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Early Childhood Teachers' Professional Learning and Development during the Homeschooling Period

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Abstract. The interpretation framework of our study is the professional development and learning: Postholm's definition of professional development, informal learning, the continuously professional learning defined by Szivák et al., mutual and cooperative learning. The central question of our empirical investigation was to what extent the practice of homeschooling during the pandemic can be framed as professional learning and development in the case of Hungarian early childhood teachers from Romania. We hypothesized that, despite the serious challenges of the pandemic, both practicing early childhood teachers and educational experts perceive and identify the elements of homeschooling which can also be framed as professional development and learning. The paper outlines the results of our empirical survey based on questionnaires and interviews. Our sample consisted of 403 early childhood teachers and 14 minority education experts resulting from convenience sampling. The investigation confirms that the picture of the continuously learning professional as an expectation of the teaching career is valid for (most) early childhood teachers. We found that the largest proportion of early childhood teachers proved in this period that they are open to new experiences and are capable of renewing procedural knowledge. In this period, professional learning received greater emphasis.

Keywords. professional learning and development, digital diet, online education, preschool education, homeschooling education

Introduction

Continuous development is a prerequisite for efficient work, irrespective of the field one activates in. The necessity of professional development is not defined only by the variables pertaining to the openness and personal needs of the individual but there are situations which make professional training and development a must.

One of such situations was early childhood education during the pandemic, restructured and forced into a novel learning environment. In this context, a flexible 'response' on the part of early childhood teachers proved to be essential. Flexibility and openness were important prerequisites, nonetheless, professional learning was the only way to successfully meet the challenge. This also served as a basis for their professional development in the aforementioned period. The current study investigates the extent, the areas, the particulars and motivators of early childhood teachers' professional learning and development in the homeschooling period.

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1. Theoretical background

The interpretations of professional learning and development provide the theoretical framework for our analysis. Postholm's definition of teacher's professional development serves as a starting point [1]. Given the specific nature of the situation under scrutiny, the focus is primarily on the options for implementing informal learning [2], with a special emphasis on the fact that, during the pandemic, teachers' professional learning and development saw a significant increase [3], in which mutual and cooperative learning were determining factors [4].

According to Postholm, teachers' professional development comprises learning which is meant to support pupils' learning [1]. This includes, on the one hand, teachers' own learning, on the other hand learning how to put their knowledge in practice. Learning may occur in various ways: participation in different courses and trainings; reflecting on own teaching; co-operation with colleagues and through the process of joint reflection/problem solving. Learning can occur in planned or unplanned conversations with parents or colleagues (e.g. in the breaks, before/after classes, in meetings with parents, or conversations following these, etc.). Thus learning may occur both formally and informally.

According to Szivák et al. investigating the teaching profession one would come across a modern, sometimes idealized pattern of the teaching profession, in line with international trends, in which the teacher is a self-reflective, motivated, problem solving professional, engaged in continuous education [5].

Teachers' learning can be interpreted as a process with the main aim of strengthening the ability to consciously manage professional practical knowledge, and of facilitating the development, sharing and dissemination of new knowledge. From the various forms of knowledge, tacit, procedural knowledge is considered more important, thus informal learning through practice becomes a high priority alongside knowledge resulting from this, which, from the point of view of managing classroom processes, can be considered profound knowledge facilitating the effectiveness of pedagogical processes.

Erika Kopp points out the fact that the concepts of "professional development" and "teachers' learning" direct attention to different issues, as the question arises whether professional development should include formal and informal learning, as well as the learning that occurs in the course of professional activity, or whether these should be interpreted as "learning" [2]. Fullan and Hargreaves' theoretical model in defines continuous professional development as the learning of teachers at the organizational level, while professional learning is defined as learning focused on the individual, learning something new in a less formal environment [2]. At the same time, since, in terms of topics, teachers' learning is closely connected to students' achievement, it also influences the way of thinking about the effectiveness of teacher learning. As a result, they proposed a new term: "professional learning and development". This emphasizes the importance of "collaborative professionalism" and places possible solutions for professional development along the two axes of professional development and teacher learning.

The first results from the OECD TALIS survey -investigating the resources for teachers' professional development - show that informal dialogues to improve teaching have the most decisive influence (91%), followed by courses and workshops, reading professional literature, attending educational conferences, etc [6].

Rapos et al. claim that, from the perspective of professional development, teachers play a key role in managing and organizing their own learning processes. Self-regulated teachers are proactive agents who take initiatives, create teaching practices that match their beliefs and proactively manage the elements of the learning environment [7]. They are decision makers,

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who reflect on their decisions, willingly, based on preliminary considerations, thus introspection and self-evaluation are critical factors, which might prompt teachers to modify, review and complement their knowledge of teaching and learning. When teachers recognize the learning situation, in many cases, they strive to achieve a high level of self-regulation as professional adult learners: they employ a large number of different activities and tools for their learning [7].

Rapos et al. define teachers' professional development and learning as a process at the individual level which [7]:

- is created as a result of a complex and dynamic interplay of personal and contextual (organizational and systemic; also determined by the characteristics of the task and work) and situational factors;
- its causes are diverse (internal or external motives, the teacher recognizes the need for change, based on the teacher's personal effectiveness criteria for teaching);
- takes place in individual and social situations, often unconsciously and unnoticed, i.e. it cannot be narrowed down to prescribed, intended professional activity in a narrow sense;
- brings a lasting and multidimensional change (in addition to changes in the teacher's behavioural/practical activity, it can also result in cognitive, affective and motivational changes)
- can be characterized by unique patterns (i.e., different change paths can occur, different paths can lead to the same learning outcome, and the same learning activity characteristics can act differently according to individual characteristics and context, leading to different outcomes);
- should be interpreted in the context of the teaching career as a whole.

B. Tier and Szegedi emphasize the importance of collaboration. They believe that static learning should be replaced by a new, dynamic approach to teaching and learning with and from each other, collaboration should take the place of secluded classroom activity [4].

According to Agnello, professional learning/development among teachers increased significantly during the pandemic. He found that this need surfaced among both debutant and experienced teachers to the same extent. At the same time, he also highlights the fact that teachers could decide which aspect of professional development to put more emphasis on, based on their learning needs, as teachers' and students' needs, rather than prescriptive nature, became determining factors [3].

2. The empirical research

The central question of our empirical investigation was to what extent the practice of homeschooling during the pandemic can be framed as professional learning and development in the case of Hungarian early childhood teachers in Romania. We *hypothesized* that, despite the serious challenges of the pandemic, both practicing early childhood teachers and preschool education experts perceive/identify the elements of homeschooling that can also be framed as professional development and learning.

In our correlational research, a self-constructed questionnaire served as a *research tool* for investigating early childhood teachers, while data from early childhood education experts was gathered with the help of a self-constructed structured interview.

Data was analysed using SPSS Statistics (frequency, mean, chi-square, analysis of variance, correlation, factor analysis) and we used content analysis for the interviews.

The **study sample** consisted of Hungarian early childhood teachers from Romania as well as early childhood education inspectors or methodologists.

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Using convenience sampling, the study was conducted on *423 early childhood teachers* (18.2% of the study population, 2324 individuals). The mean age was 40.3. As regards their professional experience, almost half of the sample has more than 20 years of experience, and all age groups were represented. Data was collected from all counties in Romania which use Hungarian as the medium of instruction in preschool education. More responses were received from block regions and competing regions, while dispersed settlements returned less questionnaires. However, for most counties, the number of questionnaires returned is proportional to the sampling pool.

Table 1: Research Sample

Variable		Individual	%
Type of settlement	Urban kindergarten	243	57.4
	Rural kindergarten	180	42.6
Type of institution	Kindergarten	161	38.2
	Day care centre	261	61.8
Language of instruction	Hungarian (exclusively minority)	222	52.6
	Hungarian, German (exclusively minority)	8	1.9
	Exclusively minority	*230*	*54.5*
	Hungarian, Romanian (mixed)	175	41.5
	Hungarian, German, Romanian (mixed)	17	4
	Mixed	*192*	*45.5*
Region	Szeklerland (HR, CV)	169	40
	Central Transylvania (CJ, MS)	117	27.7
	Partium (BH, SJ, SM)	101	23.8
	Dispersed (AB, AR, BC, BN, MM, SB, TM + B)	36	8.5
Total		**423**	**100%**

In addition to early childhood teachers, 14 *minority early childhood education experts* were also included in the investigation, based on the database provided by the Department of Minority Education. These were from Bacău, Bihor, Bistrița-Năsăud, Brașov, Alba, Hargita, Cluj, Covasna, Mureș, Maramureș, Satu Mare, Sibiu, Sălaj and Timiș counties as well as the capital city, Bucharest. All counties with Hungarian preschool institutions were represented in the study [8].

3. Research results

Research data is organized around four focal points: (1) the professional framing of homeschooling, (2) areas of professional development, (3) professional support and (4) the outcomes of professional development.

3.1. The professional framing of homeschooling

Asking early childhood teachers to provide an overall summary of the professional nature of kindergarten closures during the pandemic, we found that half of the examined subjects pointed out both positive and negative experiences (see fig. 1.). Considering the negative experienced we can speak of an unfavourable phenomenon, however, results also

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indicate an optimistic professional approach in the sense that teachers were able to identify positive aspects in this psychologically challenging period. They managed to identify professional advantages in a learning environment which was very different from preschool education and seemed to present only disadvantages. It is also encouraging that more than a third of the early childhood teachers had a generally positive view of this period, and the proportion of those who mentioned only negative things is rather insignificant.

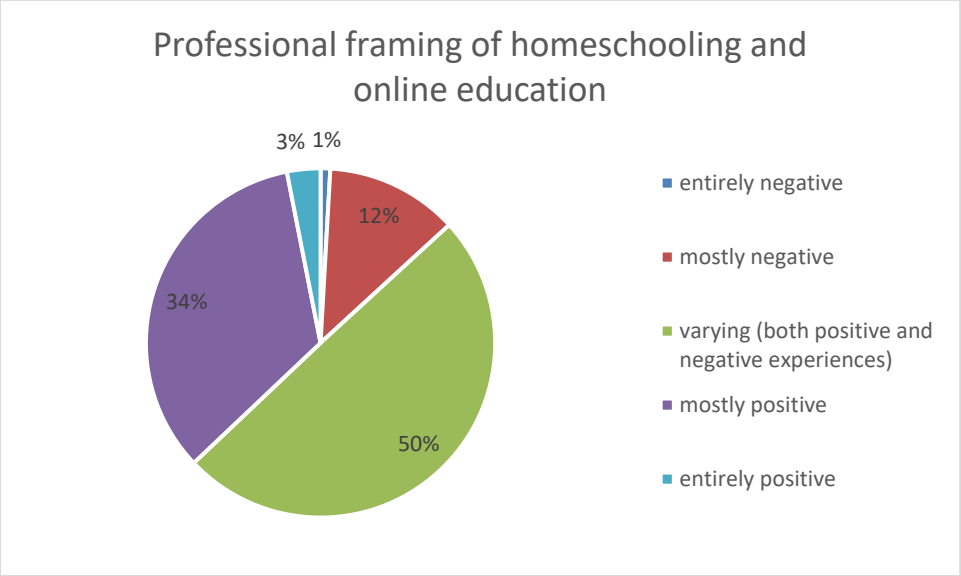

Fig. 1. Professional framing of homeschooling and online education

Early childhood education experts also pointed out that this period "*...was a necessary evil, but we passed the test*" (12th respondent). Professional development is intense but at the same time challenging: "*In terms of my self-development it was a very good period, but it was also very difficult, very busy, with very high expectation*s..." (10th respondent).

Early childhood teachers are aware of the fact that, besides the many difficulties and challenges, and in the course of responding to these, under the pressure of the new learning environment they experienced professional growth and gained new insights. The high average (3.8) used to frame the level of professional development achieved during the online education period also indicates this fact. As regards the type of settlement and type of institution, no significant differences were found. However, the language of instruction ($p^{*}<0.043$) and the region ($p^{***}<0.001$) variables showed significant difference: in mixed-language kindergartens, it was more often framed as professional development (3.88) than in exclusively minority-language kindergartens (3.7), while it was more deemed as such in Central Transylvania (4.03) and Szeklerland (3.71) than in the dispersed regions (3.58) and the Partium region (3.67).

3.2. Areas of professional development

As regards the areas of professional development, findings are in line with our expectations (see fig. 2). The most striking and radical development can be seen in the areas of digital competence (4) and digital pedagogical knowledge (3.9). Accordingly, digital knowledge and its pedagogical application, as well as learning about the applications and platforms serving as tools in the implementation (4) are at the top of the list of the areas of

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development with a significantly higher average than other areas (t= -3.73394, p= .000101; p < .05). At the same time, research participants reported a marked improvement in the field of professional collaboration, as well as in the area of enriching methodological knowledge. Though with a lower average (3.4), results also show a considerable change in the approach to education in this period.

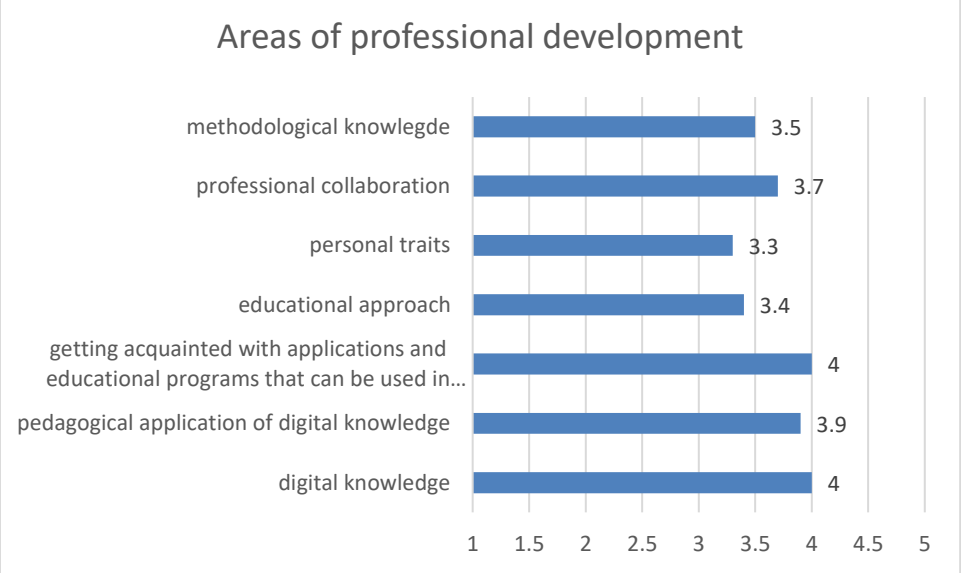

Fig. 2. Areas of professional development

Similar areas emerged from the answers provided by education experts: *"In the field of digital competences, in particular, no doubt they have improved a lot in this. Practically, in using online platforms and in choosing the right application or program that is suitable for preschool children. I think they have improved in maintaining contact with the family, that is, using new ways to keep in touch with the parents and the children as well. I think they had the opportunity to developed on an individual level, what I can think of is trying to find the right way in this new situation, that is, to re-evaluate everything that that has been so far and to adapt to the new situations. So, I think that it had to mean a complete redesign in terms of methodology, and certainly also in terms of work, to plan an activity online, without the tools that were available until then, without the realia, and everything they had used, and then redesign it at a level that is acceptable and understandable for the children*" (1st respondent).

Subjecting the data of the areas of professional development to factor analysis, three large groups of teachers emerge based on which area of professional development they chose as most typical during the homeschooling period. The first group includes teachers who experienced a *digitalization-cantered development*. They experienced the most important development in terms of digital competency elements, their application in a pedagogical context, and getting acquainted with content elements that can be used in a digitalized framework. At the same time, results show that the members of this group completely excluded the possibility of methodological development during homeschooling. The second group contains teachers showing an *individual-cantered development*. For these, the period under scrutiny brought about a change in the approach to education and the perception of personality traits. The third group is comprised of teachers showing a *profession-centred development.* They considered methodological enrichment and the strengthening of professional relationships

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as the most significant outcomes. The results clearly indicate that teachers belonging to the individual- or profession-centred group show the least development in terms of digital knowledge.

Table 2: Areas of Professional Development - Factor Analysis (Principal component analysis, Varimax, KMO=0.834; CM=85.73%)

	1.digitalization-centered development	2.individual-centered development	2.profession-centered development
Digital knowledge	.863	.286	-.006
Pedagogical application of digital knowledge	.896	.143	.245
Getting acquainted with applications and educational programs that can be used in early childhood education	.787	.202	.369
Educational approach	.291	.848	.285
Personality traits	.197	.882	.302
Professional collaboration	.211	.351	.856
Methodological knowledge	.249	.576	.638

3.3. Professional support

The need to carry out online activities presented practicing early childhood teachers with a completely new situation. Although it is far below the maximum value, the level of support experienced shows an above average value: 3.3, indicating that teachers were not left alone with solving the problem. The effectiveness of the support received was also rated very similarly. Support coming from superiors was rated 3.4, indicating that it did not provide a solution or a path to follow in every respect, but it certainly proved to be helpful and served as a point of reference in the process of getting started.

In what follows, we will provide an analysis of the points of reference teachers had in this new learning environment and to what extent these were in line with their professional needs.

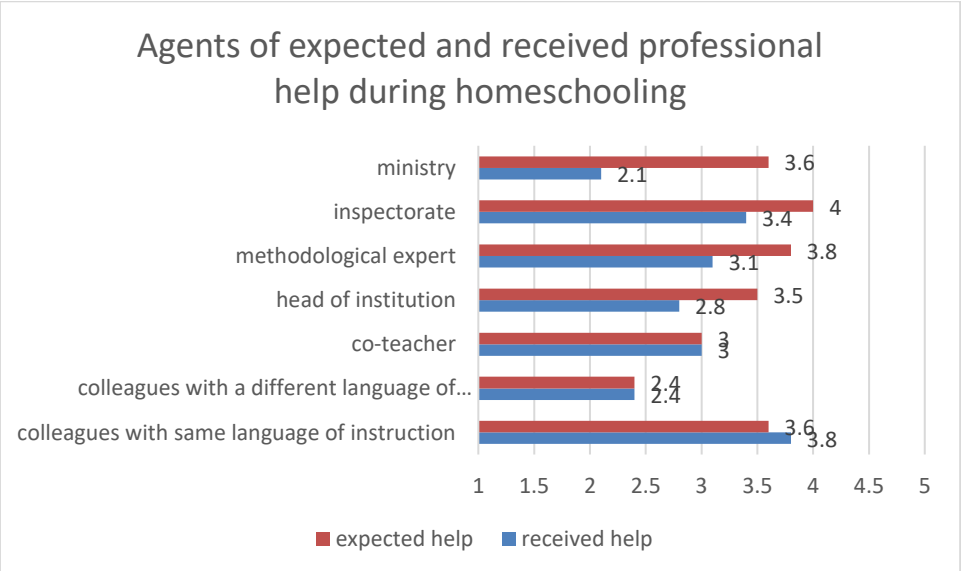

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Fig. 3. Agents of expected and received professional help

The above diagram shows the sources of professional help in the cross-section of needs and experiences. On the one hand, we investigated the extent to which the various agents providing potential help were involved in the support of everyday preschool educational practice, on the other hand, how congruent this was with the needs of practicing early childhood teachers. Early childhood teachers expected a considerable amount of help from superior bodies (inspectorates, methodological experts, the ministry, heads of institutions), but at the same time, they considered not only vertical relationships as a source of help but also the horizontal level, the cooperation with their colleagues.

This was also confirmed by expert interviews: "...*from the inspector. Together with my colleague, we dedicated a few afternoons to this...*" (12th respondent). *I didn't receive professional support, but I stayed up late on many occasions and took part in lots of training..." (*10th respondent).

Experiences show that they received the expected amount of help (high average value) from their colleagues, while the help from various levels of management was in all cases far below their expectations (with a significant statistical difference).

Table 3. Gaps in Terms of Sources of Help along the Lines of Expected and Received Support

Sources of help	t-value	significance level
Same language colleagues	2.693291	< .05*
Head of institution	-6.22812	< .00001***
Methodological expert	7.32887	< .00001***
Inspectorate	-7.28182	< .00001***
Ministry	-16.80181	< .00001***

Results show that this was a great opportunity for bottom-up initiatives and innovations. These individual or small community practices can be considered bottom-up innovations as they came as a response to the challenges threatening the existence of society, and these would not have come into existence without the community having learned to successfully face such threats [9]. In light of this, we can assume that it was the lack of help "from above" and the lack of "spoon-feeding" that brought forth the bottom-up initiative and provided an opportunity to experience professional creativity and professional self-efficacy. At the same time, it favoured the development of professional diversity, as it was not a given model and its nuances that emerged, but it rather opened the way for the development of many good practices.

Teachers' expectations as regards support proved to be just as strong in the case of the provision of tools and related know-how, as in the case of guidance on online education. In addition to these, they found it important to develop a kind of unified position related to the everyday practices of homeschooling, and they would have also welcomed ideas for an efficient cooperation with parents.

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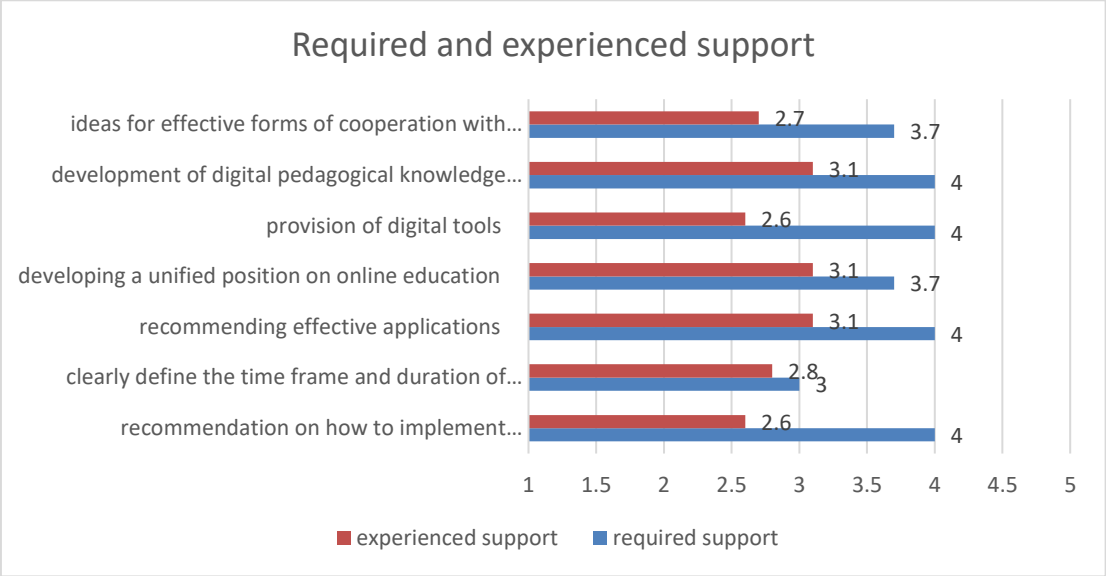

Fig. 4. Dimensions of expected and received professional help

Comparing and contrasting needs and experiences regarding the areas of support, we found that early childhood teachers required much more specific and direct help than what they experienced, as there is a significant difference between the expectations and the amount of help received in all dimensions (see table 5). Expectations and experienced help are closest to each other in terms of digital competence and the implementation of pedagogical knowledge.

Table 4. Gaps in Terms of Support Dimensions along the Lines of Expected and Received Support

Dimensions of support	t-value	significance level
a clear recommendation on how to implement competence development in the online space	16.61047	< .00001***
clearly define the time frame and duration of online meetings	-1.72768	< .05*
recommending effective applications	10.75914	< .00001***
developing a unified position, at least within the institution, on online education practices	-6.17098	< .00001***
provision of digital tools	14.8938	< .00001***
development of digital pedagogical knowledge	-11.15234	< .00001***
ideas for effective forms of cooperation with parents	11.82015	< .00001***

3.4. Professional outcomes of homeschooling

Examining the outcomes of homeschooling we found that teachers most strongly experienced the opportunities for professional development and the development of digital pedagogical knowledge, closely related to this. The mean values are significantly higher in these dimensions than in the other ones ($t=4.46793$; $p< .00001$).

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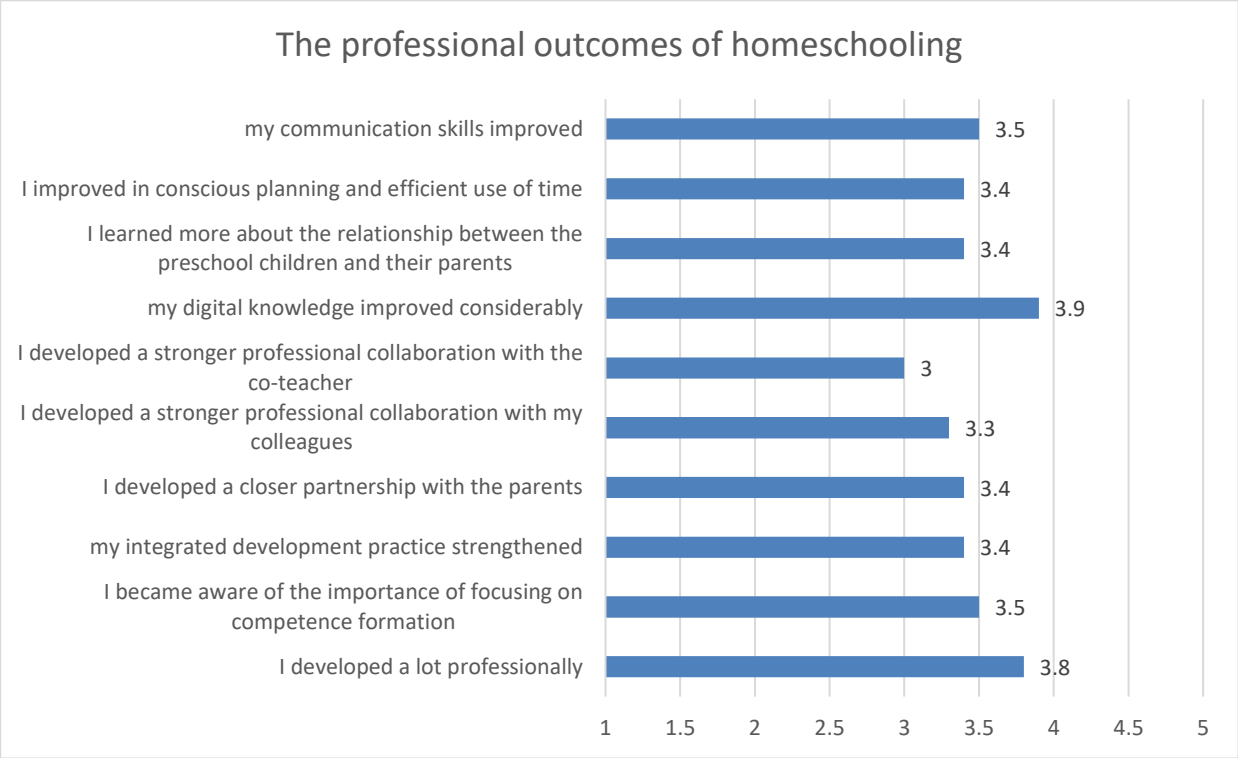

Fig. 5. Professional outcomes of homeschooling

Professional outcomes such as conscious planning and enhancing integrated and competence-oriented development reached the same level of significance. Strengthening partnerships, especially with parents and colleagues, also surfaced. In addition to these, personal development is also reflected in the series of outcomes in the form of communication skills development. Although overall it did not receive a low value, the strengthening of collaboration with the co-teacher has the lowest average value among the examined variables. This can also be explained by the fact that collaborating with the co-teacher is the default in day care centres, thus there must have been a strong collaboration even before the pandemic.

Using factor analysis, we condensed the results into five groups. The first, the *parent partner* group, includes those teachers who grasped the professional outcomes in the various nuances and possibilities of deepening the educational partnership with parents. A second group emerged along *practice orientation*. In the case of these teachers, professional development is the most important aspect, as they experienced and became aware of the need for competency-oriented and integrated development in preschool educational practices. The third group, dubbed *professional partners*, was also characterized by an emphasis on the need for cooperation, but in this case the focus was on collegial interdependence and on the benefits of building on shared knowledge and ideas. It was this group of teachers that was most aware of the potential of learning together and from each other and recognized the values inherent in this, which B. Tier and Szegedi define as an essential condition for continuous professional development [4]. The fourth, the *digital* group, found professional development a significant outcome, especially with regard to the use of digital tools and the pedagogical utilization of digital content. The fifth group, the *self-taught*, deemed the possibility of self-improvement as the most significant positive outcome, and the essence of professional learning-development is mostly contained in this. It is an interesting finding that the teachers belonging to this group

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consider their own professional development important, even at the expense of pushing collaboration with colleagues into the background.

Table 5. The Essence of Professional Learning- Development - Factor Analysis (Principal component analysis, KMO=0.917; CM=83.5%)

	1. parent partner	2. practice orientation	3. professional partner	4. digital	5.self-taught
I learned more about the relationship between the preschool children and their parents	**.856**	.146	.174	.189	.183
I developed a closer partnership with the parents	**.713**	.446	.072	.226	-0.045
my communication skills improved	**.544**	.434	.255	.162	.416
I became more aware of the importance of focusing on competence formation	.287	**.826**	.126	.250	.189
my integrated development practice strengthened	.454	**.723**	.151	.276	.074
I developed a stronger professional collaboration with my colleagues	.417	.428	**.629**	.060	.038
I developed a stronger professional collaboration with the co-teacher	.096	.052	**.923**	.204	.088
I developed a lot professionally (getting to know new websites, journals,	.086	.582	.138	**.687**	.148

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professional communities)					
my digital knowledge and its pedagogical use have improved considerably	.377	.200	.264	.756	.235
I was more involved in self-development, so I would also like to participate in organized training in order to develop my digital pedagogical competence	.126	.119	.058	.174	**.924**

Homeschooling and the online learning environment, as its component, had a positive effect on the emergence of the need for professional development, as the high average value (3.8) indicates that teachers ”*would also like to participate in organized training in order to develop their digital pedagogical competence*”. This is a very important message to educational institutions, as it indicates the openness of early childhood teachers and the need for their professional learning/development. Since a demand exists on the part of practicing teachers, it is the responsibility of training/further education institutions to provide the appropriate supply.

4. Conclusions

The results of our empirical research confirm that the picture of the continuously learning professional defined by Szivák et al. as an expectation of the teaching career is valid and it applies to (most) early childhood teachers, who, during the pandemic, undertook the seemingly impossible task with openness, and a problem-solving and solution-oriented attitude [5]. We found that the largest proportion of early childhood teachers proved in this period that they are open to new experiences and capable of renewing procedural knowledge. This also lends a very optimistic tone to our conclusions, as it reinforces the image of the teacher as a “continuously learning professional” - even if in this case the development/(self)development was triggered by circumstances.

Results also show that during this period, professional learning received greater emphasis, i.e. professional growth in a less formalized environment, characterized in particular by learning new things, all the more so as there was a large discrepancy between the professional support required and experienced by the teachers. In our understanding, this provided an opportunity for the emergence of bottom-up innovations as well [9].

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