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Didaktik informed teaching arrangements in preschool with a focus on movement

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Most children attend preschools in Sweden, and preschool is thus an important arena for children's development and growth as well as for the development of and through movement. However, little is known about the teaching of movement in Swedish preschools. This article develops knowledge of what can characterize such teaching, particularly regarding goal and motive, content, and teaching actions. The material was generated in 2018–2019 in collaboration with 42 preschool departments in Sweden. The theoretical approach is *didaktik*, and “why”, “what”, and “how” questions are used as analytical tools. A variety of content can be seen, such as fundamental movement skills, different aspects of movement and, in a few teaching arrangements, physical activity. The teaching is often led by the teacher, though the children are sometimes co-leaders. The results also indicate a focus on inherent values but also on investment and added values. The study highlights the importance of preschool teachers' attention to the prospective object and purpose of teaching movement, but also of teachers' competence and the need for conscious strategies for teaching movement. Through well-grounded didaktik choices, children can be offered good opportunities to experience and explore movement.

Keywords: Didactics, movement, preschool teaching.

1. Introduction

Most children from one to approximately five years of age attend preschools in Sweden, and most of these children spend much of their waking time in preschool. Preschool is thus an important arena for children's development and growth, and vital for the development of and through movement. There is a growing interest in and knowledge of the importance of movement and motor development amongst the youngest children (e.g., Armstrong & Van Mechelen, 2017; Howells & Sääkslahti, 2019; Hulteen et al., 2018; Stodden et al., 2008; Webster et al., 2019). The World Health Organization (WHO), acknowledging that children of preschool age should participate in active play and a wide range of physical activities (World Health Organization, 2019), offers recommendations for physical activity, screen time, and sleep quality. Simultaneously, the large number of expected assignments in today's preschool (Vallberg Roth, 2020) can be a challenge to finding time for and knowledge of the teaching of movement.

Although we may understand the importance of physical activity to our health, we do not always realize the crucial importance of movement and physical activity for the children's overall well-being (Robinson et al., 2018, p. 141). Moser and Reikerås (2016, p. 117) argued that the "challenges and tasks in a toddler's everyday life are mainly of a corporeal character and therefore motor-life-skills deserve particular attention in pedagogical settings", noting that just about "all human goal-directed actions require, include and generate motor behavior" (p. 118). The early years are thus vital for development through movement (Foulkes et al., 2015; Wachob, 2018) and for the development of physical activity habits (Ward et al., 2010), as during this life period patterns are established, especially when it comes to motor competence and physical activity (Costa et al., 2015; Little & Sweller, 2014; Robinson et al., 2018). The World Health Organization (2019, p. VII) stated that "early childhood is a period of rapid physical and cognitive development and a time during which a child's habits are formed and family lifestyle habits are open to changes and adaptations". As there is a positive relationship between motor competence and physical activity in childhood (Hulteen et al., 2018; Stodden et al., 2008) a child can participate through well-developed motor competence in various physical activities (Niemisto et al., 2019). Goodway et al. (2019) argued that perceptual-motor abilities are learned and that children use movement as a medium for learning. Clark (2007, p. 43) claimed that there is a cultural misconception that children's motor skill

development is only an effect of maturation, stating that “we must be proactive in dispelling that misconception”. Gagen and Getchell (2018, p. 58) stated that although “maturational perspective” gained popularity early in the twentieth century, there has been a shift away from the position “that maturation alone explained developmental changes in motor skill”. Clark (2007, p. 39) affirmed that “motor skills do not just come as birthday presents” but must be nurtured, practised and learned (see also Costa et al., 2015; Goodway et al., 2019; Logan et al., 2012), and it takes many years of time and effort to develop (Clark, 2007). Even though movement is learned from birth, “it is in the preschool period that children acquire a set of motor skills that enable gradual control of the body” (Costa et al., 2015, p. 68).

2. Prior research

There is limited research in Sweden regarding the teaching of movement in preschool. Studies in Swedish preschools have primarily examined the quantity of physical activity (e.g., Berglind et al., 2017), the preschool environment (e.g., Söderström et al., 2013) and whether children of preschool age meet WHO guidelines (Berglind et al., 2018; Nyström et al., 2020). There are also studies investigating the preschool environment, preschool teachers’ physical activity and their association with children’s activity levels at preschool (Chen et al., 2020). Few studies examine the teaching of movement (Ekberg, 2019; Wagnsson et al., 2012). Regarding compulsory school in Sweden, Larsson (2016) noted that it is more common to study learning than teaching in the knowledge area of movement (see also Karlefors & Larsson, 2015), even though some studies recently have examined teaching in the school subject of physical education and health (PEH) (see, e.g., Barker et al., 2015; Karlefors & Larsson, 2015, 2018). Larsson (2016) further observed that in PEH in Sweden teacher-centred teaching is more common than student-centred teaching (see also Ekberg, 2009). The teacher is a good leader and organizer (Skolinspektionen, 2018) but risks becoming an activity leader rather than a leader of teaching and learning (Larsson, 2016). Karlefors and Larsson (2018) noted that it is the teacher who makes decisions, and Quennerstedt (2013) described such teaching as an act of control that concerns imitating, following rules and instructions and upholding norms. Nevertheless, there are examples of teaching that is more student-centred, emphasizes discussion and reflection and is problem- and task-oriented (Barker et al., 2015; Larsson, 2016).

There is also limited international research (Bautista et al., 2020) on the teaching of movement/motor competence in preschool. Martínez-Bello et al. (2021, p. 484) stated that even though there is an increased interest in research on pedagogical content knowledge in preschool “studies are still scarce, and none have yet analyzed both the knowledge content and pedagogical knowledge in ECE teachers in the context of structured movement sessions”. Bautista et al. (2020) studied preschool teaching in Singapore and concluded that non-locomotor skills were the most common, followed by locomotor and manipulative skills, and that the teaching was mostly teacher-led. Costa et al. (2015) drew conclusions from their study that structured lessons were important for psychomotor development. There are, however, a number of studies in areas such as pedagogical intervention studies of preschool children’s learning (e.g., Bjørgen, 2016; Robinson et al., 2012; Ruiz-Esteban et al., 2020). As preschool teachers are central to the development of children’s movement sufficient teacher training is important for the teaching quality (see also Bautista et al., 2020; Goldfield et al., 2012; Howells & Sääkslahti, 2019; Ward et al., 2010). Howells and Sääkslahti (2019) emphasized the importance of changing teachers’, practitioners’ and children’s understanding of motor competence, to make them more positive about physical activity.

3. Movement content knowledge

The knowledge area foregrounded here is “movement”. However, there is no consensus about the definition of this area, and authors use different terms to address the multiple aspects of human movement. Scholars have advocated reviewing and updating the terminology because it currently lacks coherence (Hulteen et al., 2018; Logan et al., 2018; Lopes et al., 2021). Different terms are sometimes used for the same concept, the terms do not always refer to the same concept and there is an overlap between the terms used (Logan et al., 2018; Lopes et al., 2021). Examples of terms used are motor skills (Gagen & Getchell, 2018), gross motor development/skill (Bautista et al., 2020), fundamental motor skills (Logan et al., 2018), fundamental movement skills (Foulkes et al., 2015), motor competence (Moser & Reikerås, 2016), gross motor competence (Barnett et al., 2016) and motor-life-skills (Moser & Reikerås, 2016). Physical literacy, developed by Whitehead (2019), is widely used, even with reference to preschool children. Likewise, Laban Movement Analysis (LMA) is to some extent used when working with movement in the preschool age (e.g., Langton, 2007; Murray & Lathrop, 2005). Hulteen et al. (2018, p. 1533) suggested the term “foundational

movement skills”, defining this as “goal-directed movement patterns that directly and indirectly impact an individual’s capability to be physically active and that can continue to be developed to enhance physical activity participation and promote health across the lifespan”. Further concepts used in the literature are movement capability (Barker et al., 2017), movement (Ekberg, 2021a) and physical activity (World Health Organization, 2019).

The preschool curriculum in Sweden (Skolverket, 2018) also uses various concepts, such as motor skills,¹ coordination, body perception, physical activity, movement (Sollerhed et al., 2021) and dance. Physical activity is a new concept in the preschool curriculum and was not included in the previous curriculum Lpfö 98 (Skolverket, 1998). From a historical perspective, “movement” appeared as a term applying to infant school (Vallberg Roth, 2006) in the late 1800s, it was mentioned in the childcare investigation (SOU, 1972:26) in the 1960s–1970s and again in preschool governing documents from the 1980s, 1990s and as late as 2018 (see e.g. Socialstyrelsen, 1987; SOU, 1972:26; Vallberg Roth, 2011). Infant school plans from 1861 mentioned “ball games and movement games” (Vallberg Roth, 2011, p. 43) and the childcare investigation from 1972 referred to “large movement play” (SOU, 1972:26, pp. 221-222). There is, however, no specific term for this knowledge area in the current preschool curriculum (Skolverket, 2018).

In compulsory school and the “gymnasium” (i.e., the upper secondary school, grades 10 to 12) in Sweden, the relevant school subject is called Physical Education and Health (Idrott² och hälsa). “Movement” as such is not mentioned in the subject name but is one of three knowledge areas in the subject and concerns “developing the ability to move comprehensively in different physical contexts” (Skolverket, 2012, p. 6). The term “idrott” is not mentioned in the Swedish preschool curriculum (Skolverket, 2018).

Accordingly, several terms are used in the field. However, different terms are used in different contexts, differing somewhat between preschool and school in Sweden, as well as between different

¹ “Motor skills” is the term used in the English version of the curriculum. In the Swedish version, the term is “motorik”, which is commonly used in the literature in Swedish.

² *Idrott* is a Nordic word and there are different opinions about how to define it. The Swedish Research Council for Sport Science (2021) defines *idrott* [*“sport”* in the English translation] as including “everything from club sports to exercise, physical activity, performance and training for children, young people, adults and the elderly”.

researchers. We will use the term “movement” in the rest of this article when referring to the area of knowledge as a term used in past and present preschool curricula in Sweden and when recalling the name of one of the knowledge areas in the compulsory school curriculum for PEH. Although there is no clear definition of movement Barker et al. (2017, p. 420) argued that “movement capability”, i.e., movement, is useful in order to avoid certain ideas associated with several other concepts in the subject area. Even though we agree on the need for a greater uniformity of concepts in the area, resolving the matter is beyond the scope of this study.

4. Aim and research questions

As previously stated, a limited amount of research addresses preschool teaching in the knowledge area of movement, especially in Sweden but also internationally. Preschool teachers play a central role in decisions about the aim and content of the knowledge area and how it could be taught to young children. This article develops knowledge of what can characterize the teaching of movement in preschools in Sweden, focusing particularly on the goal and motive, content and teaching actions. The research is guided by the following main question and two sub-questions:

- What can characterize the teaching of movement in preschools in didaktik-informed teaching arrangements?
 - How can movement be justified and what content can be in focus in the arrangements?
 - What teaching actions can be identified in the arrangements when movement is in focus?

5. Theoretical framework

The theoretical framework used here is “didaktik”, based on the continental and northern European didaktik tradition (cf. Amade-Escot, 2006; Hopmann, 2007), compared with the Anglo-Saxon tradition in which didaktik instead refers to methods in education. The didaktik landscape varies from one tradition to another. Ligozat and Almqvist (2018) argued that the didaktik field encompasses different perspectives as philosophical and historical studies, the evolution and

transformation of the concept in different countries, analyses of classroom practices, attention to learners and their learning experiences, as well as teachers' professional development. Hudson (2016) further argued that in didaktik the purpose of education is emphasized at the beginning of the preparation process, which gives the teaching direction and determines the content to be used; meanwhile the lesson planning and methods to be used are consequences of the purpose established. According to Kjellsdotter (2020, p. 829), didaktik provides a "framework which places the teacher at the heart of the teaching-learning process and highlights the autonomy of the teacher and teachers' enactment of the fundamental what, why, how questions". Moreover, there are different didaktik models, one being the "didaktik triad" (Hopmann, 2007) concerning the relationship between teacher, student and content. When elaborating on this relationship, this can be considered as a didaktik content relation which generates the didaktik questions of "what", "why" and "how", a model which can be useful in studies of this relationship (Hudson, 2016). Didaktik also includes other questions such as "who/whom" (actor/actors), "where" (space/place), and "when" (time) (e.g., Uljens, 1997).

From our perspective, didaktik can be understood as the overall knowledge base for teaching and can be described as a theory of teaching and learning. However, in this article, the focus is on teaching rather than on learning and on teaching-oriented instead of learning-oriented didaktik (Vallberg Roth, 2020). Didaktik is used as a framework for exploring preschool teachers' use of movement in their teaching arrangements, based on the central didaktik questions of "why", "what" and "how" (see also Kjellsdotter, 2020).

6. Research methodology

This study is a part of a three-year collaborative research and development (R&D) programme conducted between 2018 and 2021, addressing the challenges, opportunities and circumstances faced by today's preschool in relation to the higher ambitions of the preschool mission. The programme is influenced by praxiography (Bueger & Gadinger, 2018) in terms of following a praxiographic collaborative method. The R&D programme involves collaborating with the participants, including initiation and dialogue concerning programme construction, the development of research questions and the selection of design for theory-informed teaching

arrangements, as well as data generation. The analytic units are word data (from co-planning and co-evaluation) and audio-visual data (from video transcript) within the study of practices and the focus is on understanding the practice (Bueger & Gadinger, 2018). The research process entails an effort to turn implicit into explicit knowledge. This article is partly developed from the R&D programme's final report published in Swedish (Ekberg, 2021b).

The R&D programme comprised five different theory-informed teaching arrangements, one of which was didaktik-informed teaching arrangements related to music or movement. This article is based on the teaching arrangements regarding movement which were conducted between autumn 2018 and spring 2019, beginning with two lectures given at a development seminar. One lecture concerned didaktik in general and the other the knowledge area of movement, providing an overview of the area and various constituent concepts rather than prescribing a specific content and way to teach. The participants also had the opportunity to discuss didaktik concepts, the content and possible co-planning across municipal boundaries at a development seminar.

The didaktik-informed teaching arrangements were then conducted in two cycles. A “cycle” comprised co-planning, teaching/co-action and co-evaluation. The preschool teachers decided for themselves whether they wanted to choose music or movement in one or both cycles and what material to deliver to the researchers. In this article, we analyzed written documentations from co-planning and co-evaluation as well as videos from teaching/co-action with movement in focus from 42 preschools in eight municipalities in Sweden (see Table 1). Almost all the preschools, 41 out of 42, had a focus on movement in one of the two cycles. One preschool which focused on movement in both cycles 1 and 2 is considered as conducting two different teaching arrangements. Thus, the total number of teaching arrangements is 43. Most of the preschools delivered material from co-planning, teaching/co-action and co-evaluation.

Table 1. Number of teaching arrangements and material delivered

	Cycle 1	Cycle 2	Total
Total number of material delivered from:			
-co-planning	14	28	42
-teaching/co-action	13	28	41

-co-evaluation	13	24	37
Total number of teaching arrangements	14	29	43*
Total video time (hours)	2:12:02	3:43:40	5:55:42

* One preschool focused on movement in both cycles 1 and 2 and this preschool is considered as two different teaching arrangements in the table.

6.1. Analysis

The analysis can be described as abductive (Tavory & Timmermans, 2014), alternating between theory-loaded empiricism and empirically loaded theory, “where both are gradually reinterpreted in light of each other” (Alvesson & Sköldbberg, 2008, p. 57). Abductive analysis may include seeing alternatives and discovering previously unidentified patterns. The abductive analysis iterates between empirically based open reading and theory-based tracing (Vallberg Roth, 2020) with the purpose of identifying traces and patterns in the material (cf. Silverman, 2011) relating to the study aim and including questions addressed. Didaktik was used as a framework for exploring the teaching of movement based on the central didaktik questions of “why” (goal and motivation), “what” (content) and “how” (teaching actions) (see also Kjellsdotter, 2020). The didaktik questions serve both as practical tools and as the basis of analysis (Vallberg Roth, 2020). The analysis was conducted in several steps. The material was read, listened to, and viewed several times, and the audio-visual data were transcribed. The transcription was partial (cf. Duranti, 1997), containing all spoken words, whereas the unspoken communication was noted as being of varying importance to the analysis. In the analysis, we identified empirical traces in the material.

These traces were then related to prior research and concepts, alternating between the empirical material and theory, for the purpose of gradually discovering patterns in the material concerning what can characterize the teaching of movement in preschool.

The R&D programme was reviewed and approved by the Regional Ethical Review Committee in Lund (10 January 2018) and complies with research ethics principles for humanistic/social scientific research (Swedish Research Council, 2017).

7. Results

In this study, the preschool teachers were engaged in the co-planning, teaching/co-action and co-evaluation of didaktik-informed teaching arrangements regarding movement. The didaktik questions of “why” (goal and motivation), “what” (content) and “how” (teaching actions) served both as practical tools for the teaching arrangements and as the basis of analysis (Vallberg Roth, 2020). The findings, taken from texts (co-planning and co-evaluation) and videos (video transcript) from the 42 preschools, are presented under three subheadings based on the didaktik questions.

7.1 Legitimation of movement

Results concerning the didaktik “why” question (goal and motive) indicate that there are traces of different ways to legitimize the teaching. There is a focus on both inherent and investment values (see also Engström, 2004; McNamee, 2005) but also on added values. Moreover, there are traces in the material of goals related to the curriculum and, in some cases, to research.

In most participants’ statements, inherent values are foregrounded – that is, movement has a value in itself. That the teaching should contribute to children’s development of movement capability appears to be an important goal:

Increase children’s confidence in themselves and their own bodies. (from co-planning)

To give children tools to find harmony and practise their body control and body perception.
(from co-planning)

In other statements, investment values are foregrounded, i.e., an investment in something that is related to the knowledge area of movement such as health: “It is important that children are in movement for the sake of health” (from co-planning), or learning in other subject areas:

If the child’s motor competences, such as balance and coordination skills, are stimulated, this can lead to the development of other learning areas. (from co-planning)

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In some cases, movement becomes a means to achieve other goals not directly related to movement, representing an added value – that is, another value that makes it “worth more”, an improvement or addition to movement. This may concern learning to take instructions, cooperating, developing independence, or “feeling curiosity and joy” (from co-evaluation):

It also became a teaching situation about “waiting your turn”, taking instructions, and working together. (from co-evaluation)

Develops independence and confidence in their own abilities. (from co-evaluation)

Furthermore, in almost half of the teaching arrangements, goals are formulated in the co-planning and/or in the co-evaluation related to the curriculum. There is a connection to curriculum area 1, i.e., the heading “Sustainable development, health, and well-being” (Skolverket, 2018):

Education should give children the opportunity to experience the joy of movement and thereby develop their interest in being physically active. (from co-planning)

References are also made to the heading “Communication and creation” in the same curriculum area,

Develop their own creative ability and their ability to convey thoughts and experiences in many forms of expression such as play, image, movement, singing and music, dance and drama. (from co-evaluation)

There are also links to curriculum area 2:2 “Care, development and learning”:

In the preschool curriculum, it says that “the preschool should provide each child with the conditions to develop motor skills, coordination, and body perception” and also that “preschool teachers are responsible for every child being challenged and stimulated in her or his motor, social, emotional, and cognitive development”. (from co-planning)

At some point, reference is made to research:

Research: 31% of four-year-olds in Sweden reach the WHO's recommendations on physical activity for their age group (Berglind et al., 2017). (from co-planning)

Moving and tracking gross motor skills are very important, not just for physical health. Research shows that they [i.e., motor skills] also affect things such as learning, concentration, self-confidence, and self-esteem. (quotation from "More time for movement", Förskolan, 13 September 2011). (from co-planning)

In the above examples, direct reference is sometimes made to research, sometimes to secondary sources, but in some cases, there are no references in the statements, such as "Research shows that good physical health contributes to good mental health, and vice versa" (from co-planning).

7.2 Movement content knowledge

As discussed initially, there are different concepts and perspectives used in the field of movement. The results show that, in relation to the didaktik "what" question, there are traces of a variety of content in the teaching arrangements. Here, we will present traces related to gross motor development (even though there are some traces of fine motor development), such as fundamental movement skills, aspects of movement, senses and perception, experience of movement, or of physical activity, as well as words and concepts related to movement. There are also examples of the focus being on aspects other than the content, i.e., on the activity itself.

Several teaching arrangements have content related to fundamental movement skills. In the arrangements, this can be in the form of balance/stability, locomotion or object control. The examples below are about balance/stability, which occur in several arrangements:

Preschool teacher: *Do you know what balance is?*

Child: *You should walk without falling.*

Preschool teacher: *When trying to walk without falling*

Child: *Yes!* (from video transcript)

We want to provide conditions for the children to develop the ability to balance (stand, roll, rotate, swing, hang) by offering planned activities. (from co-planning)

There are also arrangements focusing on locomotion:

The educator chose four different types of locomotion such as moving like an eel, jumping [to a different] level, hopping on one leg, waving your arms. (from co-evaluation)

Object control, i.e., handling different tools, appears as content in some teaching arrangements:

Preschool teacher: *So, you take these rings, and then you should throw and try to get...* The preschool teacher throws the rings and tries to get them over the stick standing on the floor.

Child: *Yes!* The children clap their hands.

Preschool teacher: *And so, we throw.* (from video transcript)

There are also some traces of attention directed to different aspects of movement, for example concerning “rhythm, reaction, space and force” (from co-planning) and “movement aspects – force (to adapt force in relation to the movement)” (from co-planning). This can also concern “dynamics – the children got to feel the difference between weak and strong in different ways” (from co-evaluation).

The teaching arrangements also include content concerning senses and perception, such as tactile perception: “They also got to experience tactile experiences such as hot, cold, hard, etc.” (from co-evaluation) or visual and auditory perception:

That children develop their gross motor ability by moving in different ways with the support of visual and auditory perception. (from co-planning)

In some arrangements, the preschool teachers stated that they were featuring both motor and perceptual dimensions, such as “coordination of information from sensory organs and motor reactions (movements)” (from co-planning).

Another trace concerns how children experience different movements and the exploration of movements, i.e., their own experience of being in movement. For example, this can involve body awareness, as in the first example, or be about experiencing contrasts, see the second example:

There was exploration of body awareness, through the child's own body and through the preschool teacher's body. Listen, imitate, feel, do, and understand. (from co-evaluation)

Preschool teacher: *Today we will feel how it feels in the body when the body is at rest – you can come here and just stand a little still.* The children walk up to the teacher and stand in front of the teacher.

Preschool teacher: *And feel how it feels when you move, feel how it feels in the body because it feels a little different.* (from video transcript)

A less frequent trace concerns physical activity. As initially described, this is a new content area in Lpfö 2018. When physical activity arises, it may concern “trying different pulse-raising activities such as cross-body movements using music and digital tools” (from co-planning).

Another trace concerns words and concepts related to movement, such as “Basic movements and prepositions: above, below, through or balance” (from co-planning) and:

Preschool teacher: *What do you think balance is?* The child gets up and walks the track, stretches out the arms and shows how to balance.

Child: *First you can walk on two legs, then one.*

Preschool teacher: *Yes, you can walk on two legs.* The child walks around the track and back to the bench and sits down. (from video transcript)

The examples so far show traces with the content in the foreground and the awareness of keeping this content in focus. There are, however, some examples in which the focus is on aspects other than the content, on the activity itself, such as “play” (from co-evaluation), “a new play experience” (from co-evaluation), or on an “obstacle course/balance course” (from co-evaluation).

7.3 Teaching actions

Results in relation to the didaktik “how” question show traces of a variety of teaching actions. Here we will present four different traces – co-actions, forms of activities, feedback and questioning – as well as the distribution of assignments.

In the teaching arrangements, there are various teacher- and child-led co-actions. Although the arrangements are predominantly teacher-led, there are also traces of teacher- and child-led co-actions. In teacher-led co-actions, the preschool teacher is the person who leads the teaching and directs the attention, such as: “We put the rings on the floor. A teacher went first, and the children went after” (from co-evaluation), or:

The teacher says that the children have come to a jungle and simultaneously makes movements that the children try to follow and imitate.

Preschool teacher: *Through everything, into the jungle, and now we come to...*

Child: *The pause.*

Preschool teacher: *The pause, yes, and then we do the snake, we stretch and then we swing, long, long as snakes.* (from video transcript)

There are some examples of co-led actions in which teachers and children appear as both main and co-actors. In one example, the teacher introduces the task and then invites the children to participate in developing the activity:

I introduced the movement theme in the first teaching session by asking the questions “How can we get from point A to point B?” ... “What is movement?” “How can we move?” After some discussion and reflection, the idea of crawling through a tunnel came up, because we did gymnastics. Based on the children’s own experiences of gymnastics, it became easier for the whole group of children to continue to come up with ideas. (from co-evaluation)

There are child-led co-actions in exceptional cases. In one instance, the children are involved in influencing and leading parts of the teaching arrangement:

I had planned to just introduce previous pictures from our water project to challenge the children in their thinking. The children's interest was in focus, so I chose to continue video recording when the children started creating a dance like water molecules. The children created movements for the dance. They could connect that the molecules were free when they were water and stuck together when they were ice. (from co-evaluation)

A variant of teacher-led co-actions is when the teacher introduces an “external” actor, for example, by applying an interactive whiteboard, displaying a movement song via a digital channel or using lyrics to be followed in the movement activity:

Preschool teacher: *Now we will watch something called bonky tonky and then we will do exactly as they do in the video, lift one leg and lift the other leg and jump a little closer, and then I and NAME will also get involved and help and do the same as they do in bonky tonky.* The preschool teacher and the children stand up and the preschool teacher points at the screen and speaks. *Look now we're starting it. Look, we can go a little closer – are you in?* The children turn around and look at the screen on the wall. The music starts and three people are on the screen singing the song and showing the movements. (from video transcript)

The preschool teacher starts the music, which has lyrics containing different words, including “run, run, run”. The children run around the room. One child starts running in the middle of the mat and another child starts running in the other direction. (from video transcript)

In the last of the above examples, it is the music and lyrics that lead the activity, but the preschool teacher emphasizes and clarifies what and how it should be done.

The second trace concerns the form of activities. This can take place through more specific forms of activities, such as a movement, balance an obstacle course, dance, yoga or play. The use of some form of course occurs in several teaching arrangements:

Preschool teacher: *Now I have made a course – do you see it behind here? I will go first, and you will go after me. First, we must sneak slowly. Is there anything that sneaks slowly?*

Child: *Beetles.* (from video transcript)

Other specific forms of activities are dance, such as: “We will use music and dance” (from co-planning), or yoga:

Preschool teacher: *Today we are going to do yoga, I thought, has anyone ever done yoga?*

Some children raise their hands.

Preschool teacher: *Well, several of you, good. I have written yoga over there on the board. It can be good to know what it looks like when you write it.* (from video transcript)

In some arrangements, the form of activity is referred to as just “activity” (from co-planning), “movement activity” (from co-planning) or “movement story (from co-evaluation). Play has a special role in the curriculum (Skolverket, 2018) and is regarded as having an important function in preschool. Play can have many dimensions, such as expression, and serve as a learning method (see, e.g., Broström, 2013; Bäckman, 2020). When play occurs, it is primarily as a form of activity, for example, movement play:

Preschool teacher: *We are actually going to play something called “dance stop”.* (from video transcript)

The preschool teacher started the first two teaching sessions by introducing movement play.
(from co-evaluation)

In some teaching arrangements, play seems to be something that does not occur during the movement session, but something you do after the session:

Preschool teacher: *You know what, right now we should not play with the shark. It can lie there, fine.*
(from video transcript)

The third trace is about the way the teacher directs attention by using feedback and questioning. Feedback can be group or individually oriented. It can also be directed in different ways, constituting different types of feedback such as feed up (“Where am I going?”), feed back (“How am I going?”), and feed forward (“Where to next?”). It can also be expressed at different levels such as self level (personal evaluation and effects), task level (corrective feedback), process level

(specific to the processes underlying the task) and self-regulation level (e.g., self-monitoring, directing, and regulating actions) (see Brooks et al., 2019; Hattie & Timperley, 2007). Examples from the teaching arrangements of group-oriented feedback are: “Good job everyone” (from video transcript) and “How good you were” (from video transcript). Examples of individual feedback are: “You did it, yes” (from video transcript) and “How well you did” (from video transcript). The excerpts above are also examples of self-level feedback, which occurs frequently in the teaching sequences. Giving task-level feedback occurs in some teaching sequences: “And then you crawl all the way, oh how good” (from video transcript), “Up again and just pull the rope so it is easier to get over the bump” (from video transcript), and “Constantly look at a point on the carpet there on the floor, the same point all the time” (from video transcript). These are also examples of feedback forward, i.e., when feedback is directed forward, as well as some of feedback up, as the following:

Stand in the windbreak and hold each other, then wander to the ravine. Use a rope to get up the hill, listen at the top to see if you hear someone chirp. Now turn into an airplane and fly, down to the windbreak where you will then sneak in. Come in and sit down and be completely quiet – I hope you’ll like the treasure. (from co-evaluation)

Questioning is frequently used by the teachers when giving feedback (see examples above), but also in other situations, and it may take different shapes. Both open-ended and closed-ended questions occur, i.e., questions that have several possible answers or that have few answering options, such as “yes” or “no”. Open-ended questions can sound as follows:

Preschool teacher: *Why is it good to move then?*

Child: *Otherwise you can get stiff*

Preschool teacher: *Anyone else have any suggestions?*

Child: *You get leg pain.* (from video transcript)

Examples of closed-ended questions are “Was it fun?” or “Can you climb?” (from video transcript). Rhetorical questions, i.e., questions where no answer is expected, are also used in the teaching arrangements, such as “Shall we stand up and try one thing?” or “Shall we test?” (from video transcript).

The fourth trace is about how the task or assignment is distributed or provided. Preschool teachers use different ways to inspire and motivate the children, for example by alluding to the children's imagination, offering challenges and exploration, encouraging problem solving and facilitating missions. It could also be by children's influencing, for instance, the planning of arrangements, or by the children experiencing joy when they are moving. The preschool teacher alludes to the children's imagination when they imitate animal movements, as in the first example below, or to something associated with positive emotions, such as ice cream, as in the second example:

Preschool teacher: *Now we say this. Come, all my children, what do you say then?*

Child: *What then?*

Preschool teacher: *What then, as horses, what do the horses do?*

Child: *They jump.* The children jump and gallop over to the other side. (from video transcript)

Child: *We made ice cream.*

Preschool teacher: *We made the ice cream first, yes.*

Child: *Yes!*

Preschool teacher: *Shall we start with that today too?* (from video transcript)

In some teaching sequences, the children are offered challenges or are encouraged to explore the content:

Preschool teacher: *Do you want to start the obstacle course today? You have done this once before, but now, I think ... Then you start to balance, and then you go through the water.*

Child: *It was hot.*

Preschool teacher: *Was it hot?*

Child: *Yes.*

Preschool teacher: *Well, and then you dry yourself a little, and then you climb across the table. Look where you are going so you do not fall, and then go over the nail mat [i.e., a spiky acupressure mat].*

Child: *It hurts.*

Preschool teacher: *Does it hurt? Try carefully.* (from video transcript)

Another example concerns problem solving and missions. In the following example, the mission is to build a balance course:

Preschool teacher: *The four of you will go out and then you will get an assignment and then you will get to build a balance course. But what is a balance course?*

Child: *That you should keep your balance and not fall down.*

Preschool teacher: *You should keep your balance and not fall down.* (from video transcript)

The children's influence on the arrangements appears to be important in several cases. It can be by participating in the planning of the teaching session, as in the first example, or by making choices, as in the second:

The teaching took place by agreement with the children; the teachers were responsive and had a conscious attitude towards the children. (from co-evaluation)

The children chose together ... after a discussion, they chose quiet music. (from co-evaluation)

Children can also gain influence by evaluating the teaching arrangement, such as: "We asked the children afterwards how they had experienced the activity and how it felt" (from co-evaluation).

There are traces of the importance of children experiencing joy when they move, such as: "We want the children to feel curiosity and joy. They should have an opportunity to learn what fun it is to move the body" (from co-evaluation).

In the above examples, the preschool teachers themselves use different methods to inspire and motivate the children to move. There are also examples of other ways of conveying the content, for instance by using digital tools and handing over the teaching to another actor:

The children stand in front of the screen and watch animals jumping with both feet together. The animal says: *Now I want you to jump with both feet together, like bouncy balls.* Most of the children are jumping with both feet together. (from video transcript)

8. Discussion

The purpose of this article is to develop knowledge of what can characterize the teaching of movement in preschools in Sweden, with a particular focus on goal and motive, content and teaching actions. This is also relevant to the design of the study. Many studies of preschool and movement start, for instance, with fundamental motor/movement skills and interventions. In this study, didaktik is used as a framework, with a focus on the teaching of movement rather than learning, and the didaktik questions of “why”, “what” and “how” serve both as a model for the teaching arrangements and as the basis of analysis. As indicated above, since there are few studies of movement and the teaching of it in Swedish preschool, this study will contribute with novel knowledge in a neglected area.

The results suggest, in line with the introductory questionnaire in the R&D programme (Ekberg, 2019) that there are different ways of legitimizing the teaching of movement, the “why” question. Such legitimization relies more on inherent values, with movement being the goal of the teaching arrangement, than on investment values, where movement is a means to achieve other goals, such as learning in other subject areas (see also Engström, 2004; McNamee, 2005). There are also traces of using added value as a motive, i.e., improvement in another area in addition to movement, such as taking instructions and cooperating. Moreover, references are made to the curriculum, which seems to have a major impact on preschool teachers’ work.

Many different terms are used in the literature to address the multiple aspects of human movement. As there is no consensus on definitions in this area, scholars argue that there is a need to review and update the terminology, given the lack of coherence (Hulteen et al., 2018; Logan et al., 2018; Lopes et al., 2021). This can also be seen in the preschool teachers’ statements in relation to the didaktik “what” question. There are traces of a variety of content dimensions, such as balance/stability, locomotion and object control, which the literature refers to as fundamental motor skills (Logan et al., 2018) or fundamental movement skills (Barnett et al., 2016). Balance and stability occur in several teaching arrangements and object control in a few ones. There are also some examples in which the focus is on other aspects of movement, such as rhythm, reaction, space and force, as well as on perceptual areas such as vision and hearing and on the children’s

own experience of being in movement. Interestingly, physical activity rarely occurs in the material, which may be because it is a new area in the Lpfö 2018 curriculum. In other arrangements, the starting point is words and concepts, more precisely in the form of naming, for example the movements performed, or different body parts.

The preschool teachers use different methods to conduct the teaching, the “how” question. The co-actions were mainly teacher-led, in line with what Bautista et al. (2020) reported, sometimes they were combined teacher- and child-led co-actions and in exceptional cases, they were child-led co-actions. In some arrangements, teachers use an “external” actor, for example, an interactive whiteboard or a movement song or lyrics for the children to follow. The preschool teachers use various forms of activities, such as more specific ones, for example different obstacle courses, which occur in several teaching arrangements, but also dance or yoga. Play is used mainly as a method of staging the teaching, and in some passages, it seems to be something done not during the movement session, but afterwards. Feedback is preferably group-oriented, often in the form of self-level feedback. Task-level feedback occurs in some teaching sequences, but feedback at the process or self-regulation level is unusual. There are also examples of feed up, feed back, and feed forward. The teachers frequently use questioning to direct attention either to a specific focus, closed-ended questions or open-ended questions with several possible answers. There are likewise rhetorical questions used, for example, to mark transitions between different forms of activity. Illeris (2018) emphasized that a prerequisite for participating in a learning process is that there is a driving force in the individual and that participation is affected by motivation, emotions and will. As preschool teachers often stress the importance of the teaching carried out being based on the children’s interest and willingness to participate in the activities offered, they use different approaches to inspire and motivate the children. In some cases, the preschool teachers allude to the children’s imagination, offer challenges and exploration, encourage problem solving and facilitate missions. It could also be by children’s influence, for instance, in the planning of arrangements, or by the children experiencing joy when moving. Children’s participation and influence is highlighted as an important aspect of several preschool teachers, even though “learning can be somewhat controlled, and children’s initiative and influence can easily disappear if the teacher is too focused on sticking to the planning” (from co-evaluation). There are traces that movement is seldom used for creativity, expression or for aesthetic purposes, although there are

examples of this when the preschool teachers legitimize the teaching of movement and refer to the curriculum area “Communication and creation” in the co-planning and/or co-evaluation. However, there are few such statements when it comes to the actual teaching arrangements.

The material studied here suggests diverse possibilities, but also difficulties, in the teaching of movement in preschool, and this study notes the complexity. Some preschool teachers describe, for example, how using didaktik questions makes it clearer that there are many different aspects to be considered and that it is important to make conscious choices in the teaching process, such as: “We need to specify the choice of goals but mainly methods more carefully and in detail” (from co-evaluation). This is also relevant when it comes to distinguishing between the object of learning – the “what” question – and the teaching actions – the “how” question, and the difficulty to differentiate “between content (what) and form (how)” (from co-evaluation). This can also be seen in the results, in which giving feedback at the self level is more prominent than at the task or process level, and when, for example, the activity rather than the content becomes the focus. Overall, the preschool teacher largely concentrates on movement as a goal and on the content of the teaching arrangements. However, when it comes to actual teaching, the focus sometimes shifts from the content and a teaching-oriented didaktik towards the activity and a learning-oriented didaktik. This may be due to preschool traditions, but also to traditions in the field of movement in, for example, the compulsory school where teacher-centred teaching and an emphasis on physical activities seem to be more common, despite examples of teaching that is more student-centred, putting more stress on discussion and reflection (Barker et al., 2015; Karlefors & Larsson, 2015). However, this could also be due to the belief that movement can be seen as coming as a “birthday present” (Clark, 2007, p. 39) or, as discussed in the literature review in the background, due to a diverse knowledge area or the lack of discussed, negotiated and therefore accepted and established concepts. This also highlights the risk that the teacher may become an activity leader rather than a teacher who leads teaching and learning (Larsson, 2016). From a didaktik perspective, this emphasises the importance, when working on movement, of concentrating on the prospective object of teaching and the purpose of the teaching session (see also Kjellsdotter, 2020).

9. Conclusion

Most children spend a considerable amount of their waking time in preschool, which is a vital period for the development of and through movement (Foulkes et al., 2015; Wachob, 2018), as well as for physical activity habits (Ward et al., 2010). Moser and Reikerås (2016) argued that for the youngest children everyday life is largely corporeal, which must be considered when planning children's time in preschool. Howells and Sääkslahti (2019) emphasize the significance of preschool teachers' perception of motor competence, and of preschool teachers as being central to the development of children's movement. The many assignments expected in preschool in Sweden (Vallberg Roth, 2020) can be challenging in terms of time for and knowledge of the teaching of movement. This study also raises questions about whether teaching arrangements contribute to or counteract children's play, influence, creativity, and expression. Altogether, this highlights the importance of preschool teachers' competence in and knowledge of movement as well as the need to develop strategies for teaching movement. For professionals it is desirable to make conscious didaktik choices to lead and teach movement.

As discussed previously, the definition of the knowledge area in question is ambiguous. Consequently, different terms are used to address the multiple aspects of human movement. We agree that greater uniformity in defining and using concepts is needed. Although working towards such uniformity is beyond the scope of this study, we bring the following into the foreground. The Swedish Lpfö 98 and Lpfö 18 preschool curricula contain diverse terms regarding the knowledge area. Scholars use different terms, and overall, a variety of terms exists, even in the data collected from the preschool teachers studied here. In this article, we have used the term "movement" because it was apparent from the R&D programme and this study that a clear name for this area in preschool is of benefit. The background for choice of the term "movement" is that it has been used in the Lpfö 98 and Lpfö 18 preschool curricula, as well as in earlier curricula. It is also the name of an area of knowledge in the compulsory school curriculum for the subject of PEH in Sweden. Movement is a noun and can be understood as being about knowledge itself, i.e., the content of the area. Like other subject areas such as music, language or mathematics, it consists of one word. We, therefore, see movement as an overarching term or concept in relation to other concepts used. Elaborating on the concept of movement might be positive for its development in

preschool – to draw attention to and focus on it, which this study has shown is possible. It could also contribute to the uniformity in the use of concepts. With the concept in the foreground and through well-grounded didaktik choices, children can be offered an opportunity to experience and explore movement.

The study found traces of multiple and varying approaches to movement in the teaching arrangements examined. A picture of a multi-vocal movement education has emerged based on the preschool teachers' material and the didaktik framework guided by the didaktik questions of “why”, “what” and “how”. Given the limitations of the study design regarding the number of municipalities and preschools involved, the findings cannot cover all possible variations. Further studies are needed to provide in-depth knowledge and more nuanced answers by examining, for example, what opportunities and limitations there are for providing daily movement in preschools, and what content and teaching actions are relevant for preschool and contribute to teaching movement. Further studies could also bring clarity about preschool teachers' knowledge and perceptions of teaching movement, and shed light on children's perspectives and prerequisites.

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