The purpose of this study was to investigate the educational pathways of a group of children with and without special educational needs from the last year in preschool to 1st grade. Fifty-six children participated and 65 educational settings were visited. A longitudinal and mixed method approach was adopted. Data was collected via observations, conversations, interviews and a questionnaire. Over the early school years, the number of children with special educational needs increased. Their need of support ranged from some needs, to high and to very high needs. The support was integrated into ongoing activities and offered among peers, as well as provided in the form of one-on-one training and therapy, one-on-one conversation and after school training. The settings were comprehensive or specialised in a certain diagnosis, and the application of inclusion ranged from non-existent, to integrated activities and partial and full inclusion. The findings are related to national and international discussions on the topics of inclusive education, support provisions and early childhood educational pathways.

Introduction
Inclusive education and support provisions
Inclusive education is considered important for children’s social and academic development, for combating discrimination and for creating welcoming communities (Booth & Ainscow, 2002; Odom et al., 2004; United Nations Convention on the Rights of Persons with Disabilities, UN CRPD, 2006; World Conference on special needs education; access and quality, The Salamanca statement, 1994). Inclusive education is a broad concept that can be related both to practical and philosophical aspects. In a practical sense, it refers to the participation of children with and without special educational needs and disabilities in the same educational activities, routines and play and to their provision of support (Sandall et al., 2008; Soukakou, 2012). In a philosophical sense, it refers to human rights, social togetherness and an appreciation of diversity. The forms and levels of inclusive education may vary from integrated activities to partial inclusion or full inclusion (Guralnick, Neville, Hammond & Connor, 2008; Hanson et al., 2001). The educational settings where staff member do not apply any elements of inclusive education can be referred to as self-contained programmes, special classes or segregated programmes (Hanson et al., 2001). Even though considerable attention is paid to inclusive education in policies and in research, sceptical opinions are being declared. Hanson et al. reported that “support for inclusive educational placements for children with disabilities has not been without controversy regarding its benefits for all children” (2001, p. 66).

Support provisions for children with special educational needs in educational settings can be described as ‘additional help and attention’, ‘special needs support’ or as ‘special support’ designed to enhance participation in activities, routine and play, and to improve and facilitate learning (Swedish Education Act; 2010:800; Sandall et al., 2008; Sandberg, Lillvist, Eriksson, Björck-Åkesson & Granlund, 2010). Children
with special educational needs may need curriculum modifications and adaptions, explicit child-focused instructional strategies, ample feedback and augmentative and alternative communication methods and tools in order to belong, thrive, participate and learn in educational settings (Sandall, Schwartz & Joseph, 2001; Sandall et al., 2008; Soukakou, 2012). The lack of adequate additional help and attention might therefore create situations where children with special educational needs cannot benefit from their education and belong to a class.

**Early childhood educational pathways in the context of Sweden**

The concept of educational pathways refers to children’s education and care over time and to the transitions that are taking place between different school forms (Hanson et al., 2001). Such transitions entail changes in activities and relationships (Bronfenbrenner, 1979), which can be critical for children (Ekström, Garpelin & Kallberg, 2008). In Sweden, the early childhood educational pathway encompasses two main transitions (Swedish Education Act, 2010:800). The first transition takes place when the children move from preschool to the preschool-class and leisure-time centre, and the second takes place when children start compulsory school 1st grade.

Access to preschool, which is the first stage of education, is a right of all children aged one to five years old (Swedish Education Act, 2010:800; Swedish National Agency for Education, SNAE, 2011a). Approximately 83% of the children aged 1-5 years old (SNAE, 2013a) attend preschool when their parents work or study. An estimation is that circa 17% of the children enrolled in preschool (Lillvist & Granlund, 2010) need additional help and attention. The main tasks of preschools are to educate and care for children, provide ample opportunities for play and social togetherness, and to prepare children for school. In preschool, and in all the following stages of the early school years education, children with special educational needs have a right to support provisions. The national policy for preschool does not make explicit use of the concept of inclusive education as a vision, goal or method, but states each child’s right to education, support and attending a preschool close to home. It also underpins that children with difficulties and disabilities shall be offered a place in preschool without delay (Swedish Education Act, 2010:800). Preschool-class (e.g., pre-primary class) follows after preschool (Swedish Education Act, 2010:800; SNAE, 2011b) and is one year in length. It offers three hours of educational activities and playing in the morning and is often located in compulsory school buildings. Approximately 95% of all 6 years old attend preschool-class (SNAE, 2013a). Its main tasks are to stimulate development and learning, provide opportunities for play and social togetherness, and to prepare children for school. The preschool-class policy is interwoven into the policy for school and leisure-time centre. After preschool-class, children start compulsory school 1st grade (Swedish Education Act, 2010:800; SNAE, 2011b) (Figure 1). Approximately 20% of the children in a class receive additional help and attention, and a total of 40% receive support at some point over their school years (Giota & Lundberg, 2007). Children with intellectual disabilities can attend a ‘compulsory school for children with learning disabilities’ and children with intellectual disabilities who have a more considerable need of support provisions and additional help and attention can attend a ‘compulsory school for children with learning disabilities with a training school orientation’ (SNAE, 2011c). Approximately 1% of the children are enrolled in an alternative school (SNAE, 2013a). A child registered in the compulsory school for children with learning disabilities can, however, receive education within a regular school if the responsible authorities, head-teachers and parents agree on this (SNAE, 2013b). In Sweden, there are also special schools for children who are deaf, deaf-blind, or who have profound language disorders, a visual impairment or additional disabilities (Swedish Education Act, 2010:800; SNAE, 2011d). Since the daily duration of preschool-class and school is not as long as parents’ work or study, children go to a leisure-time centre in the afternoons. The children from 1st grade and the preschool-class commonly attend the same leisure-time centre (Figure 1). Its main tasks are to complement the preschool-class and school in terms of stimulating children’s development and learning, and it is also to offer children a meaningful recreation and leisure time (Swedish Education Act, 2010:800; SNAE, 2011b; 2011c; 2011d). Children with intellectual disabilities are commonly enrolled in leisure-time centres located in the compulsory schools for children with learning disabilities.

The United Nations Committee on the Rights of Persons with Disabilities (2014) have commended Sweden for its inclusive education system, where only few children (circa 1%) are educated outside the regular schools in agreement with parents. However, the Committee has also reported concerns. In Sweden, and in particular in its education system and amongst decision makers, there is lack of knowledge about different disabilities, such as relevant factors and accommodation needs related to disabilities. They urge Sweden to “guarantee the inclusion of all children with disabilities in the mainstream education system and ensure that they have the required support” (UN, 2014, p. 6).
Figure 1. The three initial phases of the education system in Sweden and the two main transitions made between these phases.

Previous research on educational pathways

Early childhood educational pathways in the context of Sweden have been investigated previously, but there appears to be limited research on the educational pathways of children with special educational needs. Via ethnographic approaches, Swedish education researchers have described pathways from preschool-class to 1st grade (Sandberg, 2012), children’s perspectives of transitions to and from preschool-class (Ackesjö, 2014), transitions from preschool-class to 1st grade and how children become familiar with and make sense of school (Lago, 2014). In these studies, the early childhood education transitions and pathways are related to both challenges and opportunities. Sandberg (2012) found that preschool-class teachers commonly organised and provided support to children with special educational needs by themselves in ongoing activities, whilst in school the children were provided support on the side. She also found that the teachers were generally positive towards inclusive education but that they hold some reservations. Moreover, she reported that leaving classrooms for training could be a negative experience for the children who were pulled-out.

Educational pathways from preschool to school have been previously investigated in other contexts (Guralnick et al., 2008; Hanson et al., 2001). In the United States Hanson et al. (2001) examined 33 young children’s participation in inclusive programmes over their early school years. They reported that the forms of inclusive education varied. The children’s educational settings were fully inclusive, partially inclusive or adopting integrated activities. Hanson et al. (2001, p. 71) defined these forms of inclusive education as follows: In full inclusion placements, “children with disabilities participated as full members of the general education class”. In partial inclusion placements, children with disabilities participated in typical age appropriate programmes for at least 50 % of their school day and part of the school day in separate experiences with other children with disabilities. Settings adopting integrated activities “were those programs in which children with disabilities were predominately in self-contained experiences but participated in joint classes of activities with age appropriate typically developing children”. These activities “occurred on a regular basis and were planned to support interactions between the two groups of children”. The children’s educational settings were also in the form of segregated programmes. In these programmes, “the only contact between children with and without disabilities was incidental in public areas” (Hanson et al., 2001, p. 71). Hanson et al. (2001) described that the placements in segregated programmes occurred when the children with disabilities started kindergarten, but placements into segregated programmes also occurred and even increased when the children started 1st grade. Thus, the most dramatic shift towards segregation occurred between kindergarten and 1st grade. In total, 60 % of the children with delays and disabilities that had been placed in some level of inclusive setting in preschool remained in inclusive education until the end of 2nd grade. Guralnick et al. (2008) investigated the continuity and change of 90 children with mild development delays in the United States from full inclusion early childhood programmes through the early elementary period. They reported that most of those children remained in some level of inclusion over time, but the full inclusion placements decreased and the partially inclusive settings increased substantially in the transitions to 1st and 2nd grade. In their study, there were no children who attended segregated programmes in the early school years. They also reported that the children’s characteristics, such as the level of cognitive and language development, were associated with less inclusive placements in the early school years. They put forward that “placement in full-inclusion programs during the early childhood years creates a momentum to continue maximum participation in inclusive settings over time” (Guralnick et al., 2008, p. 237).
Aim, research questions and rationale

The purpose of this study is to investigate the educational pathways of a group of children with and without special educational needs from the last year of preschool inclusive education to school 1st grade in several Swedish municipalities. A study on early childhood educational pathways concerning children with and without special educational needs is motivated by the still limited research and knowledge on the topic. It is also motivated by its ability to provide reports and implications for research, policy and practice about early school year settings, as well as the forms of inclusion applied and the support presently employed over these years. The provision of such reports and implications may have particular importance for practice, since these could support the planning and application of inclusive education, increase the didactical knowledge on support provisions and special educational needs, and provide insights concerning children’s experiences of transitions between educational settings. It may also shed light on variables that tend to obstruct inclusive education and are considered positive aspects of segregated programmes. A study on early childhood educational pathways can also form basis for interesting comparison with other contexts and enable mutual learning on these topics. The following questions are addressed: How do the special educational needs and abilities of the children change from the last year in preschool to compulsory 1st grade? Which types of support provisions are provided to the children and are there any changes from the preschool period in this regard? What types of educational settings are the children enrolled in after preschool? Which changes in activities and relationships occur in the early childhood education transitions? Will the placements in inclusive settings change (decrease or increase) over the early school years? Which variables seem to be associated with a decreased/increased propensity to inclusive education?

Method

The present study is part of a longitudinal study on the early school years in Sweden, framed by a biocological model for human development (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 1998), in which the same set of children was followed from the last year in preschool to compulsory 1st grade. The preschools where the study started were purposely selected to represent socio-economic variation, a variation of geographical locations, sizes, pedagogical profiles and local authorities, and to ensure that children in need of support provisions were enrolled.

During the study verbal and written information about the study was given to the head teachers, staff, parents and children and consents were obtained from all the participants. Fifty-six children (28 boys and 28 girls) and 65 educational settings (preschools, n=8; preschool-classes, n=17; leisure-time centres, n=20; 1st grade classes, n=20) in five municipalities in the middle east of Sweden were enrolled. During this period three children without reported special educational needs left the study. The eight preschools were visited by the first author in the years 2012 and 2013 for a total period of two months; the preschool-classes and leisure-time centres were visited in the spring 2014 for a total period of one month; the compulsory 1st grades were visited in the autumn 2014 and the spring 2015 for a total period of one and a half months. The majority of the leisure-time centres were visited during the preschool-class data collection period but some were visited during 1st grade data collections.

Previous research on the settings and children enrolled in the study

A description of the preschools such as their support provision, resources and organisational typologies and the children enrolled in this study can be obtained in XXX (blinded for review) and in XXX (blinded for review). A short presentation of the transition from preschool to preschool-class can be obtained in a conference presentation (XXX, blinded for review). Results from these studies are taken advantage of in this study so as to enable longitudinal descriptions and analyses of the educational pathways from preschool to 1st grade. In short, the preschools were ‘comprehensive and fully inclusive’ (n=6), ‘specialised and partially inclusive’ (n=1) or ‘specialised and adopting integrated activities’ (n=1). In the comprehensive and fully inclusive preschool units, typically developing children as well as children with various special educational needs participated in the same activities, routines and play throughout the days. In the specialised and partially inclusive unit, typically developing children as well as children with the same type of disability participated in the same activities, routines and play, but the children with disabilities were on a regular basis pulled out for one-on-one training and speech therapy. In the specialised unit that adopted integrated activities, the children with the same types of disabilities regularly met typically developing children in, for example; outdoor play, gross motor activities and song times, but spent the most time in a self-contained programme. The abilities of the 56 preschool children varied and their need of support provisions ranged from some needs to high and very high needs. A majority of the children were considered as typically developing in the sense that they were not regarded as having a need of support provisions. The children with some need of support provisions had difficulties in certain areas such as social skills and/or learning, but had
no case of disability diagnosis. The children with a high need of support provisions had difficulties in the areas of social skills, speech, communication and/or learning, and had in some cases a disability diagnosis. The children with a very high need of support provisions showed low levels of ability in several areas: social skills, learning, limbs, communication, muscle tone, health and vision (ABILITIES Index, Simeonsson & Bailey, 1991). They had intellectual disability, autism and Down syndrome and were provided considerable support during educational activities, routines and play. The preschool support provisions aimed to enhance participation and learning and were environmental, that is, related to objects, modification and adaptations in the settings and interpersonal, that is, related to staff and peers. In the specialised preschool units, the children were also pulled-out and provided one-on-one training and speech therapy, and in some cases, an extended timeframe in preschool were provided. After preschool, a majority of the children (n=43) moved to fully inclusive preschool-classes, while a handful (n=5) went to a partially inclusive preschool-class and three children, who had previously attended a fully inclusive preschool unit, moved to a segregated preschool-class programme. Three children who had high or very high need of support provisions had an extended timeframe in preschool and, for this reason, did not have a regular transition to preschool-class and 1st grade.

Data collection methods
A mixed methods approach (Johnson, Onwuegbuzie & Tumer, 2007; Teddlie & Tashakkori, 2010) was adopted. The data was collected via direct observations in the settings, from researcher to staff conversations during fieldwork and from shorter case study interviews (Yin, 2014) at a time and place chosen by the staff. Field notes were made. Data was also collected via the ABILITIES Index questionnaire (Granlund & Roll-Pettersson, 2001; Roll-Pettersson, Granlund & Steenson, 1999; Simeonsson & Bailey, 1991; Simeonsson, Chen & Hu, 1995). Via the questionnaire, data on children’s functional and developmental status were collected and the comparable profiles obtained were calculated (ABILITIES Index: Research Composite Score (AIRCS), R.J. Simeonsson, personal communication, May 28, 2014). The ABILITIES Index has 18 subdivisions on a 5-point scale in which a high number indicates many problems and low abilities regarding audition, behaviour, social skills, cognitive ability, limbs, communication, muscle tone, health and vision. The ratings were done with assistance from the first author by staff who knew the children well. In a few cases the first author determined the ratings out of available data and fieldworks.

Analyses
Frequencies and percentage were used to describe the children’s statuses concerning special educational needs. Means and ranges were used to describe the children’s ability levels. A one-way between-groups ANOVA was adopted to investigate the relation between AIRCS scores and the children’s need’s groups. In this study, a value of p <.05 denoted significance and the eta squared was calculated and considered as small (.01), moderate (.06) or large (0.14 or above) (Cohen, 1988). Moreover, a thematic analysis approach (Braun & Clarke, 2006) was applied in the data analyses. The categories of full inclusion, partial inclusion, integrated activities and segregated programmes obtained from Hanson et al. (2001) were employed in the thematic analysis. In addition, the terms some, a high and a very high need of support provisions, integrated support provisions, one-on-one training and speech therapy, extended timeframes and comprehensive and specialised organisational typologies obtained from XXX and XXX (blinded for review) were employed in the thematic analysis.

Validity
In an attempt to ensure the trustworthiness of the study we adopted multi-method data collections to enable triangulations, visited the settings on days that the staff considered to be representative and visited each setting for at least one full day in order to observe indoor and outdoor educational activities, routines and play. During the observations the data collector was careful to not interrupt activities, routines and play. We also made efforts to follow all the children with and without special educational needs from preschool to school. Moreover, the staff was supported during the application of the questionnaires to decrease the risk for errors in the interpretation of the questionnaire’s items.

Results
The result begins with a description of the children’s statuses concerning special educational needs, need levels and ability levels during their early school years. This is followed by descriptions of the preschool-classes, 1st grade classes and leisure-time centres. The preschools have been described in previous studies (XXX Blinded for review; XXX Blinded for review). The result section concludes with an overview of the children’s educational pathways from preschool to school. In keeping with the bioecological model, child characteristics such as abilities and needs are considered part of the biosystem, classroom characteristics are considered part of the microsystem, allocation of resources is considered part the exosystem and changes over time are considered part of the chronosystem.
A description of the children’s statuses, needs and abilities

An overview of the children’s abilities and needs is presented in Table 1. Approximately half of the children (n=29, 52%) were regarded as having special educational needs. Almost half of those (n=14, 48%) were in need of support provisions throughout their early school years. During the early school years the total number of children without a formal disability diagnosis (SEN) considered to have special educational needs doubled from 9 to eighteen children. The total number of children with a formal disability diagnosis (SEND) considered to have special educational needs was more constant. There were some children who ‘stepped into’ as well as ‘stepped out of’ considerations as a child in need of support. Just as in preschool, classification of the children’s special educational needs ranged from some need of support provisions to a high or very high need of support provisions in the preschool-classes, leisure-time centres and school classes. The children with high and very high needs, with few exceptions, remained in the same need group over their early school years. The children’s ability levels varied and ranged from an AIRCS of 0 up to a score of 71. On a group level, the estimated AIRCS of the children with SEND were lower than the scores of the children with SEND, but there were children with disability diagnoses who had low AIRCS and children with SEND who had somewhat high scores.

A one-way between-groups ANOVA analysis of variance was conducted to explore the difference in AIRCS as measured by the ABILITIES Index for children with special educational needs. Children were divided into three groups according to their need’s levels (Group 1: some needs; Group 2: high needs; Group 3: very high needs). There was a statistically significant difference at the p <.05 level in AIRCS for the three groups: F (2, 58), =185.6, p=.000. The differences in mean scores between the groups were large. The effect size, calculated using eta squared, was .86. Post-hoc comparisons using Turkey HSD test indicated that the mean scores for Group 1 (M = 4, SD = 2.66), Group 2 (M = 18.9, SD = 10.5) and Group 3 (M =51.7, SD =11.4) were significantly different from each other. A higher AIRCS was associated with higher levels of needs and support provisions.

A description of the preschool-classes

After at least some level of preschool inclusion, the children, with exception of those who had an extended timeframe in preschool, moved to preschool-class and the leisure-time centre. In the transitions from preschool to preschool-class, all children received new staff and teachers, and also some new peer relationships. A majority of the preschool-classes (n=13, 77%) enrolled children with special educational needs who participated in this study. These preschool-classes were divided into four groups: (1) ‘comprehensive and fully inclusive’ (n=9, 53%), which means that typically developing children and children with various difficulties and diagnoses were enrolled in the same activities, routines and play throughout the days; (2) ‘modified, comprehensive and fully inclusive’ (n= 1, 6%), which means that typically developing children and children with various difficulties and diagnoses were enrolled in a small class and the same activities, routines and play throughout the days; (3) ‘comprehensive and partially inclusive’ (n=1, 6%), which means that typically developing children and children with various difficulties and diagnoses were enrolled in the same activities, routines and play, but the children with disabilities were on a regular basis pulled out for one-on-one training and speech therapy; and (4) ‘specialised in a certain disability diagnosis and segregated’ (n= 2, 12%). A comprehensive preschool-class could have up to 25 children and one teacher to 21 children (1:21). The modified comprehensive setting had few children enrolled (n= 10) and had one teacher and one teacher-aide. The segregated preschool-classes were located within, next to or separated from regular schools, but during the observations the only contact between the children in the segregated programmes and the children in the regular schools was incidental in public areas. The number of children in these classes was low (n=8) and the staff to child ratios were high (1:1). The children that were enrolled in these segregated programmes had intellectual disabilities and a very high need of support provisions. In contrast to the preschool units, there were no preschool-classes that were inclusively oriented and that were specialised in certain difficulties or disability diagnoses. As in preschool, the children were provided ‘integrated environmental and interpersonal support’ and ‘one-on-one training and speech therapy’. In addition, they were also engaged in ‘one-on-one conversations’ in which the staff boosted the self-esteem of the child with ample positive feedback, intended to reduce unappropriated behaviours of child or clarify preschool-class activities and routines. None of the children had an extended time frame in preschool-class. In Table 2, some examples of preschool-class support provisions are provided.

Table 1. (1) Frequencies of total numbers of children, (2) frequencies (and percentages) of typically developing children, (3) frequencies (and percentages) of children in need of support provisions and their needs’ levels, and (4) the children’s mean and (range) AIRCS score over the early school years.
Data on the children’s needs and abilities

<table>
<thead>
<tr>
<th></th>
<th>Preschool</th>
<th>Preschool-class and leisure-time centre</th>
<th>School 1st grade and leisure-time centre</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequencies (%)</td>
<td>Frequencies (%)</td>
<td>Frequencies (%)</td>
</tr>
<tr>
<td>1 Total number of children</td>
<td>56</td>
<td>51</td>
<td>53</td>
</tr>
<tr>
<td>2 Typically developing children</td>
<td>40 (71)</td>
<td>34 (66.5)</td>
<td>28 (53)</td>
</tr>
<tr>
<td>3 SEN</td>
<td>9 (16)</td>
<td>12 (23.5)</td>
<td>18 (34)</td>
</tr>
<tr>
<td>Some need of support</td>
<td>6 (11)</td>
<td>9 (17.5)</td>
<td>14 (26)</td>
</tr>
<tr>
<td>High need of support</td>
<td>3 (5)</td>
<td>3 (6)</td>
<td>4 (8)</td>
</tr>
<tr>
<td>SEND</td>
<td>7 (13)</td>
<td>5 (10)</td>
<td>7 (13)</td>
</tr>
<tr>
<td>Some need of support</td>
<td>1 (2)</td>
<td>1 (2)</td>
<td>1 (2)</td>
</tr>
<tr>
<td>High need of support</td>
<td>2 (4)</td>
<td>1 (2)</td>
<td>1 (2)</td>
</tr>
<tr>
<td>Very high need of support</td>
<td>5 (9)</td>
<td>3 (6)</td>
<td>5 (9)</td>
</tr>
<tr>
<td>4 AIRCS</td>
<td>mean (range)</td>
<td>mean (range)</td>
<td>mean (range)</td>
</tr>
<tr>
<td>SEN</td>
<td>7 (4, 20)</td>
<td>8 (0, 32)</td>
<td>8 (0, 40)</td>
</tr>
<tr>
<td>Some need of support</td>
<td>5 (4, 6)</td>
<td>4 (0, 11)</td>
<td>4 (0, 10)</td>
</tr>
<tr>
<td>High need of support</td>
<td>14 (6, 20)</td>
<td>21 (6, 32)</td>
<td>22 (3, 40)</td>
</tr>
<tr>
<td>SEND</td>
<td>40 (18, 71)</td>
<td>40 (3, 75)</td>
<td>41 (5, 56)</td>
</tr>
<tr>
<td>Some need of support</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>High need of support</td>
<td>18.5 (18, 19)</td>
<td>21</td>
<td>22</td>
</tr>
<tr>
<td>Very high need of support</td>
<td>49 (29, 71)</td>
<td>59 (53, 75)</td>
<td>52 (49, 56)</td>
</tr>
</tbody>
</table>


**A description of the school-classes**

After preschool-class, or an extended time frame in preschool, the children started 1st grade. The children, with the exception of three children in a segregated preschool-class, changed staff relationships when they started 1st grade, but commonly the children kept the peer relationships from preschool-class. A majority of the school-classes (n=16, 80%) enrolled children with special educational needs who participated in this study. These were ‘comprehensive and fully inclusive’ (n=4, 20%), ‘comprehensive and partially inclusive’ (n=7, 35%) or ‘specialised and segregated’ (n=5, 25%). There were no 1st grades that were inclusively oriented and that were specialised in certain difficulties or disability diagnoses. A comprehensive class could enrol up to 25 children and provide one staff to 25 children (ratio 1:25). Just as in preschool, the children were provided ‘integrated environmental and interpersonal support’ and ‘one-on-one training and speech therapy’. They were also provided ‘one-on-one conversations’ as in preschool-class. In addition, they were provided ‘after school trainings’ in which staff gave additional help and attention in academics during leisure-time centre time, in small groups or individually. In Table 2 some examples of school support provisions are presented. One-on-one training and speech therapy was not provided in the fully inclusive settings, but the one-on-one training was common in the partially inclusive and segregated programmes. During the observation of one-on-one training some children showed interest in the activities taking place in the classroom. One child also left her training for a moment in order to be able to see what her peers did, and to be sure that they were still there. During the observation of one-on-one trainings it also happened that children returned to classes in the middle of an ongoing activity such as a story circle time or a song time.

**A description of the leisure-time centres**

The children, with few exceptions, attended leisure-time centres in the afternoons, after preschool-class and school. The staff in the leisure-time centres commonly worked in the preschool-classes in the mornings. The children from the same class often attend the same leisure-time centre, and they also commonly attend the same leisure-time centre as of the preschool-class. A majority of the leisure-time centres (n=17, 85%) enrolled children with special educational needs who participated in this study. These were ‘comprehensive or fully inclusive’ (n=11, 55%) or ‘specialised and segregated’ (n= 6, 30%). The children who attended specialised and segregated preschool-classes and 1st grade classes also attend specialised and segregated...
leisure-time centres. The support provisions in the leisure-time centres could be grouped as ‘integrated environmental and interpersonal support’ and ‘one-on-one training’. One-on-one training was not provided in the comprehensive leisure-time centres. A comprehensive leisure-time centre could have up to a hundred children and provide one staff for every 22 children (ratio 1:22). A couple of children with special educational needs in comprehensive leisure-time centres had one-on-one assistance and separate activities such as artwork with a staff member. The number of children in the segregated leisure-time centres were low (> 8) and the staff to child ratios were high (1:1). The children enrolled in these had intellectual disabilities and very high needs of support provisions.

A description of the educational pathways from the final year in preschool to school 1st grade
In Figure 2 the educational pathways of the children with special educational needs are illustrated. Over the early school years, the application of full inclusive education decreased and the application of partial inclusion and segregated programmes increased. The application of inclusive education for the children with low abilities, a very high need of support provisions and intellectual disability decreased the most. In fact, for these children any form of inclusive education terminated after preschool. The application of inclusive education for the children with some or a high need of support provisions was more constant: it changed from full to partial inclusion, or vice versa. In total, 69% of the children with special educational needs (n=11) who had been placed in some level of inclusion in preschool remained included, at the time of observation in 1st grade. In total, 29 % of the children with a formal disability diagnosis (n=2) who had been placed in some level of inclusion in preschool, remained included at the time of field work in school-classes 1st grade. These two children did not have a very high need of support provisions or intellectual disabilities. None of the children with a very high need of support and intellectual disability who experienced some level of inclusion in preschool remained included in 1st grade. Examples of four educational pathways (Figure 2) are as follows: (A) From comprehensive full preschool inclusion to comprehensive full preschool-class and leisure-time inclusion to comprehensive full school inclusion; (B) From comprehensive full preschool inclusion to specialised segregated preschool-class and leisure-time to specialised segregated school; (C) From specialised partial preschool inclusion to comprehensive full preschool-class and leisure-time inclusion (an up going arrow in Figure 2) to comprehensive partial school inclusion; (D) From specialised preschool adopting integrated activities to retention in the same preschool setting for one year to specialised segregated school and leisure-time.

Figure 2. The forms of inclusion, the segregated programmes and the early childhood educational pathways from the last year in preschool to 1st grade for the children with special educational needs.


Table 2. The support types and some examples obtained from the preschool-classes, leisure-time centres and compulsory 1st grade classes, by Comprehensive Typology (CT) and Specialised Typology (ST).
Support types
Examples from the preschool-classes, leisure-time centres and compulsory 1st grade classes.

### Environmentally oriented integrated support provisions
- Hearing protectors (CT).
- Time visualisations (CT; ST).
- Visualised schedules, encompassing illustrations and photographs, placed on the wall or at a child’s school desk designed to describe a school day (CT; ST).
- Objects attached to the visual schedule for a child who had difficulties with visual perception in order to be able to ‘feel’ activities coming up during the day (ST).
- A decreased number of tasks during lessons (CT).
- Shortened circle times and lectures (CT; ST).
- Half-class education (CT).
- Ability grouped half-class education (CT).
- The opportunity to start outdoor recesses ahead of others since it took time to get dressed (CT).
- A desk close to staff (CT).
- Rewards such as tablet time and play time (CT).
- Reward systems, in the form of star or sticker collections which could be exchanged into a joyful activity with parents (CT).

### Interpersonally oriented integrated support provisions
- The staff members provided kind verbal and gentle physical prompts to support participation in activities, routines, play, training and therapy, and sat next to the child with needs in circle times (CT; ST).
- The staff members were nearby during play to be able to support play and conflict resolution (CT; ST).
- The staff members provided ample positive feedback (CT; ST).
- The staff members provided ample individual step-by-step directions during transitions and schoolwork (CT; ST).
- The peers spontaneously provided positive feedback (CT).
- The peers spontaneously provided individual step-by-step directions during schoolwork (CT).
- One-on-one assistance during activities, routines, transitions and play, indoors and outdoors (CT; ST).
- The staff initiated play activities (CT; ST) and supported purposeful use of toys (ST).
- Adoption of children’s augmentative and alternative communication strategies such as sign instructions (CT; ST).
- Team teaching: a special educator and a teacher worked within the class to support participation and learning (CT).

### Academic, social and functional oriented one-on-one training and speech therapy
- Trainings provided by child-minders, teachers, assistant nurses, special educators and/or speech and language therapists.
- Children trained to respond on their names with a staff (ST). Children trained to communicate via spoken words, signs and pictures with a staff (CT; ST). Children were offered therapy in speech and language (CT; ST). Children trained fine and gross motor skills with a staff, labelling and grouping of fruits, labelling and grouping of animals, labelling and grouping of infrastructures, labelling and grouping of clothes, writing such as making big circles, reading such as turn pages in a book and recognise letters and maths such as counting to ten (ST). Children trained reading, maths and mother tongue with a staff (CT). Children trained eating and toileting with a staff member embedded in mealtimes and toileting (ST). Children trained to open doors, turn on lamps, find the way to the taxi, climb stairs, and get dressed for outdoor play with staff embedded in routines and transitions (ST).
- These were provided daily (ST), a couple of days per week (CT) or weekly (CT), for approximately 20-50 minutes each.

### One-on-one conversations:
- Conversation provided by teachers or special educator. Teacher or special educator and child discussed the forthcoming day in order to inform and prepare child for his/her school day (CT).
- Teacher or special educator to child meetings with the intention of increase self-esteem of child (CT).
- Social stories designed as comics intended to reduce unappropriated behaviours of child (CT).

### After school trainings:
- One-on-one training or small group training in school subjects during leisure-time provided weekly by teachers for approximately 30 minutes (CT).

*Note: Several of the examples of support provisions such as individual schedules, sign instructions and speech therapy in the preschool-classes, leisure-times and 1st grades were also adopted during the preschool period.*

### Discussion
In this study, the educational pathways of a group of children with and without special educational needs from the last year in preschool inclusive education to 1st grade in several Swedish municipalities were
investigated in order to provide reports, insights and implications for research, policy and practice about early school year settings, as well as the forms of inclusion applied, the transitions and the support presently employed over these years.

Special educational needs in early school years
The findings suggest that the number of children who need additional help and attention may increase over the early school years and that the children with special educational needs may be a heterogeneous group with different abilities and needs in early school year settings. This means that the concept of special educational needs can refer to both children with some need of support provisions and to children with a very high need of support provisions. The concept can be considered multidimensional and applicable in many situations, but could at the same time be considered vague since it carries different meanings. The findings suggest also that the needs of children are not necessarily the same over the early school years and instead possibly changing. This means that it can be difficult to predict which children will be regarded as being in need of support in the future, from the experiences of a previous school phase. There seems to be a noteworthy exception in this regard. Children with a high need of support provisions and children with a very high need of support provisions appear likely to be regarded as having about the same levels of needs during their early school years. These insights can be important to take into account during transitions and in support provisions planning.

It is possible to hypothesise that the increased number of children in need of additional help and attention in the settings investigated was related to the fact that the educational demands on the children increased over the early school years. Therefore, an increased focus on individual children’s academic achievements in preschools and evaluations of how the children in preschool make use of their opportunities for learning in preschool activities, routines and play would likely increase the number of children in preschool regarded as having special educational needs. One could also hypothesise, without referring to the increased educational demands, that the staff in the participating preschool-classes, leisure-time centres and schools drew a narrower line concerning the concept of typically developing children. Possibly this line was more generous in the inclusive preschools since several staff in these had experiences of children with considerable needs and thereby had developed a broader perspective and a different understanding of the phenomenon of special educational needs. Thus, the increased number of children with special educational needs may not only be related to increased educational demands, but also to perspectives and experiences of staff.

Support provisions
The findings propose that a number of support provisions can be needed in early childhood educational settings for enhancing and facilitating participation and learning of children with special educational needs. Those might be in need of ‘integrated environmental and interpersonal support’, ‘academically, socially and/or functionally oriented one-on-one training and therapy’, ‘one-on-one conversations’ and ‘after school trainings’. This means that support provisions and likewise special educational needs can be understood as a multidimensional concept and suggests that early school years staff needs to have wide-ranging knowledge in support provisions in order to meet the needs of all children. The findings also propose that an extended timeframe is not considered as needed in preschool-classes and that the need of one-on-one provision may increase over the early school years. The fact that one-on-one provisions increased could be related to the increase in educational demands and focus on academic achievements, but may also be related to low commitment to fully inclusive education among staff. This assumption is supported by the fact that team teaching (see Table 2) between special educators, therapists and teachers was not common in this context.

In line with the research of Sandberg (2012) there seems to not only be potential benefits with pulled-out provisions, but also possible negative consequences. For example, one child during one-on-one training returned to her classroom in the middle of a story time and another seemed concerned over not knowing what her peers did. This result suggests that children who leave their peers and classrooms for one-on-one provisions can miss out on opportunities for learning with peers, a sense of belonging in class and a coherent school day. Such negative consequences could perhaps explain why some staff offered after school training.

Organisational typologies and inclusive education
Early school year settings may take the form of ‘comprehensive and fully inclusive’, ‘modified, comprehensive and fully inclusive’, ‘comprehensive and partially inclusive’ or ‘specialised and segregated’ settings. In comparison to preschool units, school settings seem not likely to take the form of a ‘specialised and inclusive’ setting. This means that preschool-classes, leisure-time centres or school-classes adopting some form of inclusive education seem unlikely to have a specialisation in certain difficulties and diagnoses.
After the preschool period in the context investigated the segregated programmes were started and all the children with low abilities, very high needs and intellectual disabilities moved to these programmes. This means that children with special educational needs who have some needs or a high need of support provisions are likely to attend more or less inclusive settings after preschool, whereas children with low abilities, a very high need of support provisions and intellectually disability seem likely to attend segregated school classes and leisure-time centres after at least some form of inclusive preschool education. In these settings, they certainly train several useful and valuable skills with staff and are provided ample support, but in these segregated programmes the children will come to lack opportunities for support, meetings and connections with typically developing children. Thus, in contrast to what happened during the preschool period, there was a separate and alternative pathway for the children with low abilities, very high needs and intellectual disabilities in the preschool-classes, leisure-time centres and schools. Therefore, the biosystem of children could be considered as a key factor for placements in inclusive or segregated preschool-classes, leisure-time centres and schools.

Since the school policy (Swedish Education Act 2010:800; SNAE, 2011c, 2011d), and not the preschool policy (Swedish Education Act 2010:800; SNAE, 2011a), proposes alternatives to regular education for children with intellectual disabilities, segregation after preschool seems to be likely for this group of children. It was, however, unexpected to find that the alternative preschool-classes, leisure-time centres and schools enrolled in the study all implemented ‘full’ segregation. In the segregated programmes the children were completely separated from the typically developing children and there were no efforts at adopting integrated activities during observations. In an age when inclusive education is recommended and can positively impact child development (Booth & Ainscow, 2002; Odom et al., 2004; UN CRPD, 2006; World Conference on special needs education; access and quality, The Salamanca statement, 1994) a goal of offering participation experiences and learning in activities with typically developing peers could be expected and also interpreted as desirable. An absolute division into different educational settings of children with and without low abilities, very high needs and intellectual disabilities could be interpreted with concern. When children are divided into different school groups they do not get to know each other and they do not gain an understanding of diversity, and those who attend preschool together may lose their contact.

Seeing that some of the children enrolled had low levels of cognitive ability, did not communicate through speech, had intellectual disabilities and considerable caring needs, an application of full inclusion could have seemed difficult to achieve for the teachers and other staff. On the other hand, an application of integrated activities, and possibly of partial inclusion, would have been possible to plan and realise without insurmountable difficulties. With integrated activities and partial inclusion, the children with disabilities would have opportunities to meet other children for support, activities, routines and play, and the other children will have the opportunity to continue meeting them as they did in preschool. We did not have the opportunity to examine any form of inclusive education for children with low abilities, a very high need of support provisions and intellectual disability in preschool-class, leisure-time and school 1st grade since all those started segregated programmes after preschool.

When this study is being compared with the study of Hanson et al. (2001) several similarities emerge. The educational settings could be described as segregated programmes, settings adopting integrated activities, partially inclusive settings and fully inclusive settings. Both the studies also found a curbing trend in the application of inclusive education over the early school years and that more than half of the children (60%; 69%) who have attended some form of inclusive education in preschool remained included in school. Comparing with the study of Guralnick et al. (2008) there are several differences. In the Swedish context, segregated programmes were adopted, an association between non-inclusive placements and cognitive disability and language difficulties was found, and initial full inclusion placements of children with developmental delays were not associated with a continuing placement in inclusive educations. In comparison to the study of Guralnick et al. (2008), the trust in inclusive education appears low in the investigated Swedish context.

Changes in activities and relationships
It can be assumed that both children with and without special educational needs will receive new staff and peers in the early school years transitions, and that children with special educational needs may come to gain new experiences concerning support provisions. It can also be assumed that children with low abilities, very high needs and with intellectual disabilities can be those who experience major changes. In this study, those children did not follow typically developing peers and friends to regular preschool-class, leisure-time and school, and some of them also started to receive one-on-one training after preschool. Indeed, early childhood
transitions can be regarded as critical events for children (Ekström, Garpelin & Kallberg, 2008) and infer changes in activities and relationships (Bronfenbrenner, 1979).

Limitations and suggestions for future research
This study has some limitations. The preschools in which the study started were purposefully chosen and the settings enrolled are not necessarily representative for other settings. Additional research on the topic of educational pathways needs to be conducted in Sweden. The validation and/or widening of the support provisions, organisational typologies and pathways patterns described could be a relevant task for future research. The study maps into the bioecological model (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 1998) since it takes into account variables and influences related to nature, nurture and time for child development, although the present design and data collection do not consent an examination of the effects of the educational settings. The examination of linkage between transition patterns, support provisions, organisational typologies and child outcomes is an important task for future (inclusive) education researchers in Sweden. One more limitation of the study is that no child with low abilities, a very high need of support provisions and intellectual disabilities started inclusive preschool-classes, leisure-time centres and schools, which created a research situation where only children with some or high needs could be observed in inclusive settings after preschool. The examination of inclusive school settings enrolling children with low abilities, very high needs and intellectual disabilities could be a relevant task for future research.

Relevance and implications for practice and policy
The study contributes with a description of early childhood educational pathways of children with and without special educational needs, and also provides descriptions of special educational needs, inclusive education and support provisions. One implication is to carefully consider the transformation of segregated programmes into settings adopting integrated activities in order to ensure at least some meetings and connections between children with and without low abilities, very high needs and intellectual disabilities. An additional implication concerns the coordination of one-on-one provisions and classrooms activities. In settings where pull-out provisions are provided, staff should pay attention to the coordinating of pull-out training and classroom activities, and consider the provision of training embedded among peers and the application of team teaching. The staff may also consider informing the child about classrooms-activities taking place during and after pull-out training. The impressions from the observations made in the settings suggest that doing so would positively influence the children with special educational needs’ membership in class, task orientation in pulled-out training, and learning within class since they would be less likely to return in the middle or at the end of activities. One more implication concerns the development of systematic collaborations between staff in preschools, preschool-classes, leisure-time centres and schools on the topics of inclusive education, support and educational pathways. Such collaborations would possibly enable the sharing of experiences and facilitate the mutual learning among staff and build teacher capacity concerning, for example, inclusive education, support provisions and integrated activities.

Ethical considerations
Guidelines and recommendations from the Swedish Research Council (2011) have been followed. In 2012, the study was approved by the Regional Ethical Review Board at Karolinska Institute in Stockholm (XXX).

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Competing interests
The authors declare that they have no competing interests.

Authors’ contributions
XXX conceptualised the study, gathered the data and wrote-up the article. XXX conceptualised the study and contributed to the write-up of the article and to the revision of final manuscript.

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(XXX Three references have been removed to make the article anonymous).


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