seen as an active process of meaning making based on understanding and interpretation. In an earlier study on measurement (see Lembrér, 2013), a group of preschool children drew a map. As they became aware of the importance of different measurement attributes like the length of the boat and the height of the train, they utilised the knowledge that they already had to gain culturally valued knowledge that extended their measurement understanding. Consequently, learning is a process in which socialisation is bound together through mathematical activities. The subjectivities that the curriculum suggests should be available to children through participating in mathematics activities are not explicit. Still the goals in the curriculum indicate that preschool children's possibilities for learning certain subjectivities is to be reproducers of existing norms and values.

SCHOOLIFICATION AND SOCIALISATION

While engaged in activities based on the Swedish preschool curriculum (Skolverket, 2011), such as those involving mathematics, children learn to reproduce societal norms and values so as to become the adults society expects as a result of socialisation. This is likely to occur even when children are recognised in the curriculum as active participants, rather than passive learners. Thus, learning is associated with socialisation.

Societal views and perceptions of children and childhood influence what is stated in the curriculum. For example, research, such as that reviewed in Clements and Sarama's (2007), indicates that the development of young children's mathematical ideas and skills has come to be regarded as one of the core purposes of preschools in some countries. What is included in the curriculum in turn influences how activities are implemented and children then are socialised. In regard to the revised preschool curriculum (Skolverket, 2011), Lembrér and Meaney (2014) indicate that schoolification through the increased emphasis on mathematical

goals is likely to be affecting preschool education in Sweden and this may have an impact on the subjectivities available to children. The results of their study suggest that there are societal expectations about children's need to acquire the skills to perform as members of their society. This contributes to a tension between schoolification, where expectations about what children can learn shifts from school to preschool, and traditional foundations of preschools as institutional practice in Sweden, which has focused on children learning through play.

However, not only the curriculum determines the available possibilities for children concerning subjectivities. These possibilities are further determined by an interplay, including how the curriculum is interpreted and implemented by teachers, but also how children respond to the activities developed from it. Furthermore, dialogues with peers and adults can contribute to children gaining awareness of their own ability regarding mathematical knowledge, by inventing new meanings for improving their mathematical knowledge and for widening their awareness of possible subjectivities that are available (Lembrér & Meaney, submitted). Thus, when engaged in open-ended activities, children can encounter mathematical concepts/knowledge which can contribute to them asking for new knowledge, interests and ideas. This realisation of freedom can lead to children being better prepared to face the uncertain future that present-day adults are unable to predict (Biesta, 2007). This implies children developing the ability to be an agent for their peers, teachers and/or other adults in preschools. However, a tightening of what is acceptable as mathematical knowledge and skills and a restriction of the way that young children interact with it as a result of schoolification may lead to children being exposed to a narrowed range of potential subjectivities. Rather than being prepared for an uncertain future, children learn how to become the adults of today. Society would waste the potentials of imagining a tomorrow that could be different than today.

CONCLUSION

In this paper, I examine the connection between socialisation and mathematics education in Swedish preschools. Based on the curriculum, adults in preschools mediate children's learning by creating mathematical activities or environments with an expectation that valued norms and values are passed on to the chil-

dren. However, the curriculum does not situate this delivery of cultural norms and values as a passive process for children. Rather children are proposed to be seen as active participants. However, learning cannot be considered to be a mere passing of norms and values, whether or not this is done as an active or as a passive activity. This is because learning something also results in learning how to become someone. It is therefore possible to conclude that an individual is socialised when she or he has learnt to think and feel according to society's expectations.

Socialisation processes may vary depending on the institutional setting and educational discourses. As almost all Swedish children attending preschool, this institution plays an important role in children's lives. Children become organised by institutions' norms and values which have profound effects on the socialisation process.

The impact of mathematics education as stated in the preschool curriculum is dependent on the interpretation of the goals and guidelines of the curriculum and hence on how children are seen by teachers and working teams in preschools. In this endeavour, it is relevant to consider the tension between schoolification and traditional foundations of preschools as institutional practice in Sweden which saw children as having a wider set of possibilities of subjectivities open to them. When the possibilities for the norms and values transmitted through mathematics narrows the types of activities that adults in preschools feel able to offer children, then there will also be a limiting of the type of subjectivities made available to children to adopt. Therefore, mathematics education has a major impact on early childhood education in Sweden. When schoolification affects how preschool teachers implement mathematical learning situations, children's possible subjectivities are narrowed by moving from broad developmental goals to learning mathematics.

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