

Pedagogical Content Knowledge in Written Educational Plans in the School-Age Educare Setting

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Abstract: This study focuses on written educational plans in the school-age educare (SAEC) setting. The purpose of the study is to add to knowledge about planning in the SAEC setting. The study also focuses on how SAEC teachers' pedagogical content knowledge could be understood through written educational plans. The material in the study includes written plans from four different SAEC centres. The plans are analysed using concepts from the theoretical framework in the study; pedagogical content knowledge. The results show how *curricular knowledge*, *subject matter knowledge*, *pedagogical knowledge*, and *contextual knowledge* are identified in the written educational plans in two themes: *from content to activity plans* and *children's influence plans*. The results show descriptions in the written educational plans of how content is transformed into teaching situations and activities. It also shows how children's influence is identified as both content of the plan and as a teaching strategy within the plan. Teaching in the SAEC setting is a complex issue involving goal-oriented activities, activities with children's influence as a starting point, and teaching in the informal open space.

Keywords: Planning, school-age educare, PCK, teaching, children's influence

Introduction

In recent years, there has been an increasing demand on written educational plans in school-age educare (SAEC) settings. This is due to the 2016 addition of a new section to the compulsory school curriculum, preschool class, and SAEC, aimed at SAEC (Swedish National Agency for Education (SNAE), 2016). The purpose of this study is to examine the teaching preparation of SAEC teachers and their Pedagogical Content Knowledge (PCK) via the scrutiny of written educational plans (Shulman, 1986; 1987). PCK is a special kind of knowledge teachers have about teaching and is the theoretical framework of this study (Shulman, 1986). There is little research on written educational plans in the SAEC setting and almost no research on the PCK of SAEC teachers. In this way, PCK could be an important part of the professional development of SAEC teachers and help elucidate how teaching in the SAEC setting is organised in relation to the content and children in that setting.

In Sweden, SAEC is directed towards education and care before, after, and during school, for pupils between the ages of six and twelve years. The Education Act (SFS 2010:800) and the curriculum for compulsory school, preschool class, and SAEC (SNAE, 2022) regulate the educational activity in SAEC. SAEC teachers plan and teach in an interdisciplinary way involving different knowledge areas simultaneously, with children's needs, interests and experiences at the foundation of planning and teaching (Klerfelt et al., 2020). SAEC teachers' planning and teaching is not directly bound to traditional school subjects such as mathematics,

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science or language, but is more frequently directed towards content areas such as values, interaction, identity, crafts, play, care and meaningful leisure. These areas of knowledge, as well as the needs, interests and experiences of the children involved, need to be considered when planning SAEC.

According to Holmberg (2017), the more defined SAEC requirements means the government is requiring systematic quality work by teachers in this setting. Written educational plans can be a part of the documentation in systematic quality work if the plans are, for example, analysed to develop teaching in SAEC. How SAEC plans are written or followed up is not regulated by the government.

The results from this study are intended to contribute to a discussion of written educational plans in the SAEC setting and help develop a conceptualisation of SAEC teachers' PCK.

Purpose

The purpose of the study is to create knowledge about planning in the school-age educare (SAEC) setting. The study also focuses on how school-age educare teachers' PCK could be understood through written educational plans.

Two research questions have been constructed in relation to the purpose.

- How are written educational plans formulated in the school-age educare setting?
- How are curricular knowledge, subject matter knowledge, pedagogical knowledge, and contextual knowledge demonstrated in the written educational plans?

School-Age Educare: Planning and Teaching in Previous Research

Previous research focusing on planning and teaching in the school-age educare (SAEC) setting has approached this area in different ways.

A research project in which the participating SAEC teachers wrote texts about teaching in SAEC has been the basis for studies in different theoretical perspectives, such as didactic theory (Ackesjö & Haglund, 2021), knowledge forms such as phronesis and episteme (Gardsten & Ackesjö, 2022), and the sociology of childhood (Perselli & Haglund, 2022). In Perselli and Haglund's (2022) study a theoretical perspective focusing on the sociology of childhood and phenomenology problematises children's perspectives in the SAEC setting. Children's perspectives were prominent in unplanned teaching and is often unforeseen, as it is based on a situated event. In these situations, the pupils' own questions are important in SAEC, and teachers allow the pupils' interests and curiosity to guide their teaching. In this way the children's perspectives are prominent in teaching in the SAEC setting, according to Perselli and Haglund (2022). In contrast to teaching focusing on children's perspectives, Ackesjö and Haglund (2021) state in their study that for the interactions between teachers and children in the SAEC setting can be called 'teaching' the interactions have to have *intentionality*, *interactivity*, and *intersubjectivity*, which are effective concepts in the didactic

theory that makes up the theoretical framework of their study. They show examples of strong intentionality in play-based break activities or teaching about values that are planned in relation to teaching content. However, the results of the study illustrate that situation-based teaching that is the basis for teaching in the informal and open context in SAEC has a low degree of intentionality, as it is not pre-planned or specifically targeted (Ackesjö & Haglund, 2021). SAEC may be seen as being in a crossroads between goal management (through the curriculum) and situational management. Gardesten and Ackesjö (2022) use the concept *attention* more specifically professional noticing as a theoretical framework in their study as well as the knowledge forms: *phronesis* and *episteme* to create knowledge about teaching in the immediate situation. Situational teaching in unexpected situations and children's sudden curiosity may result in adaptations to the curriculum that are used more proactively later. A continuing important question therefore becomes how to plan in a way in SAEC that allows the unplanned to take place (Gardesten & Ackesjö, 2022).

Another research project (Kane, 2023; Ljusberg, 2023) focusing on planning and teaching in SAEC settings, takes an interest in SAEC teachers planning through children's needs, interests, and experiences. This is done through an action research project with staff in the SAEC setting, with different theoretical lenses such as Habermas knowledge interest theory and childhood studies. The participants in Kane's (2023) study explored different ways of inventorying children's needs and interests. Participants designed a template for planning and evaluation based on the children's identified needs, interests, and experiences (Kane, 2023). Ljusberg (2023) studies the SAEC teachers' inventory through the lens of the theoretical framework of childhood studies. The analysis focused on how children's perspectives were or were not a part of planning preparation in teachers' conversations. Three categories were identified in the study: *interest inventory based on pupils as co-actors, planning with the pupils*: refers to when the staff view children as co-actors. In the case of *interest inventory based on the pupil as an object, planning for the pupils*: staff have observed, listened with intent, and registered what they interpret the children's interests to be. *Interest inventories based on staff's own interests, planning without the pupils in mind* refers to: when staff see children as an object within the educational program and demonstrate disinterest in children's own interests. In this way, SAEC teachers begin their planning from the children's perspectives, from the child perspective, or from a staff perspective (Ljusberg, 2023).

Lager (2020) studied SAEC settings in an ethnographic study embedded in a theoretical framework that interrelates human agency with structural conditions. The studied SAEC centres were categorised into three different forms of SAEC: *the abandoned space*, or: where staff had insufficient time for planning and preparing activities; *the activity space*, dominated by activities that are related to the curriculum and where children meet staff through planned activities during SAEC; and *the common space*, where SAEC teachers have an academic education and are knowledgeable about how to use their resources in intended ways and based on the interests of the children. Lager (2020) argues that a steady staff team (for example teachers with degrees in education) and time for teachers to plan and prepare seem to be the distinguishing features in the construction of social relationships with opportunities for agency in everyday life.

An activity model studied by Milton et al. (2023) showed evaluations of the Connect, Promote, and Protect Program (CP3) implemented in an outside-of-school-hours care (OSHC) service in Australia. CP3 is a wellbeing program developed specifically for OSHC services. The research suggests that CP3 provides OSHCs with a framework and high-quality program

planning tool and supports children through creative and engaging co-designed activities. The study was conducted using both quantitative statistical analysis and qualitative thematic analysis with a range of stakeholders, including children attending the OSHC, OSHC volunteers or educators, and guardians or parents of the children attending the OSHC. Teaching with the CP3 programme was a very positive experience and supported best-practice programme according to the participating educators. The results demonstrate the positive flow impact of children making active decisions about the service in which they play, learn, and grow. The research highlights that listening to children's voices is central to achieving change in OSHC service delivery (Milton et al., 2023). A literature review of school-age childcare (SAC) in Australia discusses whether SAC is considered a care or an education service (Cartmel & Hayes, 2016). The review focused on how SAC services have been described in the literature. The results suggest that children who regularly attend SAC services have the potential given appropriate planning to influence their ability to succeed academically, build social competencies such as collaboration and citizenship, and contribute to their own overall health and wellbeing. However, there are different views among SAC workforce on how best to manage SAC services, including whether they see it as a care or education service. SAC services have kept visual or written records of their activities as a part of the National Quality Standard as a part of quality assurance (Cartmel & Hayes, 2016). Fukkink and Boogaard (2020) focused their quantitative study on the pedagogical quality of after-school care in the Netherlands, where they studied which goals and pedagogical aspects are considered important for after-school care, and the pedagogical quality of Dutch after-school care. The study consisted of two parts: part 1 included a survey of pedagogical experts, after-school care staff and parents with children attending after-school care, as well as structured interviews and focus groups; part 2 included observations in 110 after-school care facilities. The results show differences between different facilities. A split profile was revealed with relatively high levels of care and relatively low levels of education in both global process quality and caregiver interaction skills related to developmentally stimulating conversations and to facilitating peer interactions (Fukkink & Boogaard, 2020). These international studies highlight the importance of competent staff being able to plan and teach in the SAEC setting.

Theoretical Framework

The core idea of the theoretical framework Pedagogical Content Knowledge (PCK) is that teachers have a specific kind of knowledge about teaching, called pedagogical content knowledge, which is different from the knowledge of a subject expert (Shulman, 1986; 1987). Shulman developed concepts and theorisation of teachers' professional knowledge through PCK. The concepts developed by Shulman, which are still a part of PCK, include: *subject matter knowledge*: teachers who teach a specific subject should not only know the basics of the subject but also have a deeper understanding of the subject so that they can transform the subject into both theoretical and practical teaching strategies; *pedagogical content knowledge*: teachers should be able to transform their subject to each individual pupil. As there is not one way to transform knowledge, the teacher needs to know several different ways of teaching; and finally *curricular knowledge*: teachers should know the curriculum to the extent that they

can relate their subject to other subjects so that pupils gain an in-depth view of the subject presented. In their teaching strategies, teachers need to have knowledge about the children they are going to teach, for example: "...the conceptions and preconceptions that students of different ages and backgrounds bring with them to the learning of those most frequently taught topics and lessons" (Shulman, 1986, p. 9) and "...knowledge of learners and their characteristics" (Shulman, 1987, p. 8).

In this study, PCK will be applied by analysing written educational plans through knowledge forms based on Shulman's (1986; 1987), Gess-Newsome's (1999), and Nilsson's (2008) formulations of *curricular knowledge*, *subject matter knowledge*, *pedagogical knowledge*, and *contextual knowledge*.

PK (pedagogical knowledge) consists of general elements regarding teaching, classroom organisation, and management; instructional models and strategies; and classroom communication... CK (contextual knowledge) is strongly connected to PK and represents knowledge of school departments, traditions, behavior of students, the climate in the classroom, the relationship between individuals, and the context in which teaching takes place. Finally, SMK (subject matter knowledge) refers to a teacher's quantity, quality, and organization of information, conceptualisations, and underlying constructs of a given field.

(Nilsson, 2008, p. 1284)

(The parentheses after PK, CK and SMK are not original formulations).

The concepts of knowledge will be used in the analysis in the following manner:

Curricular knowledge of how written educational plans relate to the curriculum for the compulsory school, preschool class, and SAEC (SNAE, 2022).

Subject matter knowledge of how written educational plans relate to a content area or subject in the SAEC.

Pedagogical knowledge of how written educational plans show the organisation of activities or teaching situations related to a content area or a subject.

Contextual knowledge of how written educational plans illustrate the teachers knowledge of the children in the SAEC and the context in which teaching takes place.

In the analysis, Shulman's (1987) transformation process from subject to teaching will be taken into consideration. Planning and preparation for teaching is – according to Shulman – an important part of teachers' PCK. Shulman (1987) states that teachers adapt and tailor their knowledge to the pupils they are going to teach. In this way, teachers transform knowledge into fitting representations due to the way they choose to represent a subject. When teachers transform their knowledge into representations and make their instructional choices accordingly, they must, according to Shulman, think about how the subject matter will motivate and interest the learners. Shulman presented five steps in teachers' transformation process:

- (1) *preparation* (of the given text materials) including the process of critical interpretation,
- (2) *representation* of the ideas in the form of new analogies, metaphors, and so forth,
- (3) *instructional* selections from among an array of teaching methods and models, and
- (4) *adaptation* of these representations to the general characteristics of the children to be taught, as well as
- (5) *tailoring* the adaptations to the specific youngsters in the classroom. (Shulman, 1987, p. 16)

Today's research discourse has been reformulated since Shulman (1986; 1987) started theorising PCK. Shulman (2015) himself has criticised his own original formulations. One of Shulman's critical points was that the original research and theorising did not take pupils' context and learning into account. In recent years, researchers have developed new models for understanding PCK where, for example, pupil contributions and outcomes are included (Carlson et al., 2019; Gess Newsome, 2015). Studies using PCK as a theoretical framework may differ, for example, depending on the subject and teacher group on which the research is focused (Park & Oliver, 2007). This provides an opportunity to rephrase PCK. For example, studies of preschool teachers' teaching that have used PCK as a theoretical framework rephrase PCK to fit the professional knowledge of preschool teachers. Kutluca's (2021) and Dunekacke and Barenthien's (2021) studies show examples of how PCK could be conceptualised in preschool. Kutluca's (2021) findings on preschool teachers' PCK and science teaching show that, for example, teaching with preschool children should be based on children's previous experiences, capturing unexpected phenomenon as they happen, asking children questions to challenge them and stimulate further investigation, and listening to children and their explanations. The study shows that preschool teachers' PCK includes child-centred teaching, where preschool children's ways of learning are centred, for example, through play-based and everyday activities to apply the teaching of different subjects in teacher child interactions. Dunekacke and Barenthien (2021) problematise the components of PCK in relation to early childhood teachers. This is because content knowledge, which refers to the teacher's knowledge of a specific topic, is different in early childhood education, where teachers are knowledgeable in many areas. In early childhood, as opposed to later childhood, learning is seen as play-based and integrated into everyday life, with a more holistic view of the children themselves (Dunekacke & Barenthian, 2021).

Teachers have a pedagogical reasoning in planning and preparing their teaching which is crucial in the transformation from the teachers' understanding of a material to making it comprehensive to others (Shulman, 1987). In this study, PCK is used as a theoretical framework to analyse written educational plans, focusing on how SAEC teachers' PCK could be understood through their written educational plans.

Method

To reveal the themes in the written educational plans, the analysis was inspired by *thematic analysis* (Braun & Clarke, 2006), while the analysis was conducted using concepts from PCK. I was inspired by *thematic analysis* but focused on the analysis through PCK to carry out the following analytical steps: 1. familiarising myself with the written educational plans by reading and re-reading them; 2. systematically generating initial codes; 3. searching for patterns and themes; 4. reviewing themes; 5. defining and naming themes and using the concepts of analysis; and, 6. producing results using analytical concepts pulled from the theoretical framework of PCK.

The concepts of analysis consist of four types of knowledge: *curricular knowledge*, *subject matter knowledge*, *pedagogical knowledge*, and *contextual knowledge* (Gess-Newsome, 1999; Nilsson, 2008; Shulman, 1986; 1987). In the analysis of the SAEC teachers'

written educational plans, the four types of knowledge are used to explore what kind of knowledge and PCK the plans represent. In addition, contextual knowledge and pedagogical knowledge are seen as closely related and, in some ways, intertwined. The analysis will also focus on planning as a part of the transformation process from subject to teaching (Shulman, 1987).

Selection of material

A statistical tool from the Swedish National Agency for Education was used to select the SAEC centres where the teachers that formulated the written educational plans worked. The tool showed figures on the numbers of persons with a teaching certificate for working in the SAEC. In Sweden, a three-year university education is required to receive a teaching certificate in SAEC. The SAEC centres that were selected for this study were located in municipalities that had at least 50 full-time school age educate employees, and then the selection was based on how many of these employees had a university-based teaching certificate. The SAEC centres were selected from the nine municipalities with the highest numbers of SAEC teachers with a certificate. Two SAEC centres in each municipality were selected. This selection was made by reading the web pages of each municipal school in the municipality and the pages that presented SAEC in the most comprehensive way were selected and contacted. The criteria for selecting and contacting a SAEC centre was that the school's website had presented the aims and activities of SAEC. When contacting the SAEC centres, a short description of the study was given explaining what was expected from the SAEC teachers participating in the study, as well as information about the ethical standards of the study. The criterion for participation in the study was to be able to share written educational plans as they were formulated in their SAEC centre. The plans could consist of plans for different activities, topics they were working with, or plans for a longer period of time, etc. Four SAEC centres from different municipalities agreed to participate in this study. The SAEC centres were located in municipalities in the central and southern parts of Sweden, each with between 65 000 and 145 000 inhabitants.

The documents that were collected from the four SAEC centres consisted of plans, mostly from the 2023 spring semester, and some covered the whole school year from, August 2022 to June 2023. The four SAEC centres in this article are called Granite, Basalt, Gneiss, and Rhyolite (all pseudonyms). The material from Granite included a document with detailed descriptions of a plan over a year in relation to their quality work, a weekly plan, a monthly plan of activities, and a detailed written plan. The material from Basalt included a detailed written plan, a document with detailed information about pedagogical planning in the Basalt SAEC, and 23 weekly plans. The material from Gneiss consisted of one detailed written plan and one plan for the whole spring term. The Rhyolite material consisted of seven detailed written plans. The timelines in the plans varied. Some of the written educational plans included plans for a week of activities, some of the plans were written around a theme that could run for a term or two, and some were plans with activities that would run for a couple of months. In summary, the written plans did not have a consistent timeline.

The plans differ in that they have different headings and some of the templates have more headings than others. One thing that all SAEC centres plan for is the *abilities* and/or *core content* of the curriculum; specifically part 4 in the SAEC. There is also a description of the

planning aims, how the planning will be implemented, and how the planning will be evaluated. In two of the plans, the outcome of the planning was also included. A notable difference was that in one of the plans, research was included to support the planning. Two of the plans included the pupil's influence or the pupil's needs, interests and experiences in plans' headings.

Three of the SAEC teachers had sent in plans showing weekly schedules. These plans appeared to have been written to be shown to the children and perhaps also to others, such as the children's guardians. These plans were structured in a similar way; divided into activities/days and in one case activities over several weeks.

Ethical considerations

The Swedish Research Council's (2017) information on ethical considerations information, consent, confidentiality, and use of data was followed. No sensitive material was collected in this study. The SAEC teachers working in the four SAEC centres that participated in the study by sending written educational plans received information about the study in written form, describing the purpose of the study, the confidentiality of the study, and the use of the data. The SAEC teachers who agreed to send in written educational plans signed a consent form which stated that they could withdraw their material at any time.

When analysing documents, in this case written educational plans, it is difficult to know the intentions of the authors. The plans that were addressed to the children and their guardians were difficult to analyse because of the lack of information in them information that was probably clear to the SAEC teachers and the children in that particular SAEC setting. This meant that the plans that were analysed were plans with more illustrative content. However, the subjects in these plans may not be representative of the most common subjects in the SAEC setting. The written educational plans are reliable for the four SAEC settings. The written educational plans show examples of plans written over a period of time and do not illustrate all of the activities and interactions that take place in the SAEC centres in this study. The planned activities may be a small or large part of what goes on in the centres. This is also the case for the content areas that were represented in the written educational plans. The number of SAEC centres selected may be seen as a limitation of this study.

The documents were analysed by a single coder, which may influence the results. However, measures were taken to improve the reliability of the analysis: the analysis and the content of the article were tested in a scientific context where the analysis was reviewed and discussed in seminars where senior researchers have scrutinised the text. These discussions ensured the reliability of the analysis.

Results

In this section, the findings from the written educational plans are presented in themes (Braun & Clarke, 2006) that focus on the concepts of analysis: *curricular knowledge*, *subject matter knowledge*, *pedagogical knowledge*, and *contextual knowledge* (Gess-Newsome, 1999; Nilsson, 2008; Shulman, 1986; 1987). In addition, the themes are constructed in relation to

planning according to the transformation process from content to teaching. The themes consist of: *from content to activity plans* and *children's influence plans*. However, from content to activity plans was the most prominent theme, and in the theme of children's influence plans, there were also content areas that were transformed into activities. In this way, the theme 'children's influence plans' may be seen as a part of the 'from content to activity plans' theme from a different approach. The findings are presented together with the analysis.

From content to activity plans

The main form of plans were those in which abilities or core content from the curriculum were cited and also formulated for a specific subject for the written educational plan. Linked to these formulations were activities, often described in detail, including the materials to be used and the context of the activities. In this way, these written plans showed *curricular knowledge* through the quotes from the curriculum; *subject matter knowledge* through the descriptions of the content area; *pedagogical knowledge* in the organisation of the activities; and *contextual knowledge* in how the context and the children in it were described.

One example from SAEC Basalt illustrates a written educational plan focusing on the content area of language development the *subject matter knowledge* in the plan had these abilities from the curriculum linked to the plan:

...take personal needs into account to find a balance between activity and rest, communicate using linguistic forms of expression in different contexts and for different purposes as well as core content containing: discuss, listen, ask questions, and express their own thoughts, opinions, and arguments about different areas, such as ethical issues and everyday events and discuss different types of texts (SNAE, 2024, pp. 28–29).

This shows the *curricular knowledge* in this plan. This content from the curriculum is transformed into the activity of reading aloud, where the aim, according to the plan, is to stimulate the children's language, listening, and reflection skills, and also to increase the children's vocabulary through the discussion of concepts, words, and the content of the book. In the description of the activity, the organisation and management of the room is part of the activity.

The pupils gather in the sofa groups in the SAEC centre. They help choose a book. Short chapter books are selected one or two books are read and discussed. An adult reads to the group of pupils. Adults and pupils evaluate at the end of the term. (written plan from Basalt)

This part of the plan shows how the teachers in the SAEC setting of Basalt choose to transform the content of language development into teaching. The *contextual knowledge* may be seen through the descriptions of the context in the teaching situation, the descriptions of the sofa groups, as well as the knowledge of the children's language development when choosing short chapter books instead of other types of books. Another teaching strategy shown in this example is the type of book chosen short chapter books. In addition, it is clearly stated that the adult reads to the group of pupils, which is also a clear instruction in the plan on how to teach this activity. These statements in the plan are seen as a part of *pedagogical knowledge*. The example from this plan shows the preparation as well as the adaptation and tailoring of the activities to the children that are going to be taught, and in this way demonstrates teaching

strategies (Shulman, 1987). PCK in this plan is shown in the writing through the ability to transform the content area into representations of the group of children to be taught.

A written educational plan from Rhyolite shows how the content area of digital creations *subject matter knowledge* is linked to the curriculum, *curricular knowledge*, through the abilities: “test and develop ideas, solve problems and put ideas into practice, communicate using linguistic forms of expression in different contexts and for different purposes, create and express themselves through different forms of aesthetic expression”; and the core content “digital tools and media for communication, digital tools for the production of different forms of aesthetic expression and creation through different forms of aesthetic expression, such as play, art, music, dance and drama” (SNAE, 2024, pp. 29–30). The aim of this plan is to explore, play, and experiment with digital tools. The transformation from curriculum and content to teaching is through an activity where groups of children make films together. *Pedagogical knowledge* and *contextual knowledge* are shown here through the representations that focus on instructional choices where children work together in groups to make films cooperatively. The written instructions state:

We mainly work with the iMovie and Stop Motion Studio apps. Group work, where the group decides what kind of film they want to make. Preparation through simple script work with text or image series. Recording film with a film camera or taking stills. Edit the film in iMovie, possibly adding text and sound (written plan from Rhyolite).

This example from the written educational plan shows instructions on how to represent the content area. In this way *pedagogical knowledge* is illustrated in the plan. The activity is related to the content area. The *contextual knowledge* in the plan is shown between the lines that in the SAEC setting there are devices that have the applications iMovie and Stop Motion Studio, as well as film cameras. In this section it is written that there will be group work, but not how the groups will be organised. In order to organise the groups, the teachers need to have knowledge of how to organise smaller groups in this group of children, and in this way some of the *contextual knowledge* is demonstrated.

The written educational plans from the SAEC centres differed in the way they were written; for example, whether they were detailed with a lot of text and descriptions, or short and to the point with less descriptive text. A short-and-to-the-point plan from the SAEC centre Gneiss addressing the content area of basic values and cooperation showed *subject matter knowledge*. One of the aims of the curriculum is quoted, showing *curricular knowledge*: “The teaching shall give pupils the opportunity to develop good peer relationships and to feel a sense of belonging and security in the pupil group” (SNAE, 2024, p. 27). In this plan there are descriptions of activities related to the content area, and in this way the *pedagogical knowledge* in the plan is illustrated. The activities are: discussion groups, four corners exercises, the hot chair, and different cooperative games. In this plan, *contextual knowledge* may seem limited. However, *contextual knowledge* can be found in the description of how the evaluation will take place. The evaluation describes how the teachers evaluate the activities together with the children, and in this way the plan describes the contextual setting of the SAEC within which the *children’s influence* is a central part. The plan shows how preparation, representation and instructional choices have led to teaching activities, and thus led the teachers’ transformation process from subject to teaching (Shulman, 1987). In this type of planning, the different concepts of knowledge are more difficult to identify (Gess-Newsome, 1999; Nilsson, 2008). Here, *subject matter knowledge* is found in the fundamental values, *pedagogical knowledge* is found in the descriptions of the activities planned in relation to the subject, and

contextual knowledge may be seen as the knowledge of the children and their influence and involvement in the evaluation of the activities. In this way, the PCK lies in organising the teaching of fundamental values in a written educational plan in a short and consistent way.

The PCK in this section from content to activity plans is shown by the alignment between the content area and the activity. The plans illustrate a transformation process from content to representations. The three steps of the transformation process (Shulman, 1987) of preparation, representation, and instructional selection are shown in the plans through descriptions of how the activities will be organised in relation to the content. The steps of adaptation and tailoring are not as clear in the plans; they can only be interpreted in the plans through the activities that are hopefully adapted and tailored to the specific group of children to be taught.

All of the plans in this theme show curricular knowledge, subject matter knowledge, pedagogical knowledge, and contextual knowledge; often intertwined with pedagogical knowledge. In this way, PCK is a part of these written educational plans.

Children's influence plans

The sub-theme of 'from content to activity' plans that emerged from the analysis referred to instances when children's influence was a major part of the plans. All the plans had an orientation from content to activity, as in the theme from content to activity plans, but in some plans, the content was based on children's influence and in some plans the activity was based on children's influence on their time in the SAEC setting, in different ways. The activities in these plans could arise from the children's own interests and agency, and in others, the children's influence was organised by the teachers. In this way, children's influence was written into the plans to include children's own perspectives or to organise their influence through the teachers' perspectives.

In a written educational plan from the SAEC centre, Rhyolite focuses on the content of the SAEC where children's influence plays a part. The curriculum includes the ability to "test and develop ideas, solve problems and put ideas into practice" (SNAE, 2024, p. 28). In the plan there are also links to the school's overall goals, including that children's own efforts and participation should contribute to a good working environment, and that each child should gradually have more influence over their education and the inner workings of the school. These formulations in the plan show *subject matter knowledge* and *curricular knowledge*. The plan shows how this content is transformed into activities and teaching strategies.

Part of the planning, paradoxically, is not to have meticulous plans but to let the pupils control the content and define the objectives themselves to a relatively large extent... Before a forest excursion, we may bring the pupils together and ask them what ideas they have for the excursion, provide supportive ideas and try to organise adequate material that suits with what the pupils want to do. In the sports hall, the pupils themselves may both influence what activities we do and also lead them themselves. This also applies to games in the schoolyard. When it comes to creative activities, the pupils are so well aware of the materials we have to offer and have been involved in several projects over the years at our SAEC that they should be able to carry out their own creative work almost on their own. (written plan from Rhyolite)

This excerpt from the written educational plan shows *contextual knowledge* of rooms in which the activities take place, what can be done there, and what knowledge the children have about the activities. But most importantly, *contextual knowledge* is shown through the description of

the children's knowledge of these spaces and the activities they can do in the different places. This *pedagogical knowledge* is visible in the written instructions on how to collect the children's wishes and ideas for the forest outings. In addition, children are described as being able to influence and lead the activities in the sports hall, which is also the case for games in the schoolyard and creative activities. The children are described as being able to have ideas and organise activities themselves. This can be seen as a process of adapting and tailoring the teaching to the children in the group (Shulman, 1987). The plan shows a child-centred approach, as well as planning through children's perspectives, and child perspectives where the children have an influence and are participating actors (Kane, 2023; Ljusberg, 2023).

This example shows how the different types of knowledge identified in the plans are intertwined (Gess-Newsome, 1999; Nilsson, 2008). The PCK in this example can be seen as a knowledge base based on subject matter knowledge, pedagogical knowledge, and contextual knowledge through the structure of the teaching, how to write an educational plan in relation to the children and their development, and also how teachers may support children to be independent in the SAEC setting.

Another example of a written educational plan that focuses on the children's influence and on their meaningful leisure time which includes different content and subject areas, was shared from the Granite SAEC centre. From the curriculum showing *curricular* and *subject matter knowledge* they use the abilities: "test and develop ideas, solve problems and put ideas into practice; create and maintain good relationships and cooperate based on a democratic and empathic approach; communicate using linguistic forms of expression in different contexts and for different purposes" and the core content "discuss, listen, ask questions and express their own thoughts, opinions and arguments about different areas, such as ethical issues and everyday events; digital tools and media for communication; democratic values and principles, in contexts that are familiar to pupils. How joint decisions can be made and how conflicts can be managed constructively" (SNAE, 2024, pp. 28–30). This plan shows how the children in the SAEC centre influence and lead the activities.

The pupils come up with suggestions for ideas. We capture the ideas through assemblies, discussions, and pupil interviews. The pupils write a plan based on their idea. They implement their idea in the SAEC setting and then evaluate it. We take photographs during the process. After completing the activity, they receive a diploma (at the assembly) with a photo and text. (written plan from Granite)

This excerpt from the plan shows the organisation of the activity and how the children are involved and influence the teaching. They are at the centre of the activity. However, the teachers have chosen how to transform the content of the children's influence and also to make the children the leaders of their ideas. The children are at the centre of the activity, although the plan shows the *pedagogical knowledge* behind the plan on how to organise the activity. It is clearly written how the children's ideas will be captured and how the activities will be organised with the children. The *pedagogical* and *contextual knowledge* may also be seen in the plan through the clear structure of the realisation of the ideas and also the reward afterwards in the form of a diploma. It is the teachers behind the plan who have adapted and tailored the activity to these children (Shulman, 1987). In this way, *contextual knowledge* is demonstrated in the management of the activity to suit this SAEC and the children in it. The children have the power to choose what to do, which illustrates a child-centred plan from the children's perspectives (Kane, 2023; Ljusberg, 2023). The plan illustrates how planning with structure and preparation leads to activities that are successful and show clear teaching

strategies (Shulman, 1987). In this example, knowledge is clearly intertwined (Gess-Newsome, 1999; Nilsson 2008). The *subject matter knowledge* in this written educational plan is children's influence. Through children's influence, the plan shows a clear structure of how this influence is to be implemented in the SAEC and how the children are to be involved in the plan. In this way, the *pedagogical* and *contextual knowledge* is demonstrated in the plan. The PCK in this example is shown through the transformation of curricular and subject matter knowledge of children's influence to the organisation of the teaching situation to inspire children to use their influence in the SAEC setting.

The results of this study show examples of PCK in written educational plans. PCK is shown in the plans where subject matter knowledge, curricular knowledge, pedagogical knowledge, and contextual knowledge could be identified in the plans. In some cases, these different forms of knowledge could be seen as intertwined and are not clearly shown in the plans. In the written educational plans, a process of transformation is evident through the alignment from a content area to activities related to that content area. In this way, it is clear that there are knowledge forms and a transformation process in the written educational plans that show PCK.

Discussion

Planning in the school-age educare (SAEC) setting and how SAEC teachers' PCK could be understood through written educational plans is the purpose of this study. The findings in relation to the purpose resulted in two themes: *from content to activity plans* and *children's influence in plans* (Braun & Clarke, 2006). The concepts of analysis consisted of four types of knowledge: *curricular knowledge*, *subject matter knowledge*, *pedagogical knowledge*, and *contextual knowledge* (Gess-Newsome, 1999; Nilsson, 2008; Shulman 1986; 1987). The findings show the curricular knowledge of the curriculum at least the part focused on the SAEC in subject matter knowledge of the content areas written in the plans, pedagogical knowledge of how to organise activities in the SAEC setting, and finally, in contextual knowledge about the children in the SAEC setting and their own knowledge and influence. The PCK shown in the plans was particularly focused on how to organise teaching and activities in the SAEC setting in relation to the content areas and how to transform the content area from the curriculum into activities. Shulman (1986; 1987) describes that teachers should be able to transform their subject to each individual pupil and this is not shown in the plans. In the transformation process, teachers adapt the representations to the children to be taught and tailor the adaptations to the specific children (Shulman, 1987). The process of adaptation and tailoring is difficult to identify in the written educational plans although some of the plans show how the activities in the SAEC are adapted and tailored to the interests and influence of the children.

Children's influence is identified in the written educational plans as both content of the plan and as a teaching strategy. In Ljusberg's (2023) study, it is evident that planning is dependent on the SAEC teachers' view of the children. The staff in SAEC can plan in relation to the children's perspective, the child perspective and the staff perspective (Ljusberg, 2023). The child-centred teaching and planning may be related to the common space in Lager's

(2020) study. The question is whether there should be written educational plans in SAEC to structure and empower children's influence. The written educational plans in this study show how some of the SAEC settings have plans that address the children's influence, ideas, interests, and their independence in the SAEC. In Kane's (2023) action research study, SAEC teachers developed a template for planning and evaluation based on children's needs, interests, and experiences. This is a way of using planning to make sure written educational plans are rooted in children's needs, interests, and experiences rather than just in curriculum objectives. Milton et al. (2023) show how the CP3 programme could support OSHC services with a planning tool, and one finding of this study was that listening to children's voices is central to achieving change in OSHC service delivery. In SAEC, it is written in the curriculum that teaching and learning in the setting is based on children's interests, needs, and experiences (SNAE, 2022). The written educational plans in this study showed that some of the plans focused on one content area or subject and described activities in relation to that content. Other plans showed how children were a central part of the plans, and their interests and influence were both a content area in the plan and the central activity.

Cartmel and Hayes (2016) suggest that children who regularly attend SACC in Australia have the potential, with appropriate planning, to influence their ability to succeed academically, build social competencies such as collaboration and citizenship, and contribute to their own overall health and well-being. The study points to the importance of appropriate planning so that activities in child care have a purpose and so that teaching is transformed from a content area to activities. The transformation process is clearly seen in the more detailed plans in this study, which show the PCK of the teachers who wrote the plans. However, a central part of SAEC is the situational teaching and learning, where teaching happens in the moment. In these situations, teachers transform content areas in the immediate situation into teaching, and children's perspectives are prominent and their interests and curiosity guide the teaching (Perselli & Haglund, 2022). Gardesten and Ackesjö (2022) discuss how to plan in a way that allows the unplanned to take place, and in this way to use the curriculum more proactively later on. Accordingly, the SAEC setting is a common space where teachers have knowledge about how to use their resources in a purposeful way based on the interests of the children, rather than as an activity space dominated by activities related to the curriculum and where the children meet the staff in planned activities (Lager, 2020). Even if there were written educational plans from the children's perspective, there were no plans describing the situational teaching and learning, so most of the plans in this study were directed towards an activity space, although in some cases this was done from the children's perspective. The written educational plans show examples of plans written over a period of time and do not illustrate all of the activities and interactions that take place in the SAEC centres in this study. The planned activities may be a small or large part of what goes on in the centres. In some SAEC centres, there is a high level of care and a relatively low level of education, as in the study by Fukkink and Boogaards (2020), where they studied the pedagogical quality in Dutch after-school care. This is also the case in the abandoned space in the study conducted by Lager (2020).

What can be called 'teaching' in the SAEC setting appears to be a complex issue. Previous research suggests that interactions between teachers and children take place both in situational events in the immediate situation and in pre-planned, goal-oriented activities. In previous research, it has been argued that the situational events may not be teaching per se, but complementary to teaching and with a focus on children's perspectives (Ackesjö & Haglund, 2021; Perselli & Haglund, 2022). Another point of view is that teaching incorporating

children's perspectives could be planned in advance and in this way improve the concept of teaching in the SAEC setting (Gardesten & Ackesjö, 2022; Kane, 2023; Lager, 2020; Ljusberg, 2023). This study shows examples of written educational plans that are goal-oriented and also focus on children's own interests and initiatives in the open and informal space of the SAEC setting. In this way, planning in the SAEC centre may be constructed to include goals, children's influence, and situational teaching in the immediate situation in the open and informal space.

This study contributes to the discussion of written educational plans in the SAEC centre and how planning in this space is complex and varied and can include children's influence as well as goal-oriented and situational teaching. In addition, this study contributes to the discussion of the SAEC teacher's PCK. How PCK could be adapted and conceptualised to the SAEC setting, as it is in the preschool setting, where teaching should be based on children's previous experiences, play-based and integrated into everyday life, where teachers have knowledge in many areas and apply the teaching of different subjects in teacher child interactions (Dunekacke & Barenthien, 2021; Kutluca, 2021).

There are similarities and differences in the written educational plans, showing that there are different ways of organising planning and teaching in SAEC. This can be understood by the different ways in which regulations are interpreted at national and regional level, as well as the qualifications of the staff, for example whether they have a university degree in SAEC teaching or not, and how they understand planning and teaching in the SAEC (Klerfelt et al, 2020). Another factor in why there are similarities and differences in the plans is the children in the particular SAEC centre. Planning from the children's needs, interests, and experiences depends on the children in a particular group, what their needs, interests, and experiences are at the moment (Klerfelt et al., 2020).

In conclusion, this study shows how written educational plans are formulated, including part 4 school-age educare of the curriculum (SNAE, 2022), content areas, and the organisation of teaching situations and activities in relation to this content and the context of the children in the SAEC setting. The plans show transformation from content to teaching, and some of the plans show teaching with or through the children's influence. These plans show a child-centred approach as well as planning from the children's perspective and from the child perspective, where the children have influence and are participating actors (Kane, 2023; Ljusberg, 2023). In this way, PCK in the written educational plans could be seen as knowledge about how to organise teaching in the SAEC setting in relation to the content areas in that setting, as well as how to organise teaching situations to stimulate children's influence, and how to organise teaching activities with children where they are free to carry out the activities themselves.

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