ASLA:s skriftserie/ASLA Studies in Applied Linguistics
2024, 31, 2–25
https://doi.org/10.15626/asla2024.31

association suédoise
de linguistique appliquée

Criticality instruction for 6-year-olds in the Nordic educational context: A nexus of practice

Sergej Ivanov[1]

[1]Linnaeus University

Abstract

Criticality is one of the UNESCO key competencies (Rieckmann, 2018) and its instruction to children is encouraged from a young age (e.g. Lai, 2011) as by the age of 4 they have necessary cognitive capacities (Schleihauf et al., 2022). Viewing instruction as a nexus of practice (Scollon & Scollon, 2004), the aim of this article is to trace how reported instances of criticality instruction for 6-year-olds are discursively connected to the national policy of each Nordic country in the nexus of practice. In doing so, the article maps how the higher and lower scales (Blommaert, 2007) of criticality instruction intersect in the chosen nexus of practice (cf. Hult, 2010) by examining criticality (instruction) conceptions in the national educational policy in each Nordic country and by identifying incidents of scale jumping in regard to criticality (instruction) in the Nordic published empirical research. The collected data include the policy documents and peer-reviewed empirical studies from the Nordic early education context. The low number of empirical studies of criticality instruction for 6-year-olds has made it possible to trace discursive connections across the scales in each national context and shed light on criticality instruction as a nexus of practice.

Six-year-olds in the Nordic educational context[1]

Being a 6-year-old in the Nordic context means that you are being introduced to the school system and the society expects you to participate in the activities that are regulated by the educational policy. At the age of 6, children are enrolled in a Preschool Grade in Sweden, Denmark and Finland, while in Norway and Iceland they are enrolled in Grade 1 of the primary school (see Table 1 for an overview).

Table 1. Organisational forms of education for 6-year-olds in the Nordic countries

Country	Educational form in original language	Compulsory attendance
Sweden	Förskoleklass	+
Denmark	Børnehaveklassen	+
Norway	1.trinn	+
Finland	Förskoleundervisning	+
Iceland	1.bekk	+

Although bearing different names, these grades are compulsory for 6-year-olds to attend and failure to do so will lead to legal measures against their parents. The grades are also characterised by the focus on teaching and learning rather than care, which has been a trend in early childhood education (Broström, 2017; Van Laere et al., 2012).

In this article, one of the areas of education for 6-year-olds, namely criticality instruction, will be highlighted in the context of the Nordic countries. Specifically, the interconnection between envisaged and reported criticality instruction will be examined through analysing the national educational policy and published empirical research on criticality for 6-year-olds in each Nordic country.

Criticality in early childhood education (ECE)

Both in the Nordic and global context, there is a call for developing criticality[2] in children from a young age (e.g. Facione, 1990; Lai, 2011; Pramling Samuelsson & Mauritzson, 1997). This call is reflected in the inclusion of criticality in the UNESCO's list of key competences in Education for Sustainable Development (Rieckman, 2018) and its proclamation as a twenty-first century skill (Wolff et al., 2020). As a result, various teaching materials that claim to support criticality, especially in the United States, are available for use, for example *Primary Education Thinking Skills* (Nichols et al., 2012) that targets Grades K–3. Also standardised tests to assess skills associated with criticality are used, for instance, a paper-based assessment *Early Childhood Environment Rating Scale, Revised* (Harms et al., 2004) and a computer-based assessment *Educate insight: Grades K–2* (Facione & Gittens, 2017).

There is compelling evidence in cognitive research that children are capable of being critical from a young age. Schleihauf et al. (2022), who conducted studies in Germany and the United States (N = 269, age 3–5), came to conclusion that

by the age of 4 children have necessary cognitive capacities for criticality. According to the authors, those children could not only evaluate the strength of reasons presented to them but also decide whether the result of the evaluation should lead to revision of their own beliefs, thus incorporating meta-reasons into their own decision-making (Schleihauf et al., 2022, p. 1087). Daniel and Gagnon (2011) examined exchanges teacher–child and child–child in 17 classrooms in Canada and France ($N \approx 460$, age 4–12) and proposed a complex model of the developmental process of criticality. Grounded in the approach *Philosophy for Children* (P4C: Lipman, 2003; Lipman et al., 1980), they viewed criticality as comprised of logical, creative, responsible, and metacognitive thinking and suggested that the development of criticality may start already in preschool given that adequate scaffolding through fading and appropriation is provided (Daniel & Gagnon, 2011, p. 426). In addition, de Chantal et al. (2020) emphasise the role of a certain type of thinking exercises for development of criticality in the earliest stages. Their study in the Canadian preschool context ($N = 120$, age 4–5) showed that children of this age especially benefit from thinking exercises that do not provide examples and, thus, do not constrain children's ideas. For instance, the open-ended instruction "We can make noise with many things. Give me as many ideas as you can" instead of: "We can make noise with many things. For example, we can use a whistle. We can also make noise with more original things. For example, by tearing a sheet of paper. Can you tell me other ways of making noise?" improved rates of deductive reasoning in the 4–5-year-olds (de Chantal et al., 2020, pp. 1086, 1094) and their performance was comparable to 8-year-olds (Markovits & de Chantal, 2020, p. 93).

The surveyed cognitive research indicates that 6-year-olds should respond well to criticality instruction – at this point it should be noted that sociocultural research is in accord with this but for another set of reasons (see, for example, Hall, 1998) – as they are cognitively mature for criticality, which is also clearly seen in Abrami et al.'s (2015) meta-analysis of 684 empirical studies. Based on the definition of criticality instruction stemming from the American Philosophical Association's (APA) influential report (Facione, 1990), this meta-analysis suggests that a skill-based instruction yields moderate positive results in development of criticality in children aged 6–10 (Abrami et al., 2015, pp. 294–295). What is being developed is, however, an intricate issue, as Evans (2020, p. 10) points out that "construct underrepresentation is the inherent weakness" in the assessment of criticality. For example, the above-mentioned standardised test *Educate insight: Grades K–2* (Facione & Gittens, 2017) does not measure deductive

reasoning in children of this age, in contrast to the versions of the same test adapted for older children (Facione et al., 2020, p. 12), while de Chantal et al. (2020) emphasises exactly this skill in their study.

Due to a multitude of approaches to defining criticality as well as concepts with similar meaning such as critical thinking (e.g. Ennis, 1962, 1991; McPeck, 1990), constructive thinking (Thayer-Bacon, 2000), critical literacy (e.g. Freire, 1996; Janks, 2010), critical reading (Wallace, 2003), critical being (Barnett, 1997), philosophy for children (Lipman, 2003; Lipman et al., 1980), several attempts have been made to reach an expert consensus on what criticality is in educational research. APA's report (Facione, 1990), which summarises agreement of 46 US scholars of criticality, is such an example. Their definition includes a complex of six skills (including 16 sub-skills) and 19 dispositions in an individual necessary to be critical. For a more thorough overview of various approaches to criticality, see, for instance, Johnston et al. (2011, pp. 14–67) and Lai (2011, pp. 5–21).

In the recent volume on the meaning of criticality in educational research, Simpson (2020, pp. 3–5) calls for "a multipolar vision for criticality" that acknowledges the diversity of conceptions and does not favour any of them. Rather criticality should be continuously construed and (re)negotiated in each specific context. This is to avoid unfair treatment of learners because of ready-made universal conceptions that simply do not match those that circulate in the given context, or as put by Chen and Dervin (2020, p. 217, italics in original): "… *whose criticality can assess criticality?*". Daniel and Auriac (2011) suggest, in a Lipmanian tradition, that criticality is developed by means of praxis, which is the approach adopted in this paper. Thus, what criticality (instruction) is will be construed for a given context, in this case, the context of each Nordic country. This approach also allows examining praxis at various levels: from the macro level of the national policy to the micro level of individual teachers' experiences. In what follows, a brief overview of approaches to criticality instruction for 6-years-olds (or younger) outside the Nordic context is presented. The overview will serve as a backdrop against which the Nordic approaches are examined. Epstein (2008, p. 376) points out that it is only through comparison we can truly understand the context that is familiar to us.

Diversity of criticality instruction in ECE

The following overview of approaches to criticality instruction is not intended to give a comprehensive account of all international studies (for this purpose, see Abrami et al.'s (2015) overview based on the APA's conception of criticality for all ages of learners). Rather, it focuses on criticality instruction for children up to the age of 6 and illustrates its diversity. Further, the present overview highlights some difficulties in detecting criticality (instruction) in the plethora of the studies and identifies some pitfalls of the field.

To detect relevant research, given the variety of criticality conceptions, a pragmatic decision to include studies that claim to be critical in one sense or another and include samples of children aged 1–6 and/or teachers for this age span was made. The results of the search, which covers studies from the Western and Eastern hemispheres (excluding the Nordic countries), showed that criticality was roughly construed either as a set of thinking skills (mainly North American studies) or as critical literacy (mainly European studies). It also became apparent that a large number of studies are hypothetical rather than empirical, for example, Yalcin (2015) and Tsakona (2016), or have a somewhat loose connection to criticality, for example, Snyders and Bahnson (2014). Such studies were excluded from the overview. Among the 14 included studies, only six dealt with instruction per se (Cozmescu, 2021; de Chantal et al., 2020; Kim & Hachey, 2021; Labadie, 2017; Labadie et al., 2013; Sundararajan et al., 2018) and the rest were either explorative (Ioannidou, 2015; Sousa & Oxley, 2022) or evaluating the contribution of a pedagogical approach towards children's criticality based on (1) the score of a standardised test (Katz et al., 2021; Wang, 2022); (2) non-standardised assessment (Daniel & Gagnon, 2011; Isabelle et al., 2021; Vogt & Hollenstein, 2021); or (3) the teacher's attitudes towards the instruction (Hujar & Matthews, 2021).

Criticality as a set of thinking skills

In empirical studies where criticality is conceptualised as a set of thinking skills, the role of teacher input is emphasised. In the two following North American studies that focus on the actual instruction, the teacher plays a significant part in children's criticality, although in a slightly different manner. In the first study, Sundararajan et al. (2018) focused on development of critical thinking skills of analysis and interpretation over a 5-week period with a class of 15 children aged 5–6 in a US public elementary school. In this study, children engaged in

collaborative concept mapping in dyad sessions lasting 40 minutes each, which entailed organising a set of printed concept picture, arrows and linking words around a topic (e.g. the weather). Midway in the process, the teacher reviewed the layout and asked questions to scaffold children's thinking by accommodating new pieces of information in their map. Children's criticality was then assessed by measuring their evaluation of logic, logical reasoning, and analogical reasoning, which showed significant development of criticality (Sundararajan et al., 2018, pp. 5–7). In the second study, which has been already introduced in the section *Criticality in early childhood education*, de Chantal et al. (2020) saw that children's criticality differed according to the kind of cue that the teacher provided when giving instructions. The responses of the Canadian preschool children revealed increased deductive reasoning in the case of open-ended cues in contrast to closed cues (de Chantal et al., 2020, p. 1094). It is thus apparent that direct causality of teacher input on children's criticality was implied in the Canadian study, while the teacher in the US study was viewed as a facilitator of children's criticality.

A majority of studies that view criticality as a set of thinking skills are preoccupied with evaluation of some other pedagogical approach and criticality is only assessed but not taught. For example, Katz et al. (2021) evaluated the Three-Block Model (TBM), which is a pedagogical framework of effective practices for inclusive classrooms, in 15 Canadian elementary schools with four learner groups (N = 438): typical students, indigenous students, English language learners, and students with disabilities. The researchers focused on, among other things, students' academic achievement as measured by levels of critical thinking according to the rubrics in Bloom's taxonomy of thinking (four levels: recognition, description, analysis, comparison/creation/problem solving) and concluded that all learner groups in the test group (N = 320) demonstrated significantly higher levels of criticality ($p < .001$) than the control group where the TBM was not implemented (Katz et al., 2021, p. 1403). In another quantitative study with a somewhat idiosyncratic design, Wang (2022) examined the correlation between physical education and critical thinking in public kindergartens in China, which showed to be statistically significant ($p < .05$). Measuring criticality by the Cornell Critical Thinking Test, Wang (2022) concluded that there was a positive correlation (Pearson r = .675) between two months of additional physical education classes and the development of criticality in children (N = 366, age 5–6).

The above examples of standardised testing should also be complemented by an account of novel and custom-designed assessment tools of children's criticality. These tools are often designed to serve small-sample studies except for Daniel and Gagnon's (2011) study that evaluated the P4C approach in the Canadian and French classrooms ($N \approx 460$, age 4–12) and proposed that adequate scaffolding through fading and appropriation could enable the development of criticality in children from a young age. For instance, Vogt and Hollenstein (2021) investigated how 15 teachers' inputs for pretend play encouraged 4–6-year-olds in a Swiss kindergarten to explore the potential of digital transformation and to acquire necessary competences (including critical thinking) for this. Based on an analysis of the 45-hour video material with children's play collected at two occasions in the period of 3.5 months, they claimed to detect signs of criticality in children's insight into the possibility of a remote control for an ice-cream machine and the necessity of a safety button to prevent its wrong use (Vogt & Hollenstein, 2021, pp. 2139–2141). Another example is a study by Isabelle et al. (2021) who examined how use of the Engineering Design Process (EDP) affects the way children aged 5–6 think and use blocks to design a structure in a private lab school in New York City. Their sample consisted of eight children ($n = 4$, test group; $n = 4$, control group) that were exposed to a 4-day intervention, 25 minutes a day. According to the authors, who collected data through direct observation (anecdotal notes, video, and photograph), informal interviews (probing questions about children's thinking), and artefacts (children's work samples), the test group demonstrated "a lot of critical thinking and problem solving", since the children understood the relationship between a design plan and building it themselves and were referring to their design sketches as they progressed (Isabelle et al., 2021, p. 53).

Another way to evaluate a pedagogical approach was adopted by Hujar and Matthews (2021). In their interview study, they examined six teachers' attitudes to the Primary Education Thinking Skills programme (PETS), which aims at developing criticality in K–3-children as a set of six specific thinking skills, in a small US school. In the programme, each thinking skill (deductive logic, convergent analysis, inventive thinking, creative thinking, evaluative thinking, visual/spatial perception) is represented by a character that is used to remind children to use this specific skill. The K-teachers found that PETS was easy to implement and beneficial to children as it triggers children to "think in different ways" and "expand their thinking" (Hujar & Matthews, 2021, pp. 191, 193).

The overview of the studies where criticality is conceptualised as a set of thinking skills indicates that there is a lack of research that targets criticality instruction for children of 6 years and below. Instead, the surveyed studies tend to make claims about other types of instruction and their impact on children's criticality, which suggests that there is room for further enquiries into how criticality instruction per se can be conducted in the selected age group.

Criticality as critical literacy

Engaging in critical literacy practices in ECE research is another identified criticality conception. Vivian Vasquez, based at the American University in Washington, DC, is often referred to in this educational context (Vasquez, 2014, 2017). Further, there have been small-scale attempts to explore if criticality practices occur in ECE. For example, Ioannidou (2015) interviewed three primary teachers and observed their classrooms in Greek Cyprus over a period of 8 weeks, to detect whether a shift towards critical literacy in the national policy was reflected in their teaching practices. Her findings indicated that the teachers were rather focused on developing 5–6-year-olds' decoding and basic comprehension, which led to a lack of activities that could support children's criticality. In another study, Sousa and Oxley (2022) examined enactments of democracy in three Portuguese urban kindergartens by analysing 20 female qualified teachers' discourses (as evidenced in the interview data) and observing their classrooms with children aged 1–6 for 2 weeks each. As a result, three pedagogical approaches to democratic practice were identified as instructive, responsive, and synergetic. In the latter approach, teachers intentionally created democratic spaces for children to collaboratively co-construct their agency by deciding on collective norms and procedures and particularly valued children's criticality (Sousa & Oxley, 2022, pp. 8–9). Although yielding contrasting results, both studies concluded that children should be engaged in critical literacy practices from an early age.

Similar to studies of criticality as a set of thinking skills, there are few studies that try out actual instruction in the context of critical literacy. In her PhD study, Labadie (2017) accessed a kindergarten classroom of the US elementary school with twenty 5–6-year-olds with middle class background. With the researcher's scaffolding, the children engaged in examining and challenging dominant ideologies by rereading and revisiting texts over a period of 50 lessons during one school year. The analysis of the read-aloud lessons revealed that children of this age could question stereotypes, bring multiple perspectives, and reimagine issues

of power, justice, and equity through various techniques of dramatisation of the (re-)read texts, with each technique entailing specific affordances and constraints for children's criticality (Labadie, 2017, p. 150). In an earlier study, Labadie et al. (2013) also showed that under the teacher's guidance read-alouds could be successfully used with kindergarten children to identify and challenge inequality and to critically approach the themes of social class. Another PhD study (Cozmescu, 2021) investigated the role of critical literacy in three classrooms with children aged 5–6 ($N = 71$) in an Australian suburban primary school. An analysis of 23 planning and teaching sessions in these classrooms, combined with in-situ teacher and student interviews and collection of student work samples, suggested that the children could develop their criticality as they engaged with a new and authentic topic of substance (in this case indigenous perspectives). Scaffolded by the teacher's initial modelling of text deconstruction, the children gradually enhanced their agency through dialogic engagement and writing their own texts to historical figures as well as peers in an Indigenous school, thus amplifying their voices and developing critical understandings (Cozmescu, 2021, pp. 205–210). Thus, both Labadie (2017) and Cozmescu (2021) emphasised the teacher's role in a gradual renegotiation of power relationships in the classroom to enable children to claim their agency and become critical learners.

In their qualitative 5-month case study in a South Korean kindergarten, Kim and Hachey (2021) focused specifically on the multimodal nature of literacy practices in ECE. They explored if counter-storytelling, as a critical literacy practice that involves scrutinising and questioning dominant ideologies in literature, was an age-appropriate activity for twelve 5-year-olds coming from middle- to upper-middle class backgrounds. Through the analysis of children's responses to fairy tales and interactions with their teacher and peers in the weekly 2-hour counter-storytelling activities, Kim and Hachey (2021, pp. 643–644) found evidence that teacher-guided multimodal discussion enabled the children to view typical events in atypical ways and to create their own stories, thus developing their criticality.

Akin to Larson and Marsh (2015, p. 37) who highlighted the lack of studies that focus on development of critical literacy in the ECE settings, the current overview indicates that concrete examples of how criticality instruction (irrespective of conceptualisation) could be designed and implemented are still scarce. Although some novel ideas are evident in the research field, policy changes regarding criticality at supranational level have yet to find its way into national ECE contexts. As Ioannidou (2015) showed, even the implemented

changes at the national policy level may still take a while to permeate the early childhood classroom in each respective context. These gaps in research and policy provide a spur to embarking on a quest for conceptions of criticality (instruction) that circulate in the Nordic ECE context.

Studying criticality (instruction) in the Nordic ECE

In the Nordic ECE context, the issue of criticality (instruction) has received some attention. For example, Pramling Samuelsson and Mauritzson's (1997, p. 7) review of 6-year-olds' learning set out to shed light on factors that could contribute to children's development as critical learners. Further reading of the review gives, however, no examples of empirical evidence-based studies of how criticality instruction is to be designed, but a description of the visionary model of so-called Bilfrost pedagogy that has been practiced in a private Danish school (Abildtrup Johansen et al., 1995). Lundgren and Damber (2015) edited the volume *Critical literacy in the Swedish classroom context*, which had only one chapter that targeted criticality instruction in ECE (Damber, 2015a). The Swedish Institute for Educational Research produced two research summaries on topics associated with criticality (Skolforskningsinstitutet 2020, 2022), but none of them covered instruction for 6-year-olds or younger. In 2022, *Acta Didactica Norden*, a peer-reviewed journal on Teaching and Learning in the Nordic countries, published a special issue, *Critical literacy from a disciplinary perspective* (Frønes et al., 2022), which did not include any empirical studies of criticality instruction for 6-year-olds in the classroom either. Finally, Jegstad et al. (2022) edited a report entitled *Critical thinking in primary school – theory and practice* that summarised a 2-year research project involving Oslo Metropolitan University and the Department of Education in Oslo municipality. The report includes a few interesting examples of criticality instruction for the selected age group, but their implementation needs further validation through rigorous research procedures. All of the above suggest that there is a need to summarise the state of the art in the research field and to explore conceptions of criticality (instruction) for 6-year-olds in the Nordic educational context. The following section clarifies the methodological aspects of this explorative endeavour.

Criticality instruction as nexus of practice

To explore criticality instruction in the Nordic ECE requires examining how it is construed in each Nordic country. One way to approach this praxis is to view it as a nexus of practice (Scollon & Scollon 2004), in which the higher and lower

scales (Blommaert, 2007) of criticality instruction intersect. In an educational context, the higher scale is the national policy regarding criticality, while the lower scale is the classroom where the policy texts and abstract ideas of criticality are resemiotised into instruction (see Hult, 2010, for a similar design). In this study, the lower scale is examined as reported in the published empirical studies that focused on criticality instruction to 6-year-olds or younger in the Nordic countries. Inevitably, this adds one more iteration of resemiotisation compared to a direct classroom study. The weakness of such an approach might be that not all traces of the national policy in the actions of stakeholders at the classroom level are always made available in the published material. However, this approach enables to include classrooms from several Nordic countries in the scope of the article, which would otherwise have been impossible given the available resources.

Akin to Hult (2015), the reported criticality instruction is then examined for incidents of "scale jumping" (Blommaert, 2007), where resemiotisation of the higher scale is evident in the reported actions at the lower scale. Revealing how two scales intersected in the nexus of practice highlights what criticality (instruction) has been offered to Nordic 6-year-olds and sheds light on its genesis. Thus, the overarching aim of this study is to trace how reported instances of criticality instruction for 6-year-olds are discursively connected to the national policy of each Nordic country in the nexus of practice. To achieve the aim, the following research questions are addressed:

- How is criticality (instruction) conceptualised in the national educational policy in the Nordic countries?
- What incidents of scale jumping in regard to criticality (instruction) can be identified in empirical research published in the Nordic countries?

To examine the higher and lower scales in conjunction requires synchronisation of collected sources on both scales. First brief examination of the current national policy documents regulating criticality instruction for 6-year-olds in each Nordic country led to exclusion of Iceland since criticality is not set as a teaching and learning objective for their ECE but appears first in Grade 7 (Ministry of Education, Science and Culture, 2014). In the next phase, the relevant Nordic empirical studies were collected through the national and international research databases, which resulted in (1) exclusion of Finland as no peer-reviewed studies focusing on criticality instruction for 6-year-olds were found, (2) inclusion of the

older Swedish curriculum of 2011 (Skolverket, 2011) since the only identified empirical studies of the Swedish ECE dated 2014–2015. The collected sources for both scales are presented in Table 2.

Table 2. Collected data on the higher (H) and lower (L) scales of criticality instruction for 6-year-olds

Country	Scale	Sources
Sweden	H	Läroplan för grundskolan, förskoleklassen och fritidshemmet 2011 (Skolverket, 2011) Läroplan för grundskolan, förskoleklassen och fritidshemmet: Lgr22 (Skolverket, 2022b); Förskoleklassen: Ett kommentarmaterial till läroplanens tredje del (Skolverket, 2022a)
	L	Hedefalk et al. (2014); Damber (2015b)
Denmark	H	Børnehaveklassen: Faghæfte 2019 (Børne- og undervisningsministeriet, 2019)
	L	Jensen and Foxby (2022) – abstract
Norway	H	Core curriculum – values and principles for primary and secondary education (Utdanningsdirektoratet, 2017) Framework for basic skills (Utdanningsdirektoratet, 2012)
	L	Pollarolo et al. (2022)
Finland (excluded)	H	Grunderna för förskoleundervisningens läroplan 2014 (Utbildningsstyrelsen, 2016) Grunderna för läroplanen för försöket med tvåårig förskoleundervisning 2021(Utbildningsstyrelsen, 2021)
	L	No studies
Iceland (excluded)	H	The Icelandic national curriculum guide for compulsory schools – with subject areas (Ministry of Education, Science and Culture, 2014) – no criticality objective for Grade 1
	L	N/A

Note: H = higher, L = lower

The collected policy documents were then re-examined either in their original languages (for Sweden and Denmark) or in English (for Norway: the official translation) as policymakers' frozen actions to identify what conceptions of criticality (instruction) were explicitly expressed in the texts, and to later connect those to the actions taken at the lower scale (cf. Hult, 2015, p. 223). In addition to the policy documents, the web sites for each respective educational authority were consulted for any clarification. At the lower scale, the Nordic research publications were analysed to identify what conceptions of criticality (instruction) for 6-year-olds were reported and to detect any incidents of scale jumping that could be traced to the policy document in the corresponding ECE context. As seen in Table 2, the previous research on criticality (instruction) in the Nordic ECE is scarce.

Criticality (instruction) in the Nordic ECE across the scales

In contrast to the latest curriculum and commentary (Skolverket, 2022a, b), the 2011 Swedish curriculum provides only one conception of criticality as the "ability to critically assess facts and circumstances and to grasp the consequences of different alternatives" (Skolverket, 2011, p. 9, henceforth my translation). The up-to-date policy documents indicate, however, that criticality is conceptualised in three dimensions: two dimensions that resonate with the international research and cover critical thinking and critical literacy, and one dimension that has a long history in the Swedish educational tradition, namely source criticism[3]. The latter is though restricted to dealing with digital sources and framed as a "possibility" rather than a requirement (Skolverket, 2022a, p. 20; Skolverket, 2022b, p. 8).

Being the "first step" (Skolverket, 2022a, p. 5, cf. Skolverket, 2011, p. 3) in the attainment process, the Preschool Grade is to lay the foundations that by the end of compulsory school children learn to "use critical thinking and independently form their opinion based on knowledge and ethical considerations" (Skolverket, 2022b, p. 13). In the older curriculum there is an identical formulation on page 13 but whether it was in use or not is left to interpretation (Skolverket, 2011, p. 3). Also the critical literacy approach is not as evident as in the latest curriculum, which includes an explicit focus on scrutinising power relations regarding gender, sexuality, honour-based abuse, and oppression (Skolverket, 2022b, pp. 7–8). The absence of critical literacy instruction is reflected in Damber's (2015b) study of read-alouds in the Swedish ECE setting. Although 40 participants across the country in rural and urban areas collected observational data, no evidence of using read-alouds for anything but training decoding skills was found (Damber, 2015b, p. 275). In terms of criticality instruction as nexus of practice, this absence of the observed preschool teachers' actions could be interpreted as actual implementation of the national policy in force at the time.

While the discursive connection between the scales based on the absence of actions might be contested, Hedefalk et al.'s (2014) study provides an empirical example where an incident of scale jumping can be observed in criticality instruction as conceptualised in the 2011 curriculum. In their reported criticality instruction, a group of children aged 3–6 discussed what to do if a mosquito lands on you. Two preschool teachers presented the children with the alternatives of either hitting or sweeping away an insect and the rationale for choosing one of them (Hedefalk et al., 2014, pp. 5–6). The actions of the teachers in this case suggest that the conception of criticality as the ability to assess facts and

circumstances and to grasp the consequences of different alternatives was resemiotised into the local ECE context.

Similar to Sweden, the Preschool Grade in Denmark is to lay the foundations of children's all-round development (Børne- og undervsningsministeriet, 2019, p. 7). In this educational context, criticality is strongly associated with children who need instruction in how to deal with various digital sources in the areas of natural science and creative and musical forms of expression. In these two areas, criticality is conceptualised as critical awareness in using digital sources on natural phenomena and as critical thinking in using digital media to communicate their ideas in creative ways (Børne- og undervsningsministeriet, 2019, pp. 22–61). The very limited available Danish research focusing on criticality for children aged 6 and below suggest that stakeholders at the classroom level place their instruction in the prescribed context of natural science. In their study of three ECE settings, Jensen and Foxby (2022) found that productive questions during science experiments played a role in developing children's criticality. The details of instruction are though not yet available to trace any further discursive connections between the higher and the lower scales.

Education for 6-year-olds in Norway is organised as Grade 1 of compulsory school and criticality is stated as one of the core objectives of schooling (Utdanningsdirektoratet, 2017, p. 3). The curriculum proposes to develop children's criticality as "applying reason in an inquisitive and systematic way" both generically and subject-wise thus emphasising its scientific approach (Utdanningsdirektoratet, 2017, pp. 7, 12) and focusing on the constituents that are associated with critical thinking in previous research. Akin to the Swedish curriculum, criticality is conceptualised as critical thinking paired with ethical awareness, which, in the Norwegian case, is also complemented with environmental awareness, learning to learn for deeper insight and citizenship to maintain and develop democracy (Utdanningsdirektoratet, 2017, pp. 3–15). Although criticality is to be developed from Grade 1, *Framework for basic skills* exhibits its developmental trajectory over compulsory and secondary school and criticality is not expected to be evident in children's oral skills, reading, writing and digital skills earlier than at level 4 out of 5 (Utdanningsdirektoratet, 2012, pp. 5–13). In contrast to the Icelandic curriculum, the skills levels are, however, not explicitly assigned to the progression in grades.

The only empirical study focusing on criticality (instruction) for the selected age group or, more precisely, educators' perceptions of it, is Pollarolo et al. (2022) in Norway. The interviews with 10 educators for children aged 4–6 in three ECE settings suggested that the idea of criticality as lifelong learning circulating the national curriculum was reflected in the reported actions of the educators. As one of the educators in the study put it, criticality "helps them [children] later in life … because they are citizens going out into the world" (Pollarolo et al., 2022, p. 7). This incident of scale jumping between the national policy and the classroom practice is though not representative of the interview data. The educators in the study focused on children's dispositions required to become critical learners such as propensity to listen to other perspective as well as wondering and working together (Pollarolo et al., 2022, pp. 5–10) rather than the cognitive skills involved in systematic enquiries that dominate the national policy. The only exception to that was reported criticality instruction driven by challenging children with open-ended questions. These dispositions resonate, however, with the supranational scale of the Nordic ECE policy and perhaps the educators in the study were aware of the policies in the neighbouring countries. Interestingly, the Norwegian educators considered that embodied learning, that is learning through physically engaging their bodies, involved "a lot of" of criticality (Pollarolo et al., 2022, p. 6).

The examination of the higher and lower scales in the nexus of criticality instruction for 6-year-olds in the Nordic ECE demonstrated that there is an acute need of classroom studies. The conducted studies focusing on criticality instruction are few (three fully reported studies and one abstract), mainly based on small samples and containing few details about instruction itself. Although the analysis revealed some instances of scale jumping, when frozen actions of policymakers mediated the individual actions of the Nordic ECE teachers, more studies of the actual criticality instruction are required to fully understand the processes of resemiotisation in this nexus of practice. These few instances of scale jumping highlighted, however, the interconnectedness of local and national actions in the nexus of practice in the non-arbitrary choice of the promoted conceptions of criticality (instruction) and context for its implementation, for example situating instruction in natural science in Denmark. Thus, the analysis contributed to understanding how discourses from a higher scale might "become locally relevant" (Hult, 2015, p. 228) in the lower scale in the nexus of criticality instruction.

Overall, the identified conceptions of criticality (instruction) across the scales include understanding it as developing children's higher-order cognitive skills in combination with nurturing children's dispositions towards knowing the world. Among these dispositions, critical literacy ideals of equality and justice, understanding other people's perspectives, ethical environmental awareness, lifelong learning, and critical stance towards digital sources are especially emphasised as necessary for children to become fully fledged members of a democratic society. In the concluding section, the identified Nordic studies are reflected on in the context of international findings.

Nordic ECE criticality (instruction) in the international context

The few examples of instruction for 6-year-olds demonstrate that the criticality conceptions as a set of thinking skills and critical literacy, found in international research, circulate in the Nordic ECE. In contrast to the surveyed international studies that keep the criticality conceptions apart and offer detailed descriptions of instruction, there appears to be a tendency, most noticeably in the Norwegian nexus of practice (Pollarolo et al., 2022), to combine those conceptions in a holistic approach, if not in instruction but in its perceptions. At the same time, the conceptions, which may be readily available at the supranational scale, do not necessarily find their way into the classroom practice where ECE teachers make hard prioritising choices, as shown in Ioannidou's (2015) and Damber's (2015b) findings for the critical literacy approach. In nexus analytical terms, there is a potential of widening the scope and impact of the teachers' choices (cf. Hult, 2015, p. 222). If considered, Kim and Hachey's (2021) counter-storytelling approach might make the ECE teachers find time for reading comprehension activities that enable children adopting a critical stance towards the taken-for-granted meanings of the canonical children literature texts.

Another interesting observation is that, irrespective of the criticality conception, the surveyed studies imply a positive correlation between children's criticality and physical effort as a part of its instruction. Wang (2022), Jensen and Foxby (2022) and Pollarolo et al. (2022) claimed that adding some physical elements to instruction leads to a faster development of criticality in children. Further enquiry into the underlying reasons of the established correlation may shed light on how children's physical activities might be used to stimulate their criticality.

Although the Nordic studies do not provide as detailed descriptions of criticality instruction as, for example, Labadie (2017) and Cozmescu (2021) do, Hedefalk et al.'s (2014) study – as well as the rest of the data collected for her PhD project on preschool children's meaning making about sustainable development (Hedefalk, 2014) – could be revisited. The rich collected observation data may have the potential to provide thick descriptions of criticality instruction for the 6-year-olds participating in her PhD study. Likewise, the full empirical material of the studies that evaluated other types of instruction (e.g. Isabelle et al., 2021; Vogt & Hollenstein, 2021) might equip ECE teachers with ideas on criticality instruction. In this respect, implementing the idea of introducing children to various open-ended activities that have already been identified (Pollarolo et al., 2022) and tested (de Chantal et al., 2020) becomes an essential part of efforts to develop children's criticality.

To fully grasp the nexus of criticality instruction by examining how its higher and lower scale intersect is not fully fruitful without complementing practical advice on instruction with revealing the perceptions of those in the classroom. This article has shown that attempts to highlight teachers' understandings have been made (Hujar & Matthews, 2021; Pollarolo et al., 2022), and that their understandings are partially indexical of the higher scale, but the perspective of 6-year-olds is yet to be studied.

Notes

1. This project has been partially financed by the Board of Teacher Education at Linnaeus University.

2. *Criticality* here is used as an umbrella term for the concepts in educational research that are described as a prerequisite for children to become critical learners.

3. This can be regarded as a clear sign of policymakers' historical body, which is another key concept in nexus analysis, but which falls outside the scope of this article.

References

Abildtrup Johansen, B., Rathe, A. L., & Rathe, J. (1995). *Mulighedernes barn i mulighedernes skole* [Children of opportunity in school of opportunity]. Nordisk Forlag A. S.

Abrami, P. C., Bernard, R. M., Borokhovski, E., Waddington, D. I., Wade, C. A., & Persson, T. (2015). Strategies for teaching students to think critically: A meta-analysis. *Review of Educational Research*, *85*(2), 275–314. https://doi.org/10.3102/0034654314551063

Barnett, R. (1997). *Higher Education: A Critical Business*. Society for Research into Higher Education and Open University Press.

Blommaert, J. (2007). Sociolinguistic scales. *Intercultural Pragmatics*, *4*(1), 1–19. https://doi.org/10.1515/IP.2007.001

Børne- og undervisningsministeriet. (2019). *Børnehaveklassen: Faghæfte 2019* [Preschool Grade: Curriculum 2019]. Børne- og undervisningsministeriet. https://www.emu.dk/sites/default/files/2020-09/GSK_faghæfte_børnehaveklassen_2020.pdf

Broström, S. (2017). A dynamic learning concept in early years' education: a possible way to prevent schoolification. *International Journal of Early Years Education*, *25*(1), 3–15. https://doi.org/10.1080/09669760.2016.1270196

Chen, N., & Dervin, F. (2020). Afterword: Beyond the naïve mantra of criticality in education (research). In A. Simpson & F. Dervin (Eds.), *The Meaning of Criticality in Education Research: Reflecting on Critical Pedagogy* (pp. 215–221). Palgrave Studies in Education Research Methods. Palgrave Macmillan. https://doi.org/10.1007/978-3-030-56009-6_9

Cozmescu, H. (2021). *Exploring the Role of Critical Literacy in the Early Years of Primary School* [PhD thesis]. The University of Melbourne.

Damber, U. (2015a). Implementering av kritisk litteracitet i förskola och tidiga år. Utmaningar och möjligheter [Implementation of critical literacy in early childhood education. Challenges and opportunities]. In B. Lundgren & U. Damber (Eds.), *Critical literacy i svensk klassrumskontext* (pp. 19–36). Umeå universitet.

Damber, U. (2015b). Read-alouds in preschool – A matter of discipline? *Journal of Early Childhood Literacy*, *15*(2), 256–280. https://doi.org/10.1177/1468798414522823

Daniel, M.-F., & Auriac, E. (2011). Philosophy, critical thinking and philosophy for children. *Educational Philosophy and Theory*, *43*(5), 415–435. https://doi.org/10.1111/j.1469-5812.2008.00483.x

Daniel, M.-F., & Gagnon, M. (2011). Developmental process of dialogical critical thinking in groups of pupils aged 4 to 12 years. *Creative Education*, *2*(5), 421–428. https://doi.org/10.4236/ce.2011.25061

de Chantal, P.-L., Gagnon-St-Pierre, É., & Markovits, H. (2020). Divergent thinking promotes deductive reasoning in preschoolers. *Child Development*, *91*, 1081–1097. https://doi.org/10.1111/cdev.13278

Ennis, R. (1962). A concept of critical thinking. *Harvard Educational Review, 32*, 81–11.

Ennis, R. (1991). Critical thinking: A streamlined conception. *Teaching Philosophy, 14*(1), 5–24.

Epstein, E. H. (2008). Setting the normative boundaries: Crucial epistemological benchmarks in comparative education. *Comparative Education, 44*(4), 373–386. https://doi.org/10.1080/03050060802481405

Evans, C. M. (2020). *Measuring Student Success Skills: A Review of the Literature on Critical Thinking*. National Center for the Improvement of Educational Assessment.

Facione, P. A. (1990). *Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessment and Instruction*. American Philosophical Association. https://files.eric.ed.gov/fulltext/ED315423.pdf

Facione, P. A., Facione, N. C., & Gittens C. A. (2020). *What the Critical Thinking Data Tell us about our Reasoning*. Insight Assessment. https://www.insightassessment.com/wp-content/uploads/2020/07/What-the-Critical-Thinking-Data-Tell-Us-White-Paper.pdf

Facione, P. A., & Gittens, C. A. (2017). *Educate Insight: Grades K–2*. Insight Assessment.

Freire, P. (1996). *Pedagogy of the Oppressed*. Penguin Books.

Frønes, T. S., Folkeryd, J. W., Børhaug, K., & Sillasen, M. K. (2022). Kritisk literacy på fagenes premisser: med eksempler fra morsmålsfag, naturfag og samfunnsfag [Disciplinary critical literacy in mother tongue, science and social studies]. *Acta Didactica Norden*, *16*(2). https://doi.org/10.5617/adno.9779

Hall, K. (1998). Critical literacy and the case for it in the early years of school. *Language, Culture and Curriculum*, *11*(2), 183–194. https://doi.org/10.1080/07908319808666549

Harms, T., Clifford, R. M., & Cryer, D. (2004). *Early Childhood Environment Rating Scale: Revised Edition*. The UNC Frank Porter Graham Child Development Institute.

Hedefalk, M. (2014). *Förskola för hållbar utveckling: Förutsättningar för barns utveckling av handlingskompetens för hållbar utveckling* [Preschool for sustainable development: Prerequisites for development of action competence for sustainable development in children] [PhD thesis]. Uppsala University.

Hedefalk, M., Almqvist, J., & Lidar, M. (2014). Teaching for action competence. *SAGE Open*, *4*(3), 1–8. https://doi.org/10.1177/2158244014543785

Hujar, J., & Matthews, M. S. (2021). Teacher perceptions of the primary education thinking skills program. *Roeper Review*, *43*(3), 187–196. https://doi.org/10.1080/02783193.2021.1923594

Hult, F. M. (2010). Analysis of language policy discourses across the scales of space and time. *International Journal of the Sociology of Language*, *202*, 7–24. https://doi.org/10.1515/ijsl.2010.011

Hult, F. M. (2015). Making policy connections across scales using nexus analysis. In F. M. Hult & D. C. Johnson (Eds.), *Research Methods in Language Policy and Planning: A Practical Guide* (pp. 217–231). John Wiley & Sons, Inc.

Ioannidou, E. (2015). Critical literacy in the first year of primary school: Some insights from Greek Cypriot classrooms. *Journal of Early Childhood Literacy*, *15*(2), 177–202. https://doi.org/10.1177/1468798414531973

Isabelle, A. D., Russo, L., & Velazquez-Rojas, A. (2021). Using the engineering design process (EDP) to guide block play in the kindergarten classroom: Exploring effects on learning outcomes. *International Journal of Play*, *10*(1), 43–62. https://doi.org/10.1080/21594937.2021.1878772

Janks, H. (2010). *Literacy and Power*. Routledge.

Jegstad, K. M., Andersson-Bakken, E., & Bjørkvold, T. (Eds). (2022). *Kritisk tenkning i barneskolen – Teori og praksis* [Critical thinking in preschool – Theory and practice] (Skriftserie 2022:5). Oslo Metropolitan University.

Jensen, R. K., & Foxby, A. (2022). *Playful opportunities in early emergence science: How to create joyful and creativity settings in preschool with a focus on science experiments*. [Paper presentation]. 30th EECERA conference 22–26 of August 2022. Glasgow, UK.

Johnston, B., Mitchell, R., Myles, F., & Ford, P. (2011). *Developing Student Criticality in Higher Education: Undergraduate Learning in the Arts and Social Sciences*. Bloomsbury.

Katz, J., Sokal, L., & Wu, A. (2021). Academic achievement of diverse K–12 students in inclusive three-block model classrooms. *International Journal of Inclusive Education*, *25*(12), 1391–1409. https://doi.org/10.1080/13603116.2019.1613450

Kim, S. J., & Hachey, A. C. (2021). Engaging preschoolers with critical literacy through counter-storytelling: A qualitative case study. *Early Childhood Education Journal*, *49*, 633–646. https://doi.org/10.1007/s10643-020-01089-7

Labadie, M. (2017). *Re-reading, Re-writing, and Re-imagining Texts: Critical Literacy in a Kindergarten Classroom* (Dissertations, 712) [PhD thesis]. University of Missouri.

Labadie, M., Pole, K., & Rogers, R. (2013). How kindergarten students connect and critically respond to themes of social class in children's literature. *Literacy Research and Instruction*, *52*(4), 312–338. https://doi.org/10.1080/19388071.2013.809176

Lai, E. R. (2011). Critical thinking: A literature review. *Pearson's Research Reports*, *6*(1), 40–41.

Larson, J., & Marsh, J. (2015). *Making Literacy Real: Theories and Practices for Learning and Teaching*. SAGE Publications.

Lipman, M. (2003). *Thinking in Education*. Cambridge University Press.

Lipman, M., Sharp, A. M., & Oscanyan, F. S. (1980). *Philosophy in the Classroom*. Temple University Press.

Lundgren, B., & Damber, U. (Eds.). (2015). *Critical literacy i svensk klassrumskontext* [Critical literacy in classrooms in Sweden]. Umeå universitet.

Markovits, H., & de Chantal P.-L. (2020). The semantic retrieval model and divergen thinking as critical to understanding logical reasoning in children. In J. D. Fasko & F. Fair (Eds.), *Critical Thinking and Reasoning: Theory, Development, Instruction, and Assessment* (pp. 81–98). BRILL. https://doi.org/10.1163/9789004444591_006

McPeck, J. (1990). *Teaching Critical Thinking. Dialogue and Dialectic*. Routledge.

Ministry of Education, Science and Culture. (2014). *The Icelandic National Curriculum Guide for Compulsory Schools – With Subject Areas*. Ministry of Education, Science and Culture.

Nichols, J., Thomson, S., Wolfe, M., & Merritt, D. (2012). *Primary Education Thinking Skills Curriculum 1: A Curriculum for Higher Level Thinking*. Pieces of Learning.

Pollarolo, E., Størksen, I., Skarstein T. H., & Kucirkova, N. (2022). Children's critical thinking skills: Perceptions of Norwegian early childhood educators. *European Early Childhood Education Research Journal*, (*31*)2, 259–271. https://doi.org/10.1080/1350293X.2022.2081349

Pramling Samuelsson, I., & Mauritzson, U. (1997). *Att lära som sexåring. En kunskapsöversikt* [To learn as a 6-year-old. An overview]. Skolverkets monografieserie.

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss & W. J. Byun

(Eds.), *Issues and Trends in Education for Sustainable Development* (pp. 39–59). UNESCO Publishing.

Schleihauf, H., Herrmann, E., Fischer, J., & Engelmann, J. (2022). How children revise their beliefs in light of reasons. *Child Development*, *93*(4), 1072–1089. https://doi.org/10.1111/cdev.13758

Scollon, R., & Scollon S. W. (2004). *Nexus Analysis: Discourse and the Emerging Internet*. Routledge.

Simpson, A. (2020). Introduction: Beyond impotent criticality in education research. In A. Simpson & F. Dervin (Eds.), *The Meaning of Criticality in Education Research: Reflecting on Critical Pedagogy* (pp. 1–19). Palgrave Studies in Education Research Methods. Palgrave Macmillan. https://doi.org/10.1007/978-3-030-56009-6_1

Skolforskningsinstitutet. (2020). *Kritiskt tänkande och källkritik – undervisning i samhällskunskap* [Critical thinking and source criticism – Social studies instruction]. Systematisk översikt 2020:03. Skolforskningsinstitutet.

Skolforskningsinstitutet. (2022). *Att lära demokrati – lärares arbetssätt i fokus* [To learn democracy – Teaching strategies in focus]. Systematisk översikt 2022:03. Skolforskningsinstitutet.

Skolverket. (2011). *Läroplan för grundskolan, förskoleklassen och fritidshemmet 2011* [Curriculum for the compulsory school, preschool class and the leisure-time centre 2011]. Skolverket.

Skolverket. (2022a). *Förskoleklassen: Ett kommentarmaterial till läroplanens tredje del*. [Preschool class: Commentary on the third part of the curriculum] Skolverket.

Skolverket. (2022b). *Läroplan för grundskolan, förskoleklassen och fritidshemmet: Lgr22* [Curriculum for the compulsory school, preschool class and the leisure-time centre 2022]. Skolverket.

Snyders, C. S., & Bahnson. (2014). 'I wish we could make books all day!' An observational study of kindergarten children during writing workshop. *Early Childhood Education Journal, 42*(6), 405–414. https://doi.org/10.1007/s10643-013-0625-2

Sousa, D., & Oxley, L. (2022). Moving towards critical democracy: Democratic spaces in the Portuguese early years classroom. *Educational Review*. https://doi.org/10.1080/00131911.2022.2042204

Sundararajan, N., Adesope, O., & Cavagnetto, A. (2018). The process of collaborative concept mapping in kindergarten and the effect on critical thinking skills. *Journal of STEM Education*, *19*(1), 5–13. https://www.jstem.org/jstem/index.php/JSTEM/article/view/2262/1943

Thayer-Bacon, B. (2000). *Transforming Critical Thinking: Thinking Constructively*. Teachers College Press.

Tsakona, V. (2016). Teaching politeness strategies in the kindergarten: A critical literacy teaching proposal. *Journal of Politeness Research*, *12*(1), 27–54. https://doi.org/10.1515/pr-2015-0022

Utbildningsstyrelsen. (2016). *Grunderna för förskoleundervisningens läroplan 2014* [Foundations for preschool curriculum 2014] (Föreskrifter och anvisningar 2016:1). Utbildningsstyrelsen.

Utbildningsstyrelsen. (2021). *Grunderna för läroplanen för försöket med tvåårig förskoleundervisning 2021* [Foundations for a 2-year trial preschool curriculum 2021] (Föreskrifter och anvisningar 2021:2b). Utbildningsstyrelsen.

Utdanningsdirektoratet. (2012). *Framework for Basic Skills*. Utdanningsdirektoratet. https://www.udir.no/contentassets/fd2d6bfbf2364e1c98b73e030119bd38/framework_for_basic_skills.pdf

Utdanningsdirektoratet. (2017). *Core Curriculum – Values and Principles for Primary and Secondary Education*. Utdanningsdirektoratet. https://www.regjeringen.no/contentassets/53d21ea2bc3a4202b86b83cfe82da93e/core-curriculum.pdf

Van Laere, K., Peeters, J., & Vandenbroeck, M. (2012). The education and care divide: The role of the early childhood workforce in 15 European countries. *European Journal of Education*, *47*(4), 527–541. https://doi.org/10.1111/ejed.12006

Vasquez, V. (2014). *Negotiating Critical Literacies with Young Children: 10th Anniversary Edition*. Routledge.

Vasquez, V. (2017). *Critical Literacy across the K-6 Curriculum*. Routledge.

Vogt, F., & Hollenstein, L. (2021). Exploring digital transformation through pretend play in kindergarten. *British Journal of Educational Technology*, *52*, 2130–2144. https://doi.org/10.1111/bjet.13142

Wallace, C. (2003). *Critical Reading in Language Education*. Palgrave Macmillan.

Wang, C. (2022). The role of physical activity promoting thinking skills and emotional behavior of preschool children. *Psicologia: Reflexão e Crítica*, *35*(24). https://doi.org/10.1186/s41155-022-00223-1

Wolff, L.-A., Skarstein, T. H., & Skarstein, F. (2020). The mission of early childhood education in the anthropocene. *Education Sciences*, *10*(2), 27. https://doi.org/10.3390/educsci10020027

Yalcin, M. (2015). Progressive development of creative design skills from kindergarden education. *FormAkademisk*, *8*(1), 1–11. https://doi.org/10.7577/formakademisk.1403

Contact

Sergej Ivanov
sergej.ivanov@lnu.se

Please cite as:

Ivanov, S. (2024). Criticality instruction for 6-year-olds in the Nordic educational context: A nexus of practice. *ASLA:s skriftserie/ASLA Studies in Applied Linguistics, 31*, 2–25. https://doi.org/10.15626/asla2024.31