

Links between teachers' planning, assessment and development time and implementation of curriculum in early childhood education

Johanna Heikka, Riikka Hirvonen, Sanni Kahila, Harri Pitkäniemi, Takumi Yada & Eeva Hujala

To cite this article: Johanna Heikka, Riikka Hirvonen, Sanni Kahila, Harri Pitkäniemi, Takumi Yada & Eeva Hujala (2022): Links between teachers' planning, assessment and development time and implementation of curriculum in early childhood education, *Early Years*, DOI: [10.1080/09575146.2022.2059067](https://doi.org/10.1080/09575146.2022.2059067)

To link to this article: <https://doi.org/10.1080/09575146.2022.2059067>



© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



Published online: 24 Apr 2022.



Submit your article to this journal [↗](#)



Article views: 266





View related articles [↗](#)



View Crossmark data [↗](#)

Links between teachers' planning, assessment and development time and implementation of curriculum in early childhood education

Johanna Heikka^a, Riikka Hirvonen ^a, Sanni Kahila ^a, Harri Pitkaniemi^a, Takumi Yada^a and Eeva Hujala^b

^aSchool of Applied Educational Science and Teacher Education, University of Eastern Finland, Joensuu, Finland; ^bFaculty of Education and Culture, Tampere University, Tampere, Finland

ABSTRACT

This study aimed to examine how Finnish early childhood education (ECE) teachers use planning, assessment and development (PAD) hours across different areas of the national ECE curriculum. The PAD of pedagogy carried out by ECE teachers is an important quality factor in ECE. In Finland, the working hours reserved for planning, assessment and development tasks for ECE teachers were increased from 8% to 13% by ECE law in 2018. Based on the mixed-methods approach, 325 ECE teachers participated in the study. The results of the study indicated that ECE teachers emphasize and benefit most from the planning, assessment and development of pedagogical activities and learning areas in the use of PAD hours. Furthermore, the distribution of PAD hours between different curriculum areas depends on how well PAD hours are implemented in practice.

ARTICLE HISTORY

Received 21 April 2021
Accepted 24 March 2022



KEYWORDS

early childhood education; teacher; planning; curriculum

Introduction

The Nordic countries, including Finland, have implemented policies that emphasize Early Childhood Education and Care since the 1970s. Finland, in particular, was the country that guaranteed the right to early childhood education (ECE) for all children in 1996, ahead of other Nordic countries (Karila 2012). The Finnish National Agency for Education (EDUFI, 2018) ordered the first *National Core Curriculum for Early Childhood Education and Care* in 2016, aiming at a quality education. The curriculum was set as part of continuous education including ECE, pre-primary and basic education and was designed to cover the pedagogically oriented entity of education, teaching and care.

The overall goal of ECE is to provide equal opportunities for all children to attend quality education in a healthy and safe environment that promotes their development and learning (Salminen 2017). ECE in Finland involves systematic and goal-oriented education, teaching and care provided to children, where the role of pedagogy is strongly emphasized in children's holistic development (Act on Early Childhood Education and Care [Act 540/2018]; Salminen 2017). This goal-oriented practice requires planning,

CONTACT Johanna Heikka  johanna.heikka@uef.fi  School of Applied Educational Science and Teacher Education, University of Eastern Finland, Joensuu, Finland

© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.
This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

assessment and development (Act 540/2018; EDUFI 2018), which have been shown as the key part of the national and international ECE quality indicators (Douglass 2019; Vlasov et al. 2019).

In Finnish ECE centres, the term 'educator' refers to the staff who are in charge of care, education and teaching (Happo, Määttä, and Uusiautti 2013). An ECE teacher with Bachelor of Education degree usually works with a child group in a team of educators including two ECE childcare nurses or one childcare nurse and a teacher with Bachelor of Social Services degree. Although pedagogy is carried out by multi-professional team members, the ECE teachers are responsible for planning, assessment and development (Act 540/2018; EDUFI 2018).

In 2018, a new contractual regulation in ECE was introduced to enhance the quality of ECE and to allow ECE teachers to have more time for pedagogy. The regulation increased the working hours of ECE teachers, special education teachers and managers concerning planning, assessment and development (PAD) from 8% to 13% (Kuntatyöntajat 2018). This regulation applies to both the municipal and private sectors. Researchers argue that PAD is essential for the connection between pedagogical practices and goals (Heikka, Halttunen, and Waniganayake 2018). However, it is still unknown how the teachers' PAD hours affect their implementation of the ECE curriculum.

The objectives for ECE pedagogy are based on the national ECE core curriculum content and information on the child's development, growth and learning (EDUFI 2018; Heikka et al. 2020, 2018). Planning is conducted at various levels including municipal communities, ECE centres and individual levels (Heikka et al. 2020). Assessment plays a crucial role in ECE pedagogy since it gives information related to individual children, a child group, the operating environment and its culture. When assessing information about the children's knowledge, strength and aspirations and about the environment, ECE educators consider what goals should be set for children's activities and development, what kinds of pedagogical activities are suitable and how they can enhance their own expertise and practices (Douglass 2019; Heikka et al. 2018). Assessment is constantly performed over both shorter and longer timescales so that new information taken from it can serve for the next assessment. Thus, information obtained through the assessment forms a basis for both the planning and development of ECE activities (Heikka et al. 2020).

In Finland, as well as internationally, ECE teachers' pedagogical responsibility has become increasingly emphasized and teachers are expected to lead pedagogical decision-making, planning and assessment in their multi-professional teams (see Kahila, Heikka, and Sajaniemi 2020). The teachers' approaches in leading their staff teams vary, which may impact the implementation of the plans and pedagogical development. Halttunen, Waniganayake, and Heikka (2019) show that although ECE teachers are leading PAD for curriculum implementation, some teachers present plans for the ECE nurses in an authoritarian way, thereby hindering a full potential collaboration with the other team members to pursue pedagogical goals together.

Currently, ECE teachers are recognized as pedagogical experts who engage in disseminating the ideas of 'best practice' rather than as mere technicians performing the prescriptions of the curriculum (Castner 2020, 431). The culture of ECE in Finland was formerly relatively adult-centred; however, ECE is currently expected to reflect on pedagogical activities in relation to the national core curriculum, which emphasizes the participation of children and the consideration of the environment (EDUFI 2018; Ukkonen-

Mikkola and Fonsén 2018). Similarly, Kallery and Psillos (2002) pointed out the risk of the dominance of the teacher-oriented approach, which hinders children's thinking, reasoning and revealing of ideas. Their study urges ECE teachers to prepare content knowledge and applications suitable for children in practice. ECE teachers develop activities through adjusting pedagogical practice and trying other new theories to improve children's learning. For example, to develop an implementation of quality curriculum, ECE educators utilize critical reflection and dialogue that enable them to go beyond routine decisions and look into alternative practices based on theoretical evidence (Colmer, Waniganayake, and Field 2015).

A national curriculum works as an important and useful platform when ECE teachers work on planning, assessing and developing pedagogical activities (Castner 2020). The national ECE curriculum in Finland is a legal norm that is binding to municipalities when they design their local ECE curricula (Salminen 2017). The national ECE curriculum highlights four thematic sections regarding pedagogy: operational culture, pedagogical activities, transversal competences and learning areas (EDUFI 2018). Operational culture represents a historical and cultural manner of doing things in ECE settings. It is characterized as a learning community that encourages play and interaction, participation, equality and equity, cultural diversity and language awareness, well-being, safety and a sustainable way of living. Pedagogical activities including play, physical activity, arts and cultural heritage are carried out in interactions between children, ECE educators and the learning environment. Since children's learning is based on their active agency, pedagogical activities are selected according to the age, needs, prerequisites and interests of children and are conducted using versatile methods.

The content of the ECE curriculum is organised in five learning areas, which guide educators in planning versatile learning experiences for children (EDUFI 2018). Transversal competences, in turn, are set as the foundation to tackle challenges and integrate what children learned in an ever-changing society (Salminen 2017). '*Thinking and Learning*' and '*Cultural Competence, Interaction and Self-expression*' involve competences that children need in a diverse world. '*Learning to Take Care of Oneself and to Manage Daily Life*' encompasses children's skills to promote their well-being and safety for their sustainable life. '*Multiliteracy and ICT Competence*' emphasizes skills to interpret and produce various kinds of messages through various types of literacy. '*Participation and Involvement Skills*' highlights children's abilities and desire to make a difference and participate in the community (EDUFI 2018).

Research questions

This study employs quantitative and qualitative approaches to examine how ECE teachers use PAD hours in different curriculum areas. It specifically seeks to examine whether the sufficiency and timing of PAD hours are predictive of the differences across the curriculum areas. Second, this study sets out to investigate how PAD hours promote ECE teachers' pedagogical work in the different curriculum areas. Thus, the research questions to be answered were

- (1) To what extent do the amount of ECE teachers' PAD (planning, assessment and development) hours differ across the curriculum areas, and to what extent are these differences related to the PAD hours' sufficiency and timing?

- (2) How extensive are the differences between the areas of the ECE curriculum in which PAD hours promote the planning, assessment and development of pedagogical work, and to what extent are these differences related to the sufficiency and timing of teachers' PAD hours?

Methods

The data were collected from 10 municipalities of different sizes from all over Finland as well as from two private-sector ECE organizations. Among the 325 ECE teachers who responded to the survey, 87.1% ($N = 283$) were employed in the municipal ECE and 12.3% ($N = 40$) in the private organizations (employer was not known for two respondents). The data were collected using an electronic questionnaire. The link to the electronic survey was provided to the organization's liaison, who forwarded the link to ECE teachers. Consequently, the researchers had no direct contact with the participants. In the quantitative analysis, there was 0.3–5.5% of missing data in the study variables. According to Little's MCAR test ($\chi^2(216) = 245.95, p = .08$), the data were missing at random.

The present study employed a mixed-methods approach, especially the convergent design (Creswell and Plano Clark 2018, 68–77). The questionnaire included sections based on quantitative measurement and a few open questions to be analyzed qualitatively. The convergent design is used when one wishes to compare views produced by simultaneously collected quantitative and qualitative data from the same research subjects. This model is also recommended when a complete understanding of the research problem is desired. Quantitative and qualitative research findings can thus reinforce each other through 'similar findings,' but they can also interchangeably provide new and different and, occasionally, 'contradictory' perspectives on the phenomenon being studied. So-called 'joint tables' were utilized for integrating results and for systematic comparison. Greene, Caracelli, and Graham (1989) have presented categories listing the purposes of mixing: in this study, we detected examples of 'confirmatory' and 'complementary' findings – as well as a few 'divergent' findings.

Instruments

The scales used in the quantitative data analysis are described in this section. In qualitative analysis, the data were considered from the perspective of the quantitative findings, that is, what kinds of similar, complementary, explanatory or possibly dissenting and open perspectives could the qualitative data bring to the quantitative findings? Whereas the quantitative analysis sought to examine mean-level differences and correlational associations of PAD hours and curriculum implementation at the group level, the qualitative analysis supplements these results by clarifying how the individual participants 'actually' understand their actions in ECE.

Time use for PAD work areas. The participants were presented with this question: 'How much time do you spend on planning, assessing and developing the following pedagogical areas?' They were asked to rate the following 25 items on a 5-point Likert scale (1 = *not at all*; 5 = *very much*). The items were presented under four thematic sections based on the Finnish national ECE curriculum: operational culture (e.g., *safety and well-being in the work community and leadership*), pedagogical activities (e.g., *learning*

environment and play), transversal competences (e.g., *interaction and self-expression, multi-literacy and competence in information and communications technology*) and learning areas (e.g., *the rich world of languages and multiple ways of expression*). Based on explorative factor analysis, two items (*cooperation with guardians* and *multi-professional collaboration*) from the operational culture section were combined into a new factor named 'cooperation'. Similarly, two items (*realization of a conception of learning in pedagogy* and *visualization of a conception of learning*) from the pedagogical activities section were combined and renamed as 'conception of learning'. Consequently, six composite scores for PAD hour use were created by calculating a mean across the items: *operational culture* (six items; Cronbach's $\alpha = .79$), *cooperation* (two items; $\alpha = .64$), *conception of learning* (two items; $\alpha = .87$), *pedagogical activities* (four items; $\alpha = .80$), *transversal competences* (six items; $\alpha = .88$) and *learning areas* (five items; $\alpha = .90$).

Promotion of PAD work areas. The participants were presented with the question, 'Please rate how PAD hours have promoted or supported your planning, assessment, and development of pedagogical work in the following curriculum areas'. The same 25 items were presented as for PAD hour use, each rated on a 5-point Likert scale (1 = *not at all*; 5 = *very much*). Six composite scores were created for PAD work promotion by calculating a mean across the items: *operational culture* (six items; Cronbach's $\alpha = .90$), *cooperation* (two items; $\alpha = .82$), *conception of learning* (two items; $\alpha = .92$), *pedagogical activities* (four items; $\alpha = .89$), *transversal competences* (six items; $\alpha = .93$) and *learning areas* (five items; $\alpha = .95$).

Sufficiency of PAD hours. Using a 5-point Likert scale (1 = *always*; 2 = *usually*; 3 = *sometimes*; 4 = *seldom* and 5 = *never*), the participants responded to the question, 'Are you able to use 13% of your weekly working hours on PAD work?' For the analyses, the response scale was reversed and recoded as follows: 1 = *seldom or never* (22% of the participants), 2 = *sometimes* (15%) and 3 = *usually or always* (63%).

Timing of PAD hours. The participants were presented with the question, 'Do the PAD hours follow the schedule of your work shift list?' Their responses were based on the same 5-point Likert scale (1 = *always*; 2 = *usually*; 3 = *sometimes*; 4 = *seldom* and 5 = *never*), which was reversed and recoded as follows: 1 = *seldom or never* (21% of the participants), 2 = *sometimes* (21%) and 3 = *usually or always* (59%).

Data analysis

First, to examine the mean-level differences in time use across the different work areas of PAD, repeated measures general linear modelling (GLM) was used. A within-subject factor 'area' was specified with six factor levels representing the time used in each PAD area. The sufficiency and timing of PAD hours were included as between-subject factors. The model included conditional main effects for the within- and between-subject variables as well as two-way interaction effects between the within-subject factor ('area') and the two between-subject factors. Second, to examine the mean-level differences in the promotion of PAD work across the different areas, a repeated measures GLM model was created with a within-subject factor 'area' representing the promotion of PAD work in each area of work, and the sufficiency and timing of PAD hours included as between-subject factors. The model again included conditional main effects for the within- and between-subject variables as well as two-way interaction effects between the within-subject factor ('area')

and the two between-subject factors. All analyses were conducted using IBM SPSS Statistics 25 software. Descriptive statistics for the quantitative measures are presented in Table 1.

In the qualitative analysis, the answers were divided into three separate files according to how teachers had answered the question, 'Are you able to spend 13% of your weekly working time on PAD?' The answer options were as follows: (1) *seldom or never*, (2) *sometimes* and (3) *usually or always*. The analysis of the qualitative data utilized Atlas.ti (see Hwang 2008). Phrases containing information related to the quantitative findings were encoded from the responses. The answers to open questions in the questionnaire were analyzed using qualitative content analysis (see Elo and Kyngäs 2008).

Results

Time use across different areas of PAD work

The results of the GLM model to analyze the mean-level differences in the time use across the six areas of PAD work are presented in Table 2.

The results showed first that the interaction between the areas of PAD work and the sufficiency of PAD hours was statistically significant, indicating that the time the participants used for different areas of PAD work was dependent on how sufficiently they were able to use the designated PAD hours. Time use in the six areas of PAD work is separately illustrated in Figure 1 for each group of PAD hours' sufficiency.

Pairwise comparisons showed that participants who could *seldom or never* use the designated PAD hours reported using less time for the conception of learning and the operational culture than for pedagogical activities, cooperation and learning areas and less time for transversal competences than for pedagogical activities and learning areas. Participants who were *sometimes* able to use the designated hours reported using less time for the operational culture than for pedagogical activities, learning areas and goals of ECE. They also used less time for cooperation and the goals of ECE than for pedagogical activities and learning areas and less time for the conception of learning than for pedagogical activities. Finally, participants who *usually or always* used the designated hours reported using less time for the operational culture than for pedagogical activities, learning areas and transversal competences and less time for cooperation, conception of learning and transversal competences than for pedagogical activities and learning areas.

The results further showed that the timing of PAD hours had a significant main effect on time use. Participants whose PAD hours *seldom or never* complied with the roster reported using less time for PAD work (estimated marginal mean = 3.01) than the participants whose hours *sometimes* (estimated marginal mean = 3.30) complied with the roster. Participants whose hours *usually or always* complied with the roster did not significantly differ from the other two groups (estimated marginal mean = 3.21).

Table 3 provides a brief summary of the results from the quantitative and qualitative analyses on time use across different PAD work areas.

The interaction between areas of PAD work and sufficiency of PAD hours was highlighted in the qualitative responses as well. Regardless of sufficiency, the participants emphasized the use of PAD hours in pedagogical activities as well as in learning areas, using PAD hours especially to consider children's individuality as well as for observation

Table 1. Descriptive statistics and bivariate correlations for the quantitative measures.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. Time use: The operational culture	—													
2. Time use: Cooperation	.37***	—												
3. Time use: Conception of learning	.53***	.27***	—											
4. Time use: Pedagogical activities	.50***	.34***	.51***	—										
5. Time use: Transversal competences	.60***	.30***	.73***	.64***	—									
6. Time use: Learning areas	.49***	.26***	.62***	.63***	.79***	—								
7. Promotion: The operational culture	.66***	.35***	.49***	.46***	.51***	.46***	—							
8. Promotion: Cooperation	.44***	.68***	.40***	.40***	.39***	.37***	.67***	—						
9. Promotion: Conception of learning	.53***	.20**	.82***	.47***	.68***	.57***	.62***	.45***	—					
10. Promotion: Pedagogical activities	.49***	.37***	.53***	.76***	.62***	.57***	.65***	.54***	.68***	—				
11. Promotion: Transversal competences	.55***	.30***	.65***	.57***	.82***	.67***	.67***	.52***	.76***	.74***	—			
12. Promotion: Learning areas	.51***	.31***	.58***	.54***	.66***	.75***	.65***	.56***	.67***	.71***	.79***	—		
13. Sufficiency of PAD hours ^a	.23***	.12*	.26***	.24***	.27***	.30***	.35***	.27***	.30***	.35***	.36***	.36***	—	
14. Timing of PAD hours ^a	.21***	.16*	.21***	.17**	.27***	.22***	.29***	.28***	.30***	.30***	.28***	.32***	.72***	—
Min.	1.00	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1	1
Max.	4.67	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	3	3
Mode	3.00	3.00	3.00	3.75	3.00	3.00	3.00	3.00	3.00	4.00	3.00	3.00	3	3
Mean	2.96	3.11	3.11	3.61	3.23	3.47	2.98	3.02	3.13	3.54	3.17	3.32	—	—
SD	0.63	0.77	0.76	0.68	0.67	0.72	0.81	0.95	0.89	0.83	0.80	0.87	—	—

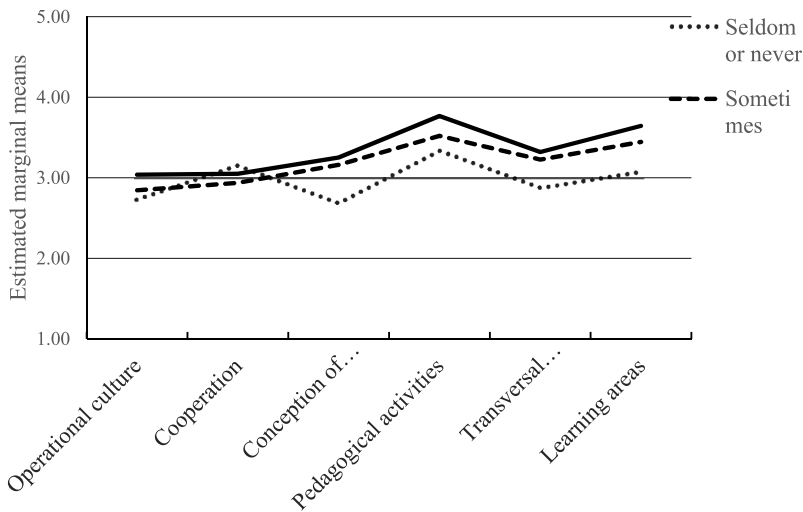
Note. $N = 325$. ^a Spearman's rank correlation used for these variables (Pearson product-moment correlation used for all other variables).

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 2. Results of general linear modeling to compare time used for areas of PAD work depending on the sufficiency and timing of PAD hours.

Variables	<i>F</i> (df1, df2)	<i>p</i>	Partial η^2
Areas of PAD work	48.34 (3.88, 1147.49) ^a	< .001	.14
Sufficiency of PAD hours	6.44 (2, 296)	.002	.04
Timing of PAD hours	4.09 (2, 296)	.02	.03
Areas of PAD work \times sufficiency of PAD hours	3.55 (7.75, 1147.49) ^a	.001	.02
Areas of PAD work \times timing of PAD hours	1.60 (7.75, 1147.49) ^a	.12	.01

Note. *N* = 301. ^a Degrees of freedom adjusted using Huynh–Feldt correction.

**Figure 1.** Mean differences in time use across areas of PAD work as a function of sufficient PAD hours.

and documentation. In addition, learning environments, diversity of teaching methods and materials and pedagogy of play were highlighted, especially for those who said that they usually or always use PAD hours. These teachers also spend more time preparing for activities and becoming familiar with the pedagogical content and effective pedagogical methods of learning areas.

There is much more time for planning activities and especially for preparations. You have time to search the library for something better that suits the children's interests and themes. It is better time to prepare material such as singing cards, memory games, picture instructions, etc. (Teacher 39)

In the following quote, the teacher describes how they used the PAD hours to promote their understanding of children's support needs:

It has been possible to get to know the issues more deeply and look for help in the literature, for example in planning child support. (Teacher 102)

The operational culture was highlighted in the qualitative responses as an area that was perceived to have too little time to plan, assess and develop, which corresponds to the results of the quantitative data. Differences in time use highlighted that the more the teachers were able to use PAD hours, the more they felt able to plan teamwork, share responsibilities within teams and increase team members' understanding of pedagogical

Table 3. Summary of the quantitative and qualitative results concerning the time use across different areas of PAD work.

Quantitative results	Complementary qualitative results		
	Confirmed qualitative results	Regardless of time sufficiency	Depending on time sufficiency
The PAD hours are used most for pedagogical activities and learning topics	Time use for pedagogical activities and learning topics were emphasized	<ul style="list-style-type: none"> • Children's individual needs • Child-oriented pedagogy • Observation and documentation 	Usually or always: <ul style="list-style-type: none"> • learning environments • diversity of teaching methods and materials • play • preparation for activities (plans, knowledge and materials)
Less time was used for the operational culture	The use of PAD hours for the operational culture is the most challenging and the least	<ul style="list-style-type: none"> • More time is desired for the operational culture 	Usually or always: <ul style="list-style-type: none"> • planning teamwork • increasing understanding of pedagogy • pedagogical discussion
If the PAD hours are less, the role of cooperation is emphasized more	Parental and interprofessional cooperation requires PAD hours, regardless of how often the PAD hours can be used	<ul style="list-style-type: none"> • Briefing, newsletters • Child documents • Meeting preparation • Cooperation takes time 	Usually or always: <ul style="list-style-type: none"> • cooperation between teachers Sometimes, seldom or never: <ul style="list-style-type: none"> • more time is desired for teacher collaboration
If the PAD hours are less, the work for conception of learning and transversal competences suffers	The PAD hours are perceived to support the purposefulness and planning of pedagogy	The PAD hours are used primarily for short-coming, teaching moment planning and goal-setting	Usually or always: <ul style="list-style-type: none"> • long-term planning and goal-setting • holistic learning • transversal competences • clarifying goals through discussion Sometimes, seldom or never: <ul style="list-style-type: none"> • more time is desired for discussion to clarify pedagogical goals

goals. In addition, these participants felt that they could spend more time on pedagogical discussion, especially within their own team, but also, somewhat more than before, across the work community.

Regarding cooperation, all teachers, regardless of the sufficiency of PAD hours, expressed that they spend time on briefings, newsletters, written documents and meeting preparation, especially concerning parental and interprofessional cooperation. These tasks were also seen as stealing too much time from other important tasks included in the PAD hours. Teachers who could usually or always use the PAD hours wrote about increased time to collaborate with colleagues from other child groups. However, teachers who sometimes, seldom or never used PAD hours desired more time for teacher cooperation.

There is also a common pedagogical discussion time of one hour each week for teachers from the whole house. This has greatly strengthened professional discussion and planning and the agreement of common pedagogical lines. (Teacher 105)

As presented in [Figure 1](#), planning and assessment work, especially related to the concept of learning and transversal competences, seems to suffer if fewer PAD hours are available. Correspondingly, the qualitative data showed that the more the teachers were able to use the PAD hours, the more they perceived that they could invest in the purposefulness and planning of pedagogy and pay particular attention to the goals of holistic and transversal competences. These teachers expressed how they are now able to spend more time on pedagogical reflection and discussion and thereby clarify the pedagogical goals for both themselves and their team. The teachers who were able to use fewer PAD hours desired more time for common pedagogical discussion to clarify pedagogy.

Promotion of PAD work across different areas

The results of using the GLM model to analyze the mean-level differences in the promotion of PAD work areas are presented in [Table 4](#).

The results showed first that the interaction effects were not significant. In other words, the perceptions of how much the extra PAD hours benefitted the different areas did not depend on whether participants were able to use the designated PAD hours or whether the hours complied with the work roster.

The results further showed that the areas of PAD work and the sufficiency of PAD hours had significant main effects on the promotion of PAD work areas. Pairwise comparisons for these effects are reported in [Table 5](#). The results showed that, on average, all participants felt that work on the operational culture had benefitted less than the work on pedagogical

Table 4. Results of general linear modeling to compare the promotion of PAD work areas depending on the sufficiency and timing of PAD hours.

Variables	F (df1, df2)	p	Partial η^2
Areas of PAD work	33.88 (3.97, 1131.70) ^a	< .001	.11
Sufficiency of PAD hours	13.43 (2, 285)	< .001	.09
Timing of PAD hours	2.65 (2, 285)	.07	.02
Areas of PAD work \times sufficiency of PAD hours	1.10 (7.94, 1131.70) ^a	.36	.01
Areas of PAD work \times timing of PAD hours	1.61 (7.94, 1131.70) ^a	.12	.01

Note. $N = 290$. ^a Degrees of freedom adjusted using Huynh–Feldt correction.

Table 5. Pairwise comparisons for the conditional main effects of PAD work areas, sufficiency of PAD hours and timing of PAD on promotion of PAD work.

Main effect	Estimated marginal means					
Areas of PAD work	The operational culture	Cooperation	Conception of learning	Pedagogical activities	Transversal competences	Learning areas
Promotion of PAD work	2.82 ^a	2.87 ^{a,b}	2.99 ^b	3.42 ^c	3.05 ^b	3.17 ^d
Sufficiency of PAD hours	Seldom or never	Sometimes	Usually or always			
Promotion of PAD work	2.67 ^a	3.12 ^b	3.37 ^b			
Timing of PAD hours	Seldom or never	Sometimes	Usually or always			
Promotion of PAD work	2.87 ^a	3.17 ^a	3.11 ^a			

Note. Means within a row sharing the same superscripts are not significantly different at the level of $p < .05$ (Bonferroni adjustment used for multiple comparisons).

activities, learning areas, transversal competences and conception of learning. The participants also reported that PAD work on cooperation, conception of learning and transversal competences was of less benefit than work on pedagogical activities and learning areas and work on pedagogical activities benefitted less than work on learning areas. The main effect of PAD hours sufficiency showed that participants who were *seldom or never* able to use the designated PAD hours felt that PAD work had less benefit than did the participants who could use the designated hours *sometimes, usually or always*.

The results of the quantitative and qualitative analyses on the promotion of PAD work across different areas are summarized in Table 6.

Based on the quantitative responses, the perceived benefits of the increased PAD hours relate particularly to the development of pedagogical activities and learning areas. This was also presented in the qualitative data. First, teachers perceived that the increased PAD hours had strengthened the role of observation, documentation, assessment and development alongside planning:

The pedagogical planning has been strongly juxtaposed with the assessment and development of pedagogy. (Teacher 82)

Second, child-oriented pedagogy and individual consideration of children's needs and interests had been strengthened through the increased PAD hours.

It enables the assessment and further development of activities, as well as the consideration of children's individual goals in pedagogical planning, for example, by individualizing the necessary activities so that the child's best interests are realized, and learning is made possible through the child's strengths. (Teacher 70)

Child-oriented pedagogy can be taken into account more in the activities. (Teacher 107)

Third, those who were able to use more PAD hours also experienced more progress than others in achieving child and family involvement in pedagogy, as well as in developing learning environments, pedagogy of play and diversity in teaching.

Teachers perceived that PAD hours had contributed least to developing the operational culture, which was expressed in the qualitative data, in particular, more planning time was desired for this area. Teachers who were able to use more PAD hours wrote



Table 6. Summary of the quantitative and qualitative results concerning the promotion of PAD work across different areas.

Quantitative results	Complementary qualitative results			Divergent/new research findings or open issues in qualitative responses
	Confirmed qualitative results	Regardlessness of the time sufficiency	Depending on the time sufficiency	
Most benefits perceived related to pedagogical activities and learning topics	Benefits of the increased PAD hours relate, in particular, to the development of pedagogical activities and learning topics	<ul style="list-style-type: none"> The role of observation, assessment and development alongside planning work Child-oriented pedagogy Children's individual interests and needs 	Usually or always: <ul style="list-style-type: none"> children and family participation learning environments pedagogy of play diversity of pedagogy 	<ul style="list-style-type: none"> Time to seek new information and ideas Time for knowledge development Time for careful preparation Better observation supports the identification of development needs
The increased PAD hours contributed least to the development of operational culture	The perceived benefits of the PAD hours are only partly related to the development of the operational culture In general, the operational culture development during PAD hours has been perceived as challenging	<ul style="list-style-type: none"> More time is desired for discussion to develop the operational culture 	Usually or always: <ul style="list-style-type: none"> clarifying pedagogy teamwork clearer increased teacher collaboration children and family participation 	<ul style="list-style-type: none"> Observing development needs Time for knowledge development Professional learning through pedagogical discussion and collaboration Collaboration between staff members Possibility to leave child group and discuss with other staff members
				In general, teachers' increased PAD hours have clarified teamwork, especially team members' responsibilities and teachers' roles as pedagogical leaders

about strengthening the pedagogical discussion and, through that, about the clarification of goals, tasks and responsibilities. Increasing the PAD hours was also perceived to have clarified teamwork, in particular, teachers' pedagogical responsibility in teams, and thereby promoted the operational culture. The clarified teamwork and the role of the ECE teacher were reported:

The planning has clarified the division of tasks and responsibilities in the team. Early childhood education teachers plan pedagogy and clarify it for other team members through discussion. (Teacher 105)

In qualitative responses, strengthening professional expertise and better possibilities to prepare for work appear to be key factors in the development of all PAD work areas. Strengthening observations was also seen to have helped better identify development needs and children's individual differences. Teachers felt that with increased PAD hours, they would have more time to seek new knowledge and ideas and to evaluate both their own and others' practices and, thus, not only to more systematically develop their own pedagogical expertise but also to promote others' professional learning. One teacher wrote about the possibility of evaluating one's own work:

Evaluating and thereby developing one's own work requires time from the teacher, and PAD hours makes this possible as well. (Teacher 146)

Teachers perceived that better activity preparation increases their confidence and the quality of their work. Some teachers described the importance of developing their own expertise and preparing for the practice:

Having to take into account many different areas and the individual needs of each child, the PAD hours have brought clarity to the fact that it has certainly taken into account everything essential in the planning. Clarifying one's own thoughts gives oneself the confidence to stand behind the plans. (Teacher 140)

In relation to professional learning, teachers also emphasized collegial support. Teachers considered it important to have the opportunity to talk with other teachers and interact to strengthen the professionalism of the entire work community. Pedagogical discussion with colleagues was seen as an essential requirement, particularly for the development of operational culture. The following example illustrates the importance of teacher cooperation:

Collaboration/discussions with colleagues have increased, which develops common pedagogies and practices throughout the kindergarten. (Teacher 152)

However, these data described that it was fairly common that teachers were unable to leave their child groups during their PAD hours, and teachers hoped that this would change.

Discussion

The aims of this study were to examine how Finnish ECE teachers use PAD hours for the planning, assessment and development of curriculum areas and how PAD working hours have promoted the preparation of pedagogical work across different areas of the national ECE curriculum. The results showed that ECE teachers emphasize and benefit most from using PAD hours for the planning, assessment and development of pedagogical activities

and learning areas. Furthermore, the distribution of PAD hours between different curriculum areas depends on how well PAD hours are implemented in practice. If implemented sufficiently, more emphasis is placed on pedagogical activities and learning than on operational culture, cooperation and ECE goals. However, if PAD hours are rarely or never utilized, in addition to pedagogical activities and learning areas, more emphasis is placed on cooperation than on realizing learning concepts and developing the operational culture of the child groups.

Overall, this study revealed that if ECE teachers have adequate time for PAD, they promote the implementation of the curriculum (see Douglass 2019; Vlasov et al. 2019). Thus, the increase in PAD hours can be seen as meeting the objectives of the PAD reform (Kuntatyöntajat 2018). However, the results also showed that PAD time is not always implemented appropriately, and since limited time restrains PAD work (Ukkonen-Mikkola and Fonsén 2018), ECE teachers may prioritize PAD hours for pedagogical activities and learning areas. This may be explained by the fact that these aspects are more familiar and approachable areas in the ECE curriculum than, for example, the operational culture of ECE, which only first appeared in the national ECE curriculum in 2016.

Also, in terms of teachers' pedagogical leadership, this study provides two-fold insights. Although increased PAD time was perceived to have somewhat clarified the role of teachers as pedagogical leaders in their multi-professional teams, the use of PAD time in developing teamwork and practices was less evident. Previous research also indicates that areas of operational culture, for example, leading values, common modes of operation and professional development in the staff teams, can be challenging for teachers, and ECE teachers differ in relation to their skills and commitment to lead the team and encourage the participation of their team members in planning, assessment and critical reflection (e.g. Waniganayake, Heikka, and Halttunen 2018). This area of work is closely related to the operational culture of the team, which received less time from teachers in this research. Therefore, this is a critical finding, as teachers have the power to inhibit or nourish pedagogical development in their teams (Castner 2020; Colmer, Waniganayake, and Field 2015; Heikka, Halttunen, and Waniganayake 2018; Waniganayake, Heikka, and Halttunen 2018).

In the future, it is important to ensure the sufficiency of PAD hours in order to achieve the holistic objectives of the curriculum. As the development of the operational culture requires continuous reflection (Vlasov et al. 2019), it is necessary to focus the content of PAD hours more strongly on reflection and pedagogical discussion. Furthermore, based on this study, teachers' opportunities to have joint reflection with other teachers during PAD hours can provide them empowering support with curriculum work and leadership responsibilities.

Through the mixed-methods approach, the findings were quantitatively and qualitatively reinforced. Quantitative and qualitative data partially confirmed the same conclusions, but in addition, the qualitative data supplemented the quantitative data, also introducing information on themes, for example, cooperation between teachers, that were not included in the quantitative questionnaire. Moreover, the qualitative findings provided complementary explanations and allowed for the interpretation of deeper meaning of the quantitative findings. Since the data of this study were cross-sectional and described only from the ECE teachers' viewpoint, a further study with a longitudinal design and various data sources is suggested, thereby realizing the full potential of PAD hours.

Disclosure statement

No potential conflict of interest was reported by the author(s).

ORCID

Riikka Hirvonen  <http://orcid.org/0000-0001-5348-4801>

Sanni Kahila  <http://orcid.org/0000-0001-6381-2610>

References

- Castner, D. J. 2020. "Translating the Implementation Gap: Three Versions of Early Childhood Curriculum Leadership." *Early Childhood Education Journal* 48 (4): 429–440. doi:10.1007/s10643-019-01006-7.
- Colmer, K., M. Waniganayake, and L. Field. 2015. "Implementing Curriculum Reform: Insights into How Australian Early Childhood Directors View Professional Development and Learning." *Professional Development in Education* 41 (2): 203–221. doi:10.1080/19415257.2014.986815.
- Creswell, J. W., and V. L. Plano Clark. 2018. *Designing and Conducting Mixed Methods Research*. 2nd ed. SAGE.
- Douglass, A. 2019. "Leadership for Quality Early Childhood Education and Care." *OECD Education Working Papers, No. 211*. OECD Publishing.
- Early Childhood Education and Care Act 540/2018. *Varhaiskasvatustilaki [Act on Early Childhood Education and Care]*. <https://www.finlex.fi/fi/laki/alkup/2018/20180540>
- Elo, S., and H. Kyngäs. 2008. "The Qualitative Content Analysis Process." *Journal of Advanced Nursing* 62 (1): 107–115. doi:10.1111/j.1365-2648.2007.04569.x.
- Finnish National Agency for Education (EDUFI). 2018. *Varhaiskasvatussuunnitelman Perusteet 2018 [National Core Curriculum for Early Childhood Education and Care 2018]*. Regulations and guidelines 2018:3c.
- Greene, J. C., V. J. Caracelli, and W. F. Graham. 1989. "Toward a Conceptual Framework for Mixed-Method Evaluation Designs." *Educational Evaluation and Policy Analysis* 11 (3): 255–274. doi:10.3102/01623737011003255.
- Halttunen, L., M. Waniganayake, and J. Heikka. 2019. "Teacher Leadership Repertoires in the Context of Early Childhood Education Team Meetings in Finland." *Journal of Early Childhood Education Research* 8 (1): 143–161.
- Happo, I., K. Määttä, and S. Uusiautti. 2013. "How Do Early Childhood Education Teachers Perceive Their Expertise? A Qualitative Study of Child Care Providers in Lapland, Finland." *Early Childhood Education Journal* 41 (4): 273–281. doi:10.1007/s10643-012-0551-8.
- Heikka, J., L. Halttunen, and M. Waniganayake. 2018. "Perceptions of Early Childhood Education Professionals on Teacher Leadership in Finland." *Early Child Development and Care* 188 (2): 143–156. doi:10.1080/03004430.2016.1207066.
- Heikka, J., E. Hujala, L. Turja, and E. Fonsén. 2020. "Havainnointi ja arviointi varhaispedagogiikassa" ["Observation and Assessment in Early-Years Pedagogy." In *Varhaiskasvatuksen käsikirja [Early Childhood Education Handbook]*, edited by E. Hujala and L. Turja, 56–68. PS-kustannus
- Heikka, J., T. Kettukangas, E. Fonsén, and J. Vlasov. 2018. "Lapsen osallisuus ja varhaiskasvatuksen pedagoginen suunnittelu" ["Child Participation and Pedagogical Planning in Early Childhood Education"]." J. Kangas, J. Vlasov, E. Fonsén, and J. Heikka, Suomen varhaiskasvatus ry edited by. *Osallisuuden pedagogiikkaa varhaiskasvatuksessa 2 – Suunnittelu, toteuttaminen ja kehittäminen [Pedagogy of Participation in Early Childhood Education 2 – Planning, Implementation and Development]*. edited by J. Kangas, J. Vlasov, E. Fonsén, and J. Heikka, 35–45. Suomen varhaiskasvatus ry.
- Hwang, S. 2008. "Utilizing Qualitative Data Analysis Software: A Review of Atlas.ti." *Social Science Computer Review* 26 (4): 519–527. doi:10.1177/0894439307312485.

- Kahila, S., J. Heikka, and N. Sajaniemi. 2020. "Teacher Leadership in the Context of Early Childhood Education: Concepts, Characteristics and Enactment." *Southeast Asia Early Childhood Journal* 9 (1): 28–43.
- Kallery, M., and D. Psillos. 2002. "What Happens in the Early Years Science Classroom?: The Reality of Teachers' Curriculum Implementation Activities." *International Journal of Phytoremediation* 21 (1): 49–61.
- Karila, K. 2012. "A Nordic Perspective on Early Childhood Education and Care Policy." *European Journal of Education* 47 (4): 584–595. doi:10.1111/ejed.12007.
- Kuntatyönantajat. 2018. *Lastentarhanopettajan työaikaa koskevaan erityismääräykseen muutoksia 1.5.2018 alkaen [Changes to the special regulation on the working time of kindergarten teachers from 1 May 2018]*. <https://www.kt.fi/sopimukset/ohjeet/kvtes/erityismaarays-lastentarhanopettajan-tyoaika>
- Salminen, J. 2017. "Early Childhood Education and Care System in Finland." *Nauki o Wychowaniu. Studia Interdyscyplinarne* 5 (2): 135–154. doi:10.18778/2450-4491.05.09.
- Ukkonen-Mikkola, T., and E. Fonsén. 2018. "Researching Finnish Early Childhood Teachers' Pedagogical Work Using Layder's Research Map." *Australasian Journal of Early Childhood* 43 (4): 48–56. doi:10.23965/AJEC.43.4.06.
- Vlasov, J., J. Salminen, L. Repo, K. Karila, S. Kinnunen, V. Mattila, T. Nukarinen, S. Parrila, and H. Sulonen. 2019. "Guidelines and Recommendations for Evaluating the Quality of Early Childhood Education and Care." *Finnish Education Evaluation Centre Publications* 5:2019.
- Waniganayake, M., J. Heikka, and L. Halttunen. 2018. "Enacting Pedagogical Leadership within Small Teams in Early Childhood Education Settings in Finland: Reflections on System-wide Considerations." In *Pedagogies for Leading Practice*, edited by S. Cheeseman and R. Walker, 147–164, Routledge.