

CONTENTS

- 1 Participation Opportunities for Children in Group Educational Settings: An Empirical Study of Participation as a Key Element of Inclusive Everyday Organization in Child Day Care Facilities**
Ina-Marie Abeck, Aljoscha Jegodtka, Corinna Schmude
- 10 The Importance of Early Childcare Teachers' Self-Efficacy Expectations for the Quality of Supportive Teacher-Child Interactions and the Frequency of Mathematical Activities**
Nadine Besser, Christine Kaiser, Dorothea Dornheim, Simone Lehl
- 20 Research Results as a Basis for Professionalization: Transfer and Practical Applications from the Point of View of ECEC Staff and Managers**
Katrin Lattner, Beatrice Rupprecht
- 29 Knowledge Transformation via Dialog: The Perspectives of Practitioners in Early Childhood Education**
Regine Schelle, Kristine Blatter

Participation Opportunities for Children in Group Educational Settings: An Empirical Study of Participation as a Key Element of Inclusive Everyday Organization in Child Day Care Facilities

Ina-Marie Abeck¹, Aljoscha Jegodtka^{2*}, Corinna Schmude¹

¹Alice Salomon University of Applied Sciences, Berlin 12627, Germany

²IU International University, Berlin 10247, Germany

**Corresponding author:* Aljoscha Jegodtka, aljoscha.jegodtka@iu.org

Copyright: © 2023 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract:

Participation is crucial in implementing inclusive education in daycare centers, as it ensures children's rights to self-determination and social engagement. This video study explores the morning circle as a regular educational group activity and a potential venue for participatory democracy in daycare routines. This study examines children's involvement and co-decision-making in these circles. The analysis reveals limited implementation of children's participation in morning circles, with educators rarely structuring decision-making to accommodate all children. Children often do not play a significant role in the decision-making process when they are involved.

Keywords:

Participation
Inclusion
Daily routine
Videography
Morning circle

Online publication: December 22, 2023

1. Introduction

The organization of everyday life in daycare centers plays a special role in the implementation of inclusion, as everyday life has a significant and lasting impact on children's experiences. It can currently be stated that inclusion situated in everyday life, i.e. the natural and non-discriminatory participation and participation of all children in everyday upbringing and educational processes, is not yet sufficiently realized in all daycare centers ^[1-3]. In

this context, participation emphasizes that children not only take part in everyday life but can also get involved and help shape it (Schmude & Pioch, 2014, p. 7).

The PIIQUE project — Pro Inclusive Interaction; Developing Quality Cross-Media is dedicated to this research desideratum and examines how inclusion can be lived as a matter of course in everyday daycare and how this knowledge can be made digitally accessible to early childhood education professionals. The project's

videographic study analyzes the interactions between specialist staff and children in the morning circle. The design of morning circles is understood as an opportunity for inclusive pedagogy integrated into everyday life in day-care centers.

The focus of the analysis is on participation in the sense of co-determination ^[4-5]. It examines the extent to which the morning circle is a participatory format and whether all children have the opportunity to participate in decision-making situations.

This article first categorizes participation as an important element for the implementation of inclusion in everyday daycare center life and looks at the morning circle as an everyday group educational setting. Building on this, the study of 22 morning circles shows how children are involved in decision-making situations in the morning circle. Finally, the article discusses the potential and further implications for the implementation of inclusive participation in the morning circle.

2. Understanding of inclusion

Inclusion is understood as a reform process for society as a whole, to realize the right of all people to participate in the sense of participation and empowerment, self-determination, and education ^[3, 6]. The PIIQUE project specifically examines the right of all children to inclusive education, care, and upbringing in terms of access, participation, and empowerment. An important element in this process is the participation of children. It enables participation and empowerment in everyday life when children can help shape it and make decisions on areas that affect them personally, their center or group, and the activities that take place here ^[7]. It is therefore about both participation and co-decision-making about life in the community, as well as the self-determination of each child about their own life ^[5, 8].

Participation in the sense of co-determination in a democratic community is also the goal and method of democratic education, which aims to impart basic democratic principles and values and the acquisition of democratic competencies ^[8]. Participation and co-decision-making are defined as different degrees of participation, which have already been systematized through various level models. These also take into

account the negation of co-determination and thus show the range from heteronomy to self-organization ^[5, 9]. Following the understanding of participation presented above, the subsequent analysis of the implementation of inclusion examines child participation at the interactional level between the professional and all children.

As a basic orientation for pedagogical action, participation implies that pedagogical professionals voluntarily relinquish power and want to involve children, because young children, in particular, can neither demand nor practically enforce the right to participation ^[8, 10]. They are therefore dependent on adults relinquishing decision-making power. Responsive, dialogue- and child-oriented behavior on the part of the educational professionals is important for this, through which they perceive the signals and needs of the children and consciously and responsibly open up decision-making opportunities and shape interactions ^[11]. The implementation of participation therefore takes place in particular in the professional actions of the professionals and can only be described as inclusive in a broad sense if the rights of all children are recognized. Accordingly, it is crucial for the performance of professionals that they consciously and inclusively organize their actions. This is also emphasized by the current results of the BiKA study — Participation in childhood for children under the age of three: So far, educational professionals have not been sufficiently successful in enabling children to experience self-determination and co-determination in their everyday work if they do not initiate decision-making processes on their initiative or react quickly to educational impulses that promote participation ^[11].

3. The morning circle as an inclusive everyday ritual?

In the vast majority of daycare centers, the morning circle is an integral part of the daily routine, in which all children in a group and early childhood educators participate ^[13-15].

In terms of co-determination, morning circles can represent an open format for participation in child daycare centers and consciously enable democratic co-determination processes if children can present their concerns and insights here, discuss them together, and

make decisions. This understanding of the morning circle can be found in education plans as well as in approaches to democracy education ^[8, 16–19].

To date, there have been very few empirical studies on the morning circle as a special early education setting, particularly in German-speaking countries ^[13]. The few studies that deal with the morning circle, among other things, only partially reflect an understanding of the morning circle as a format of open participation; the morning circle is predominantly analyzed as a community ritual that provides children with security, structure, and a sense of belonging ^[21–23].

Concerning children's opportunities for action in the morning circle, a Swiss study identified three central forms of child agency. The first form, being there, describes the children's physical participation in the morning circle. Joining in as the second form refers to the possibility of active participation in the form of playing along, singing, or choosing something, but without changing the course of the morning circle. The third form, influencing, means that children influence the course of the morning circle through their actions ^[22]. The latter emphasizes that the morning circle offers potential for genuine participation, in the sense of involvement and co-decision-making. At the same time, the study notes that in the morning circle format, children's forms of participation are sometimes strongly channeled and restricted so that the professionals can carry out their planned course of action undisturbed ^[22].

Regarding the participatory everyday culture, the analysis presented here also examines whether the morning circle format is designed in a participatory way by the specialist staff, i.e. whether the children are involved in the design and implementation of the morning circle and can influence it. To this end, the relevant decision-making situations in the morning circle are focused on. On the other hand, decision-making processes are examined that relate to the daily routine and coexistence in the daycare center and characterize the morning circle as a format of open participation.

4. Research methodology

4.1. Research questions

This study examines how children are involved in

decision-making situations in the morning circle. The focus is on decisions that affect all children present. It analyzes by whom and how decisions are made in the morning circle, which activities take place in the morning circle, how these activities are organized in concrete terms, and how the daily routine, the daily routine, and living together in the community are organized.

4.2. Sample and design

The research approach chosen is to analyze the situation using videography of documented, unstaged morning circles. Videography as a method aims to "investigate social situations" ^[24]. By allowing the observed situations to be viewed repeatedly, videography supports the reconstruction of social reality and the detailed analysis of interaction processes ^[24–25]. The data material comprises two morning circles of 11 educational professionals each, in which mainly children aged three to six years participate. The 22 morning circles of ten different groups of children were filmed between 2020 and 2021 in Berlin and Brandenburg.

The videography enables the systematic recording of the decision-making processes in the morning circle and the analysis of the participation of all participating children. On average, eight children took part in a morning circle (minimum = four children, maximum = 14 children). The ecological validity is ensured by a short interview (with the participating professionals ^[26–27]).

4.3. Evaluation method

The systematic analysis of the material is carried out using a structuring qualitative content analysis based on Mayring based on a theory-led coding guide ^[28–29]. The use of categories enables a comprehensible interpretation of the video material, allows all observations to be compared, and serves to systematize the findings ^[28].

The content analysis is computerized and carried out directly on the video material using MAXQDA software. To determine the intercoder agreement, a random sample of 27 percent of the morning circles ($n = 6$) was drawn at the end of the evaluation phase and checked by an external, trained expert. The average intercoder reliability according to Holsti is 0.89 with a range of 0.87 to 1 between the individual categories ^[30]. The other morning circles were coded by at least two researchers

from the project to further ensure the reliability of the data interpretation ^[28].

The units of analysis of the data material are all decision-making situations that are made for the group or day-care center community. These are differentiated according to whether they relate to the organization of the daily routine or togetherness or a change in the group activities that take place in the morning circle or their organization (**Table 1**). The group activities were determined in a preliminary analysis based on Burghardt and Kluczniok. An average of six activities took place in a morning circle (minimum = two activities, maximum = 13 activities).

For the evaluation of the collected data, a category system was developed deductively to summarize video sequences with similar meanings. To record the children's participation, a main category was developed based on the participation ladder by Wright et al. and the various participation levels for decisions in the morning circle were modified ^[9]. The level model has a hierarchical structure (**Figure 1**)

Stage model of participation



Figure 1. Children's participation category

Even in the preliminary stages of participation, children are already involved in the decision-making process. The individual sub-stages of the participation ladder correspond to the sub-categories of the coding guide. In the preliminary stages of participation, the stage pre-prepared participation was formed inductively from the material, as a recurring pattern was that the professionals allowed the children to choose between pre-prepared proposals and this could not be mapped directly; it is also recorded here whether the children are only asked for their consent, i.e. only answer yes or no, or can actually choose between two or more proposals.

Two formal categories record whether the specialist or a child initiates the decision-making situation or moderates the morning circle. Another formal-scaling category records how many of the children participate in decision-making processes. Finally, two analytical categories of decision-making power are used to analyze how decisions are made, which part of the children participate in the decision-making process, and who is allowed to decide which suggestion is implemented. In addition to individual children and professionals, the subcategories of the latter. According to Hansen et al., consensus and majority decision-making were adopted as common decision-making procedures in child daycare facilities.

5. Results

Overall, an average of five decision-making situations with child participation were recorded for a morning circle with a range of zero to 15 decision-making situations. The participation of children in the analyzed decision-making situations is shown in **Figure 2**.

Table 1. Analyzed decision-making situations in the morning circle

Decision-making situations	Changing activities	Organizing activities	Daily routine and living together
Definition	Situations that lead to the inclusion of a new group activity within the morning circle.	Situations that lead to group activity in the morning circle being done or changed in a certain way.	Situations in which decisions on the organization of the daily routine, everyday life, and living together in the community are discussed.
Coding example (from the research material)	The teacher asks the children if they want to say the poem from last week again. A few children answer yes or nod. They then read the poem.	The professional chooses a child who decides how all the children and the professional will move next in a game.	The teacher asks the group: Do you have any ideas about what else we can do on the subject of autumn? The children make various suggestions. The teacher makes a note of them.

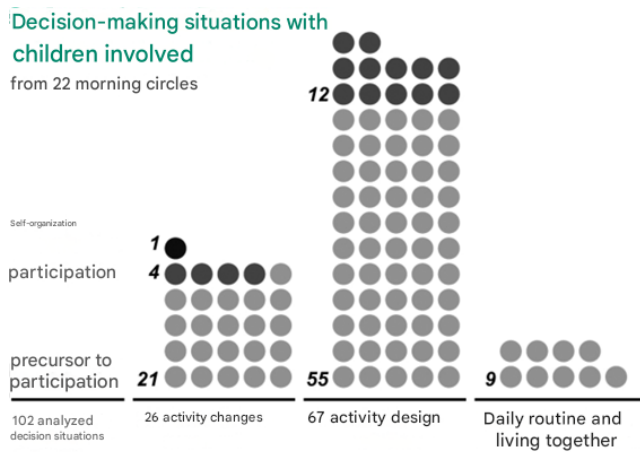


Figure 2. Evaluation of 102 analyzed decision-making situations with child participation in 22 morning circles

In 144 analyzed group activities, children were involved in 18.1% ($n = 26$) of the decision-making situations for changing activities. 80.8 % ($n = 21$) of these 26 decision-making situations could be assigned to preliminary stages of participation and 15.4 % ($n = 4$) to stages of participation. In 73.1 % ($n = 19$), the children were predominantly asked for their consent as to whether they wanted to do an activity.

A total of 67 decision-making situations with child participation were analyzed in the 144 group activities analyzed. Of these 67 decision-making situations, 82.1 % ($n = 55$) involved preliminary stages of participation and 17.9 % ($n = 12$) involved stages of participation.

It was only rarely observed that decisions were made about the daily routine and living together in day-care centers. In six morning circles, there were 11 decision-making processes regarding everyday life at the daycare center. Children's participation in preliminary stages of participation was observed in nine of the legs and the children were not involved at all in one.

Overall, for the 102 analyzed decision-making situations with child participation, the proportion of children who participated in the decision-making situations was 42.2% for one child (43 out of 102), 49.0% for a subgroup (50 out of 102) and 2.9% for all children (3 out of 102). When children took part in decision-making situations, 83.3 % of them (85 out of 102) did so, i.e. they initiated decision-making situations on their own initiative or responded to open questions posed to the whole group (**Figure 3**).

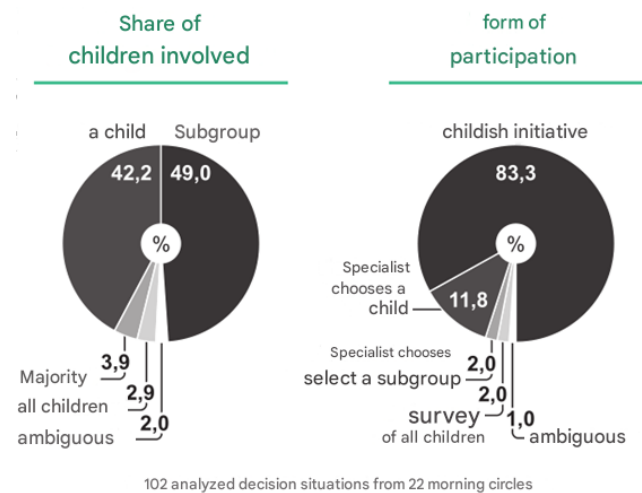


Figure 3. Proportion and form of children's participation

When children were involved in binding decision-making, which was the case in 17 decision-making situations, more than half of the decisions were made by one child ($n = 10$), 29.4 % were consensus decisions ($n = 5$) and 5.9 % were majority decisions ($n = 1$).

All morning circles were moderated by the specialist and the decision-making processes were predominantly initiated by them. The children were involved in 24 of the 30 decision-making situations initiated by children. Child participation was recorded here in 50.0% of all situations in the preliminary stages of participation (12 of 24) and 45.9% in stages of participation (11 of 24).

Overall, three forms of participatory decision-making situations were identified in the analyzed morning circles. Firstly, participatory decision-making situations are organized by the specialist. In four morning circles organized by four teachers, an average of one decision-making situation was specifically designed in a participatory way for all children. The children were mainly allowed to choose between suggestions made by the specialist. Two of the professionals paid attention to whether all children wanted to participate. Secondly, an openness to decision-making situations initiated by children was observed. For five professionals, decision-making situations initiated by children led exclusively to children's participation in the decision-making situations. In two morning circles organized by two teachers, the children were also able to initiate and (co-)determine at least three decision-making situations. Thirdly, there was a tendency to organize participation by asking the children for their consent to a decision; in nine morning

circles run by six teachers, the children were asked at least three times.

Overall, mainly preliminary stages of participation were identified in the decision-making situations with child participation; in addition, there were fewer than three decision-making situations with child participation in five morning groups of five professionals, i.e. overall few opportunities for children to participate.

6. Discussion

The morning circle as an everyday group educational ritual can offer the opportunity, regardless of the chosen topic, to consciously organize it as a place for exchange and democracy education and thus enable children to participate in and give back to the daycare center. It would also be possible for children to participate in the selection and organization of activities at any time. In particular, recurring processes in a familiar setting would allow children to draw on existing contextual knowledge when making decisions and develop this further based on experience.

The present study shows that the morning circle tends to be a ritual moderated and led by the specialist with only partial opportunities for the children to have a say. The morning circle does not represent a format for open participation, as it is not primarily used to discuss everyday life at the daycare center with the children and to make decisions together. Instead, various group activities take place, most of which are planned and organized by the specialist. The results thus tie in with the current state of research on morning circles in German-speaking countries ^[13, 31]. The gap in the realization of the claim of inclusive participation visible in this study is reinforced by the fact that all children are rarely specifically enabled to participate if they want to, to make access to participation as barrier-free as possible.

From the perspective of a participation-oriented, inclusive everyday organization, the question of children's opportunities for co-determination is also relevant if group educational settings in daycare centers are not a format for open participation, as decisions on joint activities are also made in morning circles that focus on joint group activities, such as in this study. This raises the further question of discussion.

The morning circle as an everyday group pedagogical ritual can offer the opportunity, regardless of the chosen topic, to consciously organize it as a place of exchange and democracy education and thus enable children to participate and give back in the day-to-day life of the daycare center. It would also be possible for children to participate in the selection and organization of activities at any time. In particular, recurring processes in a familiar setting would allow children to draw on existing contextual knowledge when making decisions and develop this further based on experience.

The present study shows that the morning circle tends to be a ritual moderated and led by the specialist with only partial opportunities for the children to have a say. The morning circle does not represent a format for open participation, as it is not primarily used to discuss everyday life at the daycare center with the children and to make decisions together. Instead, various group activities take place, most of which are planned and organized by the specialist. The results thus tie in with the current state of research on morning circles in German-speaking countries ^[13, 31]. The gap in the realization of the claim of inclusive participation visible in this study is reinforced by the fact that rarely are all children specifically enabled to participate if they want to, to make access to participation as barrier-free as possible.

From the perspective of a participation-oriented, inclusive daily routine, the question of children's opportunities for co-determination is also relevant if group educational settings in daycare centers are not a format for open participation, as decisions on joint activities are also made in morning circles that focus on joint group activities, such as in this study. This raises the further question of which and how these decision-making situations in the morning circle are organized in such a way that children can participate in them. In this respect, the form of organizing children's participation by asking for their consent can tend to be assessed as an ambivalent participation practice. It can be assumed that the inquiry is linked to the expectation of the professionals that the children will affirm it. This assumption was confirmed by observed decision-making situations in which the children expressed that they did not want to do it by saying no, but the professional ignored this and continued

with the planned procedure. This form of participation can therefore be interpreted as a method of mobilizing and activating the children for the planned process rather than as genuine participation.

Concerning the inclusive organization of participation, the results are similar to those of the BiKA study for the crèche sector. This means that children who do not initiate decision-making situations of their own accord or respond immediately to open questions from the professional also tend not to be able to participate in the elementary sector analyzed here. The research shows a difference between self-confident children who can take the initiative and others who cannot. The former often applies to children who are socially advantaged and can articulate their interests at an early age ^[32]. It is therefore important to counteract the one-sided influence of only some of the children so that social inequalities are not already reflected in the conditions of participation in everyday daycare center life ^[12].

On the other hand, decision-making situations initiated by children often lead to children participating in decisions. This indicates that professionals are quite willing to relinquish power and involve children and are open to signals from children, but that professionals are less likely to organize decision-making situations in a participatory manner on their initiative. It also emphasizes, just like the decision-making situations that professionals specifically designed in a participatory way for all children, that it is possible to open up space for

child participation and giving in the morning circle.

However, the theory-led evaluation based on the participation ladder by Wright et al. allows the researchers to summarize that the children's influence on the decision-making situation is rarely binding and that there are few situations in which the children and the professional can agree together or decide what to do together. Given the demand for an inclusive and participation-oriented organization of everyday daycare and the requirements of educational programs and democracy education, there is a difference between normative expectations of professional action and actual action in everyday daycare.

Against the background of the results, a need for sensitization about a participation-oriented, inclusive everyday design of recurring group educational settings becomes clear at this stage of the evaluation. Regarding the theoretically postulated importance of the morning circle as a possible place for democracy education and a format for open participation in everyday daycare center life, however, there are also possible

points of departure for the professional development of the morning circle format. In addition to the consciously participatory organization of decision-making processes in the day-care center routine on the part of the educational staff, the promotion, and encouragement of all children to participate, regardless of whether children initiate the decision-making situations themselves, appears to be particularly important.

Disclosure statement

The authors declare no conflict of interest.

References

- [1] Seitz S, Ali-Tani C, Joyce-Finnern NK, 2021, Inclusion in Kitas. Basics and Key Issues. Beltz Juventa, Weinheim.
- [2] König A, 2020, Changing Meanings of the Day Care Center. Cultural Learning as the Basis for Inclusive Early Education, in Inclusion in Day Care Centers, An Early Education of Diversity. Kohlhammer, Stuttgart, 16–30.
- [3] Heimlich U, 2019, Inclusive Pedagogy. An Introduction. Kohlhammer, Stuttgart.
- [4] Michell D, 2019, Democracy Needs Rules — Foundations for Democracy Education in Daycare Centers, in Democracy Education in Day-care Centers. Participation from the very Beginning. Barbara Budrich, Opladen, 12–23.
- [5] Schroder R, 1995, Children have their Say! Participation in Urban Planning and Urban Design. Family Guide. Beltz, Weinheim.
- [6] Schmude C, Pioch D, 2014, The Key to Good Education, Upbringing and Care — Inclusive Daycare Centers! Inclusive

- Child Day Care - Nationwide Assessment and Far-Reaching Needs for Action; Research Report. The Paritätische Gesamtverband, Berlin.
- [7] Prengel A, 2016, Educational Participation and Participation in Child Day Care Centers. An Expertise of the Further Education Initiative for Early Childhood Professionals (WiFF). WiFF Expertise Volume 47. Deutsches Jugendinstitut, Munich.
- [8] Hansen R, Knauer R, Sturzenhecker B, 2015, Participation in Day Care Centers. How Democracy Education Succeeds with Children! Das Netz, Berlin.
- [9] Wright MT, von Unger H, Block M, 2010, Participatory Quality Development — A Definition, in Participatory Quality Development in Health Promotion and Prevention. Hans Huber, Bern, 35–52.
- [10] Wyrobnik I, Krause S, 2016, Empowering Children through Participation, in How to Empower a Child. A Handbook for Daycare Centers and Families. Vandenhoeck & Ruprecht, Göttingen, 119–130.
- [11] Hildebrandt F, Walter-Laager C, Floter M, et al., 2021, Final Report on the BiKA Study. Participation of Children in Everyday Daycare. https://www.fruehe-chancen.de/fileadmin/PDF/Fruehe_Chancen/Bika_Studie_FH_Potsdam/Bika_Final_Report-web.pdf
- [12] Wagner P, 2012, Theses on the Relationship between Inclusion and Participation. Documentation of the Inclusion Construction Site — Recognising Children’s Participation Rights, Strengthening Participation Skills, Ensuring Access to Participation. https://baustelle2012.kinderwelten.net/content/vortraege/pdf/2-Beitrag_Wagner.pdf
- [13] Burghardt L, Kluczniok K, 2020, The Morning Circle in Day Care Centers — Investigations of an Everyday Pedagogical Setting. *Discourse on Childhood and Youth Research*, 15(3): 286–300.
- [14] Collins B, 2013, Empowerment of Children through Circle Time. Myth or Reality? *Irish Educational Studies*, 32(4): 421–436.
- [15] Zaghawan HY, Ostrosky M, 2011, Circle Time. An Exploratory Study of Activities and Challenging Behaviour in Head Start Classrooms. *Early Childhood Education Journal*, 38(6): 439–448.
- [16] Berlin Senate Department for Education, Youth, and Science, 2014, Berlin Education Programme for Kitas and Child Day Care. Das Netz, Weimar.
- [17] Thuringian Ministry of Education, Science and Culture, 2011, Thuringian Education Plan for Children Up to the Age of 10. Das Netz, Weimar.
- [18] Braun D, 2019, Creativity Promotes Democracy, in *Democracy Education in Child Day Care Centers. Participation from the very Beginning*. Barbara Budrich, Opladen, 161–171.
- [19] Maywald J, 2019, Children’s Rights and Democracy Education: Realising the Children’s Rights Approach in Daycare Centers, in *Democracy Education in Child Day Care Centers. Participation from the very Beginning*. Barbara Budrich, Opladen, 35–63.
- [20] Stenger U, 2020, Phenomenological Analyses of the Constitution of Belonging with a Comparison of Russian and German Morning Circles in Daycare Centers, in *Zugehörigkeit. Bildungsphilosophische Reflexionen und machtheoretische Studien*. Beltz Juventa, Weinheim, 228–246.
- [21] Nentwig-Gesemann I, Walther B, Thedinga M, 2017, KitaQualität aus Kindersicht - die QuaKi-Studie. Available at https://www.qualitaet-vor-ort.org/wp-content/uploads/2017/07/2017_07_27_QuaKi_Abschlussbericht.pdf
- [22] Hekel N, Neumann S, 2016, Being There, Participating, Influencing. A Look at Children as Actors in Everyday Childcare. *Theory and Practice of Social Pedagogy*, 2016(10): 22–25.
- [23] Kuhn M, 2011, Professionalism in Kindergarten. An Ethnographic Study on Elementary Education in the Migration Society. Springer VS, Wiesbaden.
- [24] Tuma R, Schnettler B, 2019, Videography, in *Handbook of Methods of Empirical Social Research*. Springer Fachmedien,

Wiesbaden, 1191–1202.

- [25] König A, 2013, Videography, in Handbook of Early Childhood Educational Research. Springer VS, Wiesbaden, 817–829.
- [26] Döring N, Bortz J, 2016, Research Methods and Evaluation in the Social and Human Sciences. Springer textbook (5th ed.). Springer, Berlin. <http://dx.doi.org/10.1007/978-3-642-41089-5>
- [27] Helfferich C, 2011, The Quality of Qualitative Data. Manual for Conducting Qualitative Interviews. VS Verlag für Sozialwissenschaften, Wiesbaden. <http://dx.doi.org/10.1007/978-3-531-92076-4>
- [28] Mayring P, 2015, Qualitative Content Analysis. Basics and Techniques (12th ed.). Beltz Pädagogik, Weinheim.
- [29] Mayring P, Glaser-Zikuda M, Ziegelbauer S, 2005, Analysing Video Recordings with the Help of Qualitative Content Analysis — An Example from Classroom Research. MedienPädagogik: Journal for Theory and Practice of Media Education, 2005(9): 1–17.
- [30] Holsti OR, 1969, Content Analysis for the Social Sciences and Humanities. Addison Wesley, Reading.
- [31] Neumann S, Hekel N, 2016, From Wanting to Want, being Allowed and (not) Having to. Participation and Agency of Children in Everyday Childcare. Children, 2016(98): 95–102.
- [32] Hildebrandt F, Walter-Laager C, Flöter M, et al., 2020, Short Report on the BiKA Study. Participation of Children in Everyday Daycare. https://www.kompetenznetzwerk-deki.de/fileadmin/user_upload/BiKA_Kurzbericht.pdf

Publisher's note

Whioce Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

The Importance of Early Childcare Teachers' Self-Efficacy Expectations for the Quality of Supportive Teacher-Child Interactions and the Frequency of Mathematical Activities

Nadine Besser^{1*}, Christine Kaiser¹, Dorothea Dornheim¹, Simone Lehl²

¹The University of Bamberg, Bamberg 96047, Germany

²University of Education Weingarten, Weingarten 88250, Germany

**Corresponding author:* Nadine Besser, nadine.besser@uni-bamberg.de

Copyright: © 2023 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract:

Dispositional characteristics of early childcare teachers, such as self-efficacy expectations (SE), play an important role in realizing effective teacher-child interactions, which in turn are related to child development. However, the findings for children in daycare centers are sparse, especially about the importance of domain-specific SE. This study therefore investigated relationships between global and domain-specific SE and the realization of global interaction quality as well as the frequency of domain-specific mathematical activities. As part of the EarlyMath study, 92 educational professionals were rated on their interaction quality. In addition, they were asked about the frequency of mathematical activities and their pedagogical and mathematical SE. A positive relationship between mathematical SE and the frequency of mathematical activities was found. The implications of these findings are discussed.

Keywords:

Early childcare teachers
Interaction quality
Self-efficacy expectations
Mathematics

Online publication: December 22, 2023

1. Introduction

Against the backdrop of the expansion of institutional education, upbringing, and care for children under the age of three, there is an increasing focus on the quality of these facilities ^[1]. The connection between a high quality of stimulation in daycare centers and child development is well documented ^[2-3]. However, research

indicates that the quality of interaction in Germany can only be classified in the medium quality range on average for both the over-threes (U3) and under-threes (U3) age groups ^[4-8]. For area-specific aspects such as language/literacy and maths, the quality is even more in the minimal quality range ^[6]. Models of professional competence development generally assume

that characteristics on the part of the professional play a central role in the realization of successful professional-child interactions^[9–11]. A distinction is made between characteristics at the dispositional level (knowledge, situation perception and analysis, motivation and action potential/social skills) and performative level (action planning and willingness to act, action in the situation, analysis, and evaluation), which in turn are based on a professional attitude (action-guiding orientations, values, and attitudes)^[11]. Dispositional characteristics have an effect on the characteristics at the performative level according to the model, which in turn has a feedback effect via analysis and evaluation^[12]. Therefore, characteristics on the part of the professionals and the institutions are the focus of research interest to identify those conditions that are related to stimulating interactions in general and in specific areas such as language or maths^[12]. In particular, competence facets of professionals are discussed, which include motivational factors such as self-efficacy expectations (SWE)^[13–14]. According to the competence model by Fröhlich-Gildhoff et al., SWE can be regarded as a component of professional competencies at a dispositional level^[11]. These have been shown, for example, to be a positive predictor of the quality of written language stimulation for children in the U3 sector^[15–16]. A distinction is made between general (relating to all areas of life) and area-specific (e.g. occupational activity) SWE, the specific significance of which has, however, been little investigated in the U3 area^[17]. Building on this, the present study distinguishes between occupation-specific (pedagogical) and domain-specific (mathematical) SWE and examines the relationship between SWE of professionals in relation to the design of global and domain-specific mathematical professional-child interactions in nurseries.

2. Educational quality in daycare centers

Quality in child day care centers can be described as a multidimensional construct that includes the facets of orientation quality (e.g. self-efficacy expectations), structural quality (e.g. staffing ratios), and process quality (e.g. professional-child interactions, joint activities), whereby the latter can be further differentiated

into global (e.g. general social-emotional support) and area-specific (e.g. mathematical stimulation) aspects^[18–19]. A central assumption is that characteristics of the structures and orientations influence the processes that are realized and that these in turn have an effect on the child's development^[19]. Everyday interactions between professionals and children can be regarded as key situations concerning process quality in daycare centers^[20]. Central to this is how sensitive professionals organize these interactions and the extent to which these interactions stimulate thinking and support learning^[21–22].

Accordingly, La Paro et al. differentiate between emotional and behavioral aspects of support as well as active learning support^[22]. Emotionally supportive interactions, which are characterized by emotional warmth and a sensitive approach to the child's needs, are regarded as the basis for learning-supportive behavior, which includes the stimulation of cognitive skills^[23]. Accordingly, groups with a high quality of interaction are characterized by warm interactions, positive behavior management, and active learning support, in which the professionals meet the children at eye level, accept their emotions, follow the children's interests, and support them in their thinking and actions in terms of the zone of next development^[23]. In addition to this rather global conception of interaction quality, additional area-specific aspects of interactions can be considered, which in the area of maths relate to the frequency of mathematical activities, e.g. comparing quantities, counting, or dealing with sizes^[24]. This shows that children who were encouraged more frequently to compare shapes or sizes, for example, demonstrated higher mathematical competencies than children with whom the mathematical activities were carried out less frequently^[24–25].

3. Self-efficacy expectations (SWE) of educational professionals and their significance for interaction quality

SWE is defined as a person's subjective convictions that they can master difficult or new situations with the help of their competencies^[26]. Profession-specific SWE describes assumptions of early childhood education professionals about their abilities to act in their everyday practice^[27]. The few findings on

occupation-specific SWE of early childhood educators point to high occupation-specific SWE both nationally and internationally ^[15, 27–29]. Further evidence suggests that job-specific SWE and global interaction quality are positively related ^[14, 28]. However, some of the correlations only exist for certain areas of the CLASS quality dimensions, such as emotional and behavioral support or the organization of everyday life, an area that is recorded for children from the age of three ^[30–31]. There are only a few findings on the connection between the SWE of educational professionals and the area of active learning support. Wolstein, for example, reports a relationship between SWE and active learning support that was moderated by professional perception and additionally controlled for professional experience and professional knowledge. Another study by Todd Brown reports no correlation between profession-specific SWE and professional-child interactions. Although the educational professionals rated their job-specific SWE as high, which in turn was positively related to their beliefs about what they considered to be important areas of development in early mathematical competencies, no significant correlation was found with the observed mathematical interactions ^[29].

SWE can also be considered in terms of specific areas. Mathematical SWE describes how competent professionals feel in maths teaching-learning situations ^[32]. This has hardly been researched for early childhood education professionals, particularly in day nurseries. In the U3 sector, there is evidence of both high and low mathematical SWE among educational professionals ^[33–34]. MacDonald was able to show initial evidence of high mathematical SWE among early childhood educators in Australia, particularly in the crèche sector ^[35]. For example, the vast majority of professionals stated that they felt very confident in planning (88.8% agreement) and implementing (90.1% agreement) mathematical learning experiences with young children. This is surprising in light of the studies that tend to indicate unease among educational professionals with mathematical content ^[36]. The evidence of the connection between mathematical SWE and the quality of mathematical interaction is sparse. For the natural sciences, there are indications that area-specific SWE is positively related to area-specific teacher-

child interactions ^[13]. According to this, professionals with high science SWE carried out science activities significantly more frequently than professionals with lower science SWE. A study by Zhu et al. reports that the mathematical SWE of educational professionals in the U3 sector influenced their interactions with children during play with building blocks ^[37]. In addition, mathematical SWE mediated the positive correlations between the constructivist beliefs of the professionals and child-centered interactions. Studies in the U3 sector that investigated relationships between mathematical SWE and mathematical professional-child interactions could not be identified.

Based on these inconsistent findings, this article examines the relationships between SWE (job-specific and mathematical) with the global quality of interaction and the realization of mathematical activities among early childhood education professionals. The question of whether there are correlations between the two dimensions of global interaction quality, the frequency of mathematical activities, and the area-specific and mathematical SWE of early childhood education professionals in day nurseries is investigated.

4. Method

4.1. Sample and procedure

This study is part of the “EarlyMath” intervention study, which has been analyzing $N = 95$ crèche groups from the Franconia region and the greater Munich area in a 2-cohort design since 2020 (intervention period: Cohort 1 ($N = 50$: 12 / 2020 to 04 / 2021), Cohort 2 ($N = 45$: 03 / 2022 to 06 / 2022)). One specialist and an average of 4 children took part per daycare center. For the present analyses, data from the pre-test of both cohorts (cross-section) were used and those cases excluded in which the observation of the quality of interaction with the CLASS-Toddler was not available and/or the information on the activities and the SWE was missing ($N = 3$). The final sample comprises 92 early childhood education professionals (cf. Electronic Supplement ESM 1, Tables E1–E2). The average age of the early childhood education professionals was 36.21 years ($SD = 11.05$ years) and their mother tongue was predominantly German (81.1 %). 95.6 % of the professionals were

female (4.4 % male). The most frequently cited professional qualification was training as an educator (65.6%). The other qualifications were academic (23.3 %), child care (10.0 %), and trainee (1.1 %). On average, the professionals had 10.19 years of professional experience (SD = 7.97 years).

4.2. Survey instruments and analysis methods

4.2.1. Self-efficacy expectations

The items on the job-specific SWE scale (five items; Cronbach's $\alpha = .71$) were based on Oppermann et al. in terms of language and on the scaffolding concept in terms of content and reformulated for the specific project (e.g. "It is easy for me to encourage the children to think further by asking specific questions or making comments")^[38–39]. The mathematical SWE scale (five items, Cronbach's $\alpha = .82$) is a scale developed by the "EarlyMath" project based on Oppermann et al., e.g. "I am confident that I can use everyday situations to stimulate mathematics"^[40]. The assessments of the SWE were recorded on a 4-point Likert scale (1 = "strongly disagree" to 4 = "strongly agree"). The items for both SWE scales and the maths activities can be found in ESM 1 (Tables E3–E5).

4.2.2. Interaction quality

The present study uses the Classroom Assessment Scoring System-Toddler, which measures the global quality of professional-child interactions in children aged 15 to 36 months by observing group activities. The dimensions of Emotional and Behavioral Support (EVU) and Active Learning Support (AL) are rated by certified observers on a scale of 1 to 7; a higher number indicates higher quality.

The frequency of mathematical activities, as a catalyst for mathematical interaction quality, was recorded using 12 items (1 = "Rarely/Not at all" to 7 = "Several times a day") and is based on the NEPS study and the BIKS study^[41–44]. The internal consistency of this scale is also satisfactory (Cronbach's $\alpha = .75$). An example item is: "How often is counting done with the children in everyday life (e.g. children in the morning circle, fingers)."

4.2.3. Control variables

As previous findings show correlations between the quality of interaction professional experience and professional qualification, the influence of these variables is controlled for in the regressions^[45].

4.2.4. Statistical analyses

Three linear multiple regression models were calculated using the statistical program R (version 4.1.1) and the lavaan package to investigate the correlations between the interaction quality of early childhood education professionals and their profession-specific and mathematical self-efficacy expectations^[46]. Individual missing values were analyzed using the full information maximum likelihood (FIML) method. First, the models for the two self-efficacy scales were analyzed separately. To be able to make statements about whether job-specific and area-specific self-efficacy expectations make their specific explanatory contribution, both scales were then included in a joint model. As the results of the three regression models do not differ significantly, only the final model is reported below. The other two regression models can be found in ESM 1, Table E6. The standard test statistic requirements for conducting regression models showed that there was no multicollinearity (Tolerance > .10; VIF < 10, 2017; $r > .85$)^[47–48]. It can also be assumed that homoscedasticity is present, as the residuals were normally distributed and independent of each other (Durbin-Watson test 1.688 - 2.506).

5. Results

Overall, educational professionals have high to very high self-efficacy expectations, whereby the profession-specific ($M = 3.64$, $SD = 0.35$) is slightly higher than the mathematical self-efficacy expectation ($M = 3.19$, $SD = 0.50$). The maths activities are carried out on average once a week ($M = 4.43$, $SD = 0.89$). Concerning the global quality of interaction, early childhood educators show a qualitatively high level of emotional and behavioral support ($M = 5.32$, $SD = 0.58$) and a medium level of active learning support ($M = 3.23$, $SD = 0.69$) (see **Table 1**, for further descriptive results and intercorrelations, see also ESM 1, Tables E7 and E8).

In the regression model, the correlations between

Table 1. Regression model (3) of job-specific and mathematical self-efficacy expectations on global interaction quality and mathematical activities

Model 3						
	Interaction quality					
	Global				Mathematical	
	EVU		AL		HmA	
	β	(SE)	β	(SE)	β	(SE)
Self-efficacy						
Occupation-specific	.07	(.22)	.10	(.27)	-.09	(.31)
Mathematical	.07	(.15)	.12	(.18)	.42 ***	(.21)
Control variables						
Highest vocational qualification	.31 ***	(.11)	.21 *	(.09)	.01	(.11)
Professional experience in daycare centers	-.10	(.01)	-.01	(.01)	.21 *	(.01)
Model quality						
R ²	.11		.08		.19**	

the occupation-specific and mathematical SWE with the two CLASS areas and the frequency of mathematical activities are analyzed. There are no significant correlations between the SWE (occupation-specific and domain-specific) and the two CLASS domains. However, these are predicted by the highest professional qualification of the professionals (emotional and behavioral support: $\beta = .31$, $p < .001$; active learning support: $\beta = .21$, $p < .010$). The area-specific SWE ($\beta = .42$, $p < .001$) and the professional experience of the early childhood education professionals ($\beta = .21$, $p < .050$) proved to be significant predictors of the frequency of mathematical activities. The higher the mathematical SWE of the professionals and the greater their professional experience, the more frequently they carry out mathematical activities in the daycare center and vice versa.

6. Discussion

In this article, relationships between SWE as a facet of orientation quality and aspects of process quality for the pedagogical and mathematical areas in nurseries were investigated. The high quality of emotional and behavioral support found and the comparatively lower quality of active learning support, as dimensions of

global interaction quality at an intermediate level, are consistent with the findings from previous research in the U3 sector ^[49–50]. According to this, the professionals succeed in creating a group climate that is characterized by close and warm interactions, in which the professionals meet the children at eye level, perceive their needs, and stimulate the children's thinking and learning. However, neither the profession-specific nor the mathematical SWE are related to the two dimensions of global interaction quality. At first glance, this appears to contradict previous findings from daycare centers ^[14, 28]. However, it should be noted that these correlations mostly relate to the area of organization of everyday life, a sub-area that does not exist in the CLASS Toddler and which could not be investigated in the present study. It therefore remains open for the nursery sector whether SWE is related to other global quality facets, such as the organization of everyday life. In addition, a more recent study by Reyhing and Perren indicates that the correlations between SWE and process quality in crèches may be influenced by the situation in which the quality was recorded (e.g. group size, mealtime or free play situation) and therefore provide contradictory results in some cases ^[51]. Further analyses, taking into account the observation situation, could promise deeper insights here. The correlations between the global quality of interaction

and professional experience can also be found in other studies ^[52–53]. According to this, professionals are better able to create high-quality emotional and behavioral support as well as active learning support in the groups if they have been working in childcare facilities for a longer period.

The frequency of mathematical activities was used as a catalyst for interaction quality in the area of mathematics in this study. Overall, this confirms the trends of previous study results, which found a low to medium level of quality in the area of maths and thus indicate a potential for improving mathematical stimulation in childcare centers ^[54–55]. At least for some specific activities in the areas of space and shape as well as quantities and measurement, educational professionals seem to be able to integrate these more frequently into everyday life ^[56]. One possible explanation for this could be that teachers may find it difficult to recognize mathematical potential in everyday situations and/or to adequately pick up on children's activities. Studies on the correlations between the mathematical didactic knowledge of prospective educational professionals and their ability to pick up on mathematical situations provide indications of this ^[57]. The frequency of mathematical activities in the crèche is also predicted by mathematical SWE. This study thus provides initial evidence that mathematical SWE in crèches plays an important role in connection with mathematical stimulation.

7. Limitations

The voluntary participation of the childcare centers in the study suggests that commonalities between the childcare centers that were not surveyed but exist influence the results found on the specialist variables and the quality of interaction. The project name “EarlyMath” may have aroused the interest of professionals who were already interested in mathematical processes in childcare centers. Furthermore, nurseries with more favorable structural characteristics may have been more likely to agree to participate, as these presumably facilitate project participation and in turn have a positive effect on the quality of interaction. It should also be noted that the cross-sectional design of the study does not allow the direction of effect to be determined. Although many

studies find positive findings for individual competence facets of professionals in connection with aspects of process quality, this may not correspond to the effects in reality, as not all interactions between quality dimensions and competencies of professionals can be taken into account ^[9, 19]. The use of self-reports to record SWE is accompanied by the problem that the objectivity of the statements is difficult to verify. Nevertheless, they are economic instruments that provide insights into the inner life of the interviewees. Furthermore, it is not possible to draw any direct conclusions about the quality of interaction from simply recording the frequency of activities; these can only be interpreted as tendencies. The inclusion of further area-specific quality indicators, such as the mathematical language input of the professionals, may provide deeper insights into the correlations found.

8. Conclusion

In the present study, positive correlations were found between mathematical SWE and the frequency of mathematical activities, but not with global interaction quality. This study was therefore able to show that early childhood educators carry out mathematical activities in crèches and that these are related to their mathematical SWE. The results thus provide initial indications that the mathematical SWE of early childhood educators in the U3 sector in particular play an important role in maths educator-child interactions. How the maths teacher-child interactions are organized remains to be seen. Further research could pick up here and investigate the connections between aspects of mathematical process quality and mathematical SWE. In terms of increasing (area-specific) quality in crèches and daycare centers, it seems sensible to take a closer look at mathematical SWE as a changeable competence facet, especially in light of the findings on the positive correlation between further training of professionals and quality ^[58].

9. Electronic supplements (ESM)

The electronic supplements are available with the online version of this article at <https://doi.org/10.1026/2191-9186/a000646>

ESM 1 Table E1. Sample characteristics: Gender and highest professional qualification; Table E2. Sample characteristics: Age, work experience; Table E3. Items of the job-specific self-efficacy expectations scale; Table E4. Items of the mathematical self-efficacy expectations scale; Table E5. Items of the scale frequency of mathematical activities; Table E6. Regression

models (1–3) for job-specific and mathematical self-efficacy expectations on global interaction quality and mathematical activities; Table E7. Mean values, standard deviation, and range of criteria and predictors; Table E8. Intercorrelations between criteria (01–02), predictors (03–05), and control variables (06–07).

Disclosure statement

The authors declare no conflict of interest.

References

- [1] Becker-Stoll F, Niesel R, Wertfein M, 2020, Handbook Children in the First Three Years: So gelingt Qualität in Krippe, Kita und Tagespflege (revised new edition 2020, 3rd complete edition). Freiburg i. Br., Herder.
- [2] Anders Y, 2013, Keyword: Effects of Early Childhood Institutional Care and Education. *Journal of Educational Science*, 16(2): 237–275.
- [3] Burchinal M, Vernon-Feagans L, Vitiello V, 2014, Thresholds in the Association between Child Care Quality and Child Outcomes in Rural Preschool Children. *Early Childhood Research Quarterly*, 29(1): 41–51.
- [4] Beckh K, Mayer D, Berkic J, et al., 2015, Results of the NUBBEK Study on Quality Dimensions in Child Day Care: Interpretation from An Attachment Theory Perspective? *Discourse on Childhood and Youth Research*, 10(2): 183–201.
- [5] Bucklein C, Hoffer R, Strohmer J, 2017, Measuring the Quality of Interactions in Early Childhood Education and Care Settings for Toddlers — An Exploratory Comparison of the Observation Tools GInA and CLASS Toddler, in *Interaktionsgestaltung in Familie und Kindertagesbetreuung*. Springer, Fachmedien, 83–114.
- [6] Kuger S, Kluczniok K, 2008, Prozessqualität im Kindergarten — Konzept, Umsetzung und Befunde, in *Frühpädagogische Förderung in Institutionen*. VS-Verlag, Wiesbaden, 159–178.
- [7] Tietze W, Becker-Stoll F, Bensel J, et al., 2013, Nationale Untersuchung zur Bildung, Betreuung und Erziehung in der frühen Kindheit (NUBBEK). Das Netz, Berlin.
- [8] Wadepohl H, Mackowiak K, 2022, Pädagogische Qualität in Kindertageseinrichtungen, in *Fachkräfte und Kinder im Dialog. Praxisband kognitiv aktivierende Interaktionsgestaltung im Kita-Alltag*. Beltz Juventa, Weinheim, 14–20.
- [9] Anders Y, 2012, Models of Professional Competencies for Early Childhood Educators. Current Status and their Relation to Professionalisation. Expertise on the Report “Professionalisation in early childhood education”.
- [10] Frohlich-Gildhoff K, Nentwig-Gesemann I, Pietsch S, 2011, Kompetenzorientierung in der Qualifizierung frühpädagogischer Fachkräfte: Eine Expertise der Weiterbildungsinitiative Frühpädagogische Fachkräfte (WiFF) (November 2011, Vol. 19). DJI, Munich.
- [11] Frohlich-Gildhoff K, Nentwig-Gesemann I, Pietsch S, et al., 2014, Competence Development and Competence Assessment in Early Childhood Education. Concepts and Methods. FEL, Freiburg i. Br.
- [12] Wieduwilt N, Lehl S, Anders Y, 2023, Preschool Teachers’ Language-related Pedagogical Beliefs and their Relation to Observed Classroom Quality. *Early Childhood Research Quarterly*, 2023(62): 175–185.
- [13] Oppermann E, Brunner M, Anders Y, 2019, The Interplay between Preschool Teachers’ Science Self-Efficacy Beliefs, Their Teaching Practices, and Girls’ and Boys’ Early Science Motivation. *Learning and Individual Differences*, 2019(70): 86–99.

- [14] Wolstein K, 2021, Selbstwirksam und kompetent? Zusammenhänge zwischen Selbstwirksamkeitserwartungen, Interaktionsverhalten und weiteren ausgewählten Kompetenzfacetten bei frühpädagogischen Fachkräften. Pädagogische Hochschule Freiburg. <https://phfr.bsz-bw.de/frontdoor/index/index/docId/895>
- [15] Guo Y, Piasta SB, Justice LM, et al., 2010, Relations among Preschool Teachers' Self-Efficacy, Classroom Quality, and Children's Language and Literacy Gains. *Teaching and Teacher Education*, 26(4): 1094–1103.
- [16] Justice LM, Mashburn AJ, Hamre BK, et al., 2008, Quality of Language and Literacy Instruction in Preschool Classrooms Serving at-risk Pupils. *Early Childhood Research Quarterly*, 23(1): 51–68.
- [17] Schwarzer R, Jerusalem M, 2002, Das Konzept der Selbstwirksamkeit, in *Selbstwirksamkeit und Motivationsprozesse in Bildungsinstitutionen*. Zeitschrift für Pädagogik, Beiheft, 44. Beltz, Weinheim, 28–53.
- [18] Kluczniok K, RoBbach HG, 2014, Conceptions of Educational Quality for Kindergartens. *Zeitschrift Für Erziehungswissenschaft*, 17(6): 145–158.
- [19] Tietze W, Meischner T, Gansfuß R, et al., 1998, Wie gut sind unsere Kindergärten? Eine Untersuchung zur pädagogischen Qualität in deutschen Kindergärten. Luchterhand, München.
- [20] Mashburn AJ, Pianta RC, Hamre BK, et al., 2008, Measures of Classroom Quality in Prekindergarten and Children's Development of Academic, Language, and Social Skills. *Child Development*, 79(3): 732–749.
- [21] Beckh K, Becker-Stoll, F, 2016, Formations of Attachment Relationships towards Teachers Lead to Conclusions for Public Child Care. *International Journal of Developmental Science*, 10(3–4): 99–106.
- [22] La Paro KM, Hamre BK, Pianta RC, 2012, Classroom Assessment Scoring System (CLASS), Manual Toddler. Paul H. Brookes, Baltimore.
- [23] La Paro KM, Gloeckler L, 2016, The Context of Child Care for Toddlers: The "Experience Expectable Environment". *Early Childhood Education Journal*, 44(2): 147–153.
- [24] Piasta SB, Logan JAR, Pelatti CY, 2015, Professional Development for Early Childhood Educators: Efforts to Improve Math and Science Learning Opportunities in Early Childhood Classrooms. *Journal of Educational Psychology*, 107(2): 407–422.
- [25] Tresp T, Stockheim D, Koch K, 2014, Effekte mathematischer Prozessqualität sowie pädagogischer Professionalisierungsmaßnahmen auf die mathematischen Basiskompetenzen von Kindern in Kindertageseinrichtungen. *Empirische Sonderpädagogik*, 2014(3): 277–242.
- [26] Bandura A, 1997, *Self-efficacy: The Exercise of Control*. Henry Holt & Co, New York.
- [27] Reyhing Y, Perren S, 2021, Self-efficacy in Early Childhood Education and Care: What Predicts Patterns of Stability and Change in Educator Self-efficacy? *Frontiers in Education*, 6. <https://doi.org/10.3389/educ.2021.634275>
- [28] Perren S, Herrmann S, Iljuschin I, 2017, Child-centred Educational Practice in Different Early Education Settings: Associations with Professionals' Attitudes, Self-efficacy, and Professional Background. *Early Childhood Research Quarterly*, 2017(38): 137–148.
- [29] Todd Brown E, 2005, The Influence of Teachers' Efficacy and Beliefs Regarding Mathematics Instruction in the Early Childhood Classroom. *Journal of Early Childhood Teacher Education*, 26(3): 239–257.
- [30] Hu BY, Li Y, Zhang X, et al., 2021, The Quality of Teacher Feedback Matters: Examining Chinese Teachers' Use of Feedback Strategies in Preschool Math Lessons. *Teaching and Teacher Education*, 2021(98): 103253.
- [31] Toran M, 2019, Does Sense of Efficacy Predict Classroom Management Skills? An Analysis of the Pre-school Teacher's Professional Competency. *Early Child Development and Care*, 189(8): 1271–1283.
- [32] Gläser JL, 2016, Selbstwirksamkeitserwartungen und Interesse an Mathematik, in *AnschlussM. Anschlussfähigkeit mathematikdidaktischer Überzeugungen und Praktiken von ErzieherInnen und GrundschullehrerInnen*. Waxmann, Münster.

-
- [33] Kaçan MO, Ata S, Nişan İK, 2020, Investigation of the Relationship between Preschool Teachers' Perceptions of Efficacy in Mathematics Education and their Attitudes Towards Mathematics Education. *International Journal of Progressive Education*, 16(3): 240–252.
 - [34] Glaser JL, 2015, Die Zusammenhänge zwischen epistemologischen Überzeugungen und motivationalen Orientierungen als richtungsweisende Ausgangspunkte für die mathematikdidaktischen Fähigkeiten pädagogischer Fachkräfte im Elementar- und Primarbereich, thesis, Universität Bremen.
 - [35] MacDonald A, 2020, Mathematics Education Beliefs and Practices of Under 3s Educators in Australia. *European Early Childhood Education Research Journal*, 28(5): 758–769.
 - [36] Jenßen L, 2021, A Math-avoidant Profession? Review of the Current Research about Early Childhood Teachers' Mathematics Anxiety and Empirical Evidence. *Early Childhood Teachers' Professional Competence in Mathematics*. Routledge, London.
 - [37] Zhu J, Yeung P, Hsieh WY, 2021, Mathematical Beliefs and Self-reported Practices of Chinese Early Childhood Teachers in the Context of Teaching Mathematics during Block Play. *European Early Childhood Education Research Journal*, 29(5): 747–763.
 - [38] Oppermann E, Anders Y, Hachfeld A, 2016, The Influence of Preschool Teachers' Content Knowledge and Mathematical Ability Beliefs on their Sensitivity to Mathematics in Children's Play. *Teaching and Teacher Education*, 2016(58): 174–184.
 - [39] Siraj-Blatchford I, Sylva K, Muttock S, Gilden R, Bell D, 2002, Researching Effective Pedagogy in the Early Years (Research report No 365), thesis, University of London.
 - [40] Oppermann E, Hummel T, Anders Y, 2021, Preschool Teachers' Science Practices: Associations with Teachers' Qualifications and their Self-efficacy Beliefs in Science. *Early Child Development and Care*, 191(5): 800–814.
 - [41] Attig M, Fey D, Karwath C, et al., 2014, Systematic Educational Monitoring at Pre-School Age using the Example of the National Educational Panel Study (NEPS). *Early Education*, 3(1): 3–9.
 - [42] Rein H, 2022, Die Rolle vorschulischer Lernumwelten für die Kompetenzentwicklung. Stand der Theorie und Forschung zu häuslichen Einflüssen und kompensatorischen Effekten des Kindergartens. *LifBi Working Papers*. <https://doi.org/10.5157/LIFBI:WP106:1.0>
 - [43] Kurz K, Kratzmann J, von Maurice J, 2007, Die BiKS-Studie. Methodenbericht zur Stichprobenziehung.
 - [44] Lehl S, Smidt W, Grosse C, et al., 2014, Patterns of Literacy and Numeracy Activities in Preschool and their Relation to Structural Characteristics and Children's Home Activities. *Research Papers in Education*, 29(5): 577–597.
 - [45] Plöger-Werner M, 2015, Epistemologische Überzeugungen von Erzieherinnen und Erziehern. Springer Fachmedien Wiesbaden. <https://doi.org/10.1007/978-3-658-09749-3>
 - [46] Rosseel Y, 2012, lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software*, 48(2): 1–36. <https://doi.org/10.18637/jss.v048.i02>
 - [47] Bühner M, Ziegler M, 2017, Statistics for Psychologists and Social Scientists. Pearson, Munich.
 - [48] Field A, Miles J, Field Z, 2012, Discovering Statistics Using R. SAGE, Thousand Oaks.
 - [49] Duval S, Bouchard C, Lemay L, et al., 2020, Examination of the Quality of Interactions as Observed in Childcare Centres and Reported by Early Childhood Educators. *SAGE Open*, 10(2).
 - [50] Reyhing Y, Frei D, Burkhardt Bossi C, 2019, Die Bedeutung situativer Charakteristiken und struktureller Rahmenbedingungen für die Qualität der unterstützenden Fachkraft-KindInteraktion in Kindertagesstätten. *Zeitschrift für Pädagogische Psychologie*, 33(1): 33–47.
 - [51] Reyhing Y, Perren S, 2023, The Situation Matters! The Effects of Educator Self-efficacy on Interaction Quality in Child Care. *Journal of Research in Childhood Education*, 1–16.

- [52] Castle S, Williamson AC, Young E, et al., 2016, Teacher-child Interactions in Early Head Start Classrooms: Associations with Teacher Characteristics. *Early Education and Development*, 27(2): 259–274.
- [53] Slot PL, Leseman PPM, Verhagen J, et al., 2015, Associations between Structural Quality Aspects and Process Quality in Dutch Early Childhood Education and Care Settings. *Early Childhood Research Quarterly*, 2015(33): 64–76.
- [54] Anders Y, Rosbach HG, 2015, Preschool Teachers' Sensitivity to Mathematics in Children's Play: The Influence of Math-related School Experiences, Emotional Attitudes, and Pedagogical Beliefs. *Journal of Research in Childhood Education*, 29(3): 305–322.
- [55] Linberg A, Kluczniok K, 2020, Kindspezifische Prozessqualität. *Frühe Bildung*, 9(3): 126–133.
- [56] Schuler S, Wittmann G, Bönig D, et al., 2016, Qualitative Untersuchung, in AnschlussM. Anschlussfähigkeit mathematikdidaktischer Überzeugungen und Praktiken von ErzieherInnen und GrundschullehrerInnen. Waxmann, Münster, 40–63.
- [57] Dunekacke S, Jenßen L, Blömeke S, 2015, Mathematics Didactic Competence of Educators. Validation of the Komma Performance Test through the Video-based Survey of Performance, in Competences of Students. Beltz Juventa, Weinheim.
- [58] Egert F, Eckhardt AG, Fukkink R, 2017, Central Mechanisms of Action of Further Training to Improve Quality in Child Day Care Centres. *Early Education*, 6(2): 58–66.

Publisher's note

Whioce Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Research Results as a Basis for Professionalization: Transfer and Practical Applications from the Point of View of ECEC Staff and Managers

Katrin Lattner*, Beatrice Rupprecht

Institute of Pre-Primary and Primary Education, Leipzig University, Leipzig 3104109, Germany

**Corresponding author:* Katrin Lattner, katrin.lattner@uni-leipzig.de

Copyright: © 2023 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract:

The development of scientific expertise among professionals is increasingly being discussed in the context of academic qualifications, whereas little attention has been paid to professionalization through research results, especially in the context of participation in research projects by daycare center actors. However, this potentially can dissolve the boundaries between science and practice through research-related synergetic effects. Based on an online survey with $N = 1,200$ pedagogical specialists and managers, this article examines the benefits of participating in research and the transfer of science practices.

Keywords:

ECEC setting
Transfer
Online survey
Research participation

Online publication: December 22, 2023

1. Introduction

The growing importance of research for the professionalization of educational professionals is reflected, among other things, in the increase in research activities in early education ^[1-2]. Research can open up subject-specific questions, but also practices and logic of action in the field ^[3]. In addition, change processes can be achieved indirectly, such as an improvement in the pedagogical quality of daycare centers ^[4]. The understanding of scientifically based professionalization is sometimes limited to the perspective of a rather passive transfer of research results to those undergoing professionalization ^[5]. The starting point of this article is

the discourse on sustainable transfer and the associated questions regarding the need for new theoretical or empirical findings on the part of educational professionals and how these findings can be transferred into practice.

2. Transformation is the core mission of scientific institutions

The transfer of scientific findings, e.g. into society and politics, but also educational “practice”, is one of the core tasks of universities and research institutions ^[6]. However, there is no direct, linear sequence between

the generation of results by researchers and further developments in the field of early education. Rather, the transfer of results into educational practice follows its internal logic, to which transfer research is dedicated. This includes various multidisciplinary discourses in which “diverse terms with differing emphases” are used for the transfer (process) ^[2, 7]. Gräsel offers an interpretation of the concept of transfer that appears to be a useful definitional approach for the context of this article: transfer as the “dissemination of (current) scientific knowledge into practical fields”, which brings about transformations insofar as an “active engagement with and application of knowledge in practice” takes place by the various actors ^[2, 8]. This view emphasizes researchers on the “provider side” with a “duty to provide”, who are responsible, among other things, for “the preparation and access design — via communication channels known to practice — of research” ^[9]. On the other hand, there are educational professionals (user side) who integrate knowledge into their educational practice through active dialogue ^[10–11].

2.1. Science-practice transfer (design)

More recent findings show that research has not yet succeeded in anchoring its findings in daycare center practice ^[12]. This means that despite the importance of transfer, scientific findings are very rarely put into practice ^[13]. Gräsel sees one of the reasons for this in the transfer support factor and emphasizes that the communication channels and the roles of the institutions and individuals involved require greater attention ^[8]. In this process, the diversity of the starting conditions in the daycare centers and the diversity of the actors involved in the research concerning their prerequisites and objectives are brought into focus ^[14]. Sustainable transfer in the sense of implementing empirically based innovations in educational practice requires an interactive and cooperative transformation process. It requires target group-specific and application-oriented processing as well as the low-threshold provision of structured summaries of the relevant research results for users ^[8–9]. Reporting back research results is seen in this article as part of the organization of research relationships between researchers and the people being researched. In this assignment to the research relationship, the feedback of

results becomes the subject of research ethics ^[10].

2.2. Science-practice transfer as an aspect of research ethics

Research ethics has gained importance as a cross-cutting topic in recent years. This can also be seen in the guidelines and codes that have been developed by various professional associations ^[15]. They describe criteria for “morally appropriate behavior” to protect the people involved in research ^[16]. These include the voluntary nature of participation, being informed, and data protection ^[15–16]. Not yet explicitly listed in the criteria, but of enormous importance as a “supplementary aspect of research ethics”, is the transfer of research into practice in the form of feedback to the institutions and their stakeholders ^[17].

3. Questions and data basis: The research meets the daycare center project

The research project research meets daycare center (2017–2021) deals, among other things, with the experience of research in everyday daycare center life from the perspective of educational specialists and managers and examines the design of research (transfer) practice with special consideration of research ethics standards. Five sub-questions are addressed below.

I. What transfer-related motives guide educational professionals when deciding to participate in research projects?

II. To what extent are these motives fulfilled by participating in research projects?

III. What needs to arise on the part of educational professionals about the transfer of results?

IV. Which transfer channels do educational professionals use to access research results beyond their project participation?

V. To what extent is there a correlation between age and the use of transfer channels?

The exploratory nature of the project is reflected in the mixed-methods research design ^[18]. The project comprises three sub-studies. The results selected to answer the aforementioned questions originate from the Germany-wide online survey (sub-study 3) of

educational professionals and managers in daycare centers (in the summer of 2019), which was preceded by two sub-studies ^[11].

4. Survey method

The online survey was realized with the SoSci Survey ^[19–20]. In collaboration with the Leibniz Institute for the Social Sciences (GESIS), a representative, three-stage random sample was drawn from daycare centers (stratum 1: large cities, stratum 2: cities, stratum 3: municipalities) in 100 municipalities from all federal states. The individual locations were randomly selected in proportion to their share of one- to six-year-olds within a stratum. From the 11,409 daycare centers researched for these locations, 9,135 daycare centers were randomly selected and contacted.

4.1. Survey instrument

The questionnaire was developed iteratively and inductively-deductively, taking into account the results of the previous sub-studies, the ethics guidelines of the DGfE, and the current state of theory and research on the challenges of conducting research projects and designing access to the field ^[15, 21–22]. It comprises seven survey sections: (1) general information, (2) basic attitude towards research participation, (3) benefits of participation, (4) assessments of research ethical rigor, (5) perceived “disruptive factors”, (6) future research in the daycare center and (7) information behavior regarding research results.

The five items on motivation to participate in research and the benefits of participation were assigned a four-point Likert scale (strongly disagree to agree, with a fallback option); the item on feedback on results was used to record a supplementary aspect of research ethics. The question about the perceived “disruptive factors” was developed inductively on the basis of the results of sub-study 2 and posed as an open question.

The draft questionnaire was the subject of a two-stage pretest procedure in which a standard observation pretest ($N = 30$) was supplemented by a two-stage cognitive pretest with educational specialists and managers ($N = 4$) ^[23]. The content of the questionnaire was then adapted. This was then entered into the SoSci

Survey portal ^[20]. Using a filter guide, the participants were asked questions tailored to their professional position and personal research experience. The online survey was activated for five weeks for the daycare centers contacted.

4.2. Sample

A total of $N = 1,200$ people took part in the online survey. Of these, 419 people (42.9 %) had their own research experience, of which a total of 385 people (91.9 %) had a management function (full or partial leave of absence), while 34 people (8.1 %) were employed as educational professionals without a management function. The average age of participants with research experience at the time of the survey was 48.04 years ($SD = 9.65$). Geographically, they were spread across 14 federal states. Of the 419 people with research experience, 117 (27.9 %) answered the open question on perceived “disruptive factors.”

While the analyses of questions 1 to 3 took into account the answers of the $n = 419$ people who already had their own research experience, the analyses of questions 4 and 5 refer to the total sample ($N = 1,200$).

4.3. Evaluation methods

The quantitative data was analyzed using SPSS 25 ^[24]. The frequency distribution of the participants in the survey showed an imbalance between managers and teaching staff. To counteract a distortion of the results, the data was weighted (0.07 for managers, and 7.71 for educational professionals) and then analyzed descriptively and inferentially. The various transfer channels that were offered as response options were grouped into two categories:

- a. Conferences and further training (= specialist lectures at conferences, further training, collegial exchange in the daycare center/team teaching).
- b. Media-related transfer (= websites, social media such as Facebook, podcasts, YouTube, specialist books, specialist journals, daily newspapers, television).

A total score was determined for both categories (summation of the score based on the number of selected response options per transfer channel) and then the correlation measures were determined using non-parametric tests (rank correlation coefficient Spearman-

Rho r_s^2).

As no correlations were found for the media-related channel ($r_{s \text{ Age, SumTK_Medienggeb}} = .018$; $P = .645$; $N = 659$; $r_{s \text{ ProfessionPos, SumTK_Medienggeb}} = .011$; $P = .774$; $N = 671$), the transfer channel media-related transfer was divided into digital media (= websites, social media such as Facebook, podcasts, YouTube) and traditional media (= specialist books, specialist journals, daily newspapers, television). Bivariate correlations and partial correlations were calculated to be able to identify a possible influence of control variables.

The subject of the content-structuring qualitative content analysis according to Kuckartz (question 3) is the answers of respondents with research experience to the open question “Is there anything that bothers you about research in your daycare center?”^[25]. Based on the material, a coding system with eight inductively obtained thematic codes was developed to analyze and categorize the answers, of which the code Lack of practical relevance of research is used in this article (subcodes Lack of changes in daycare practice despite research and problems in practice are not the subject of research)^[26].

5. Results

5.1. What transfer-related motives guide educational professionals when deciding to participate in research projects?

Two transfer-related motives were identified. Firstly, the desire to further develop their competencies, and secondly, the intention to contribute to the further development of (their own) daycare center. **Table 1**

shows that both motives motivated the respondents to take part in research projects. In each case, the majority of respondents agreed or tended to agree with these statements: 63.2% ($n = 244$) of respondents agreed with the motive of developing their competencies and 82.4% ($n = 317$) of respondents agreed with the motive of further developing the daycare center.

Another motive that characterizes the decision to participate is interest in the results of the research project. This item cannot be categorized as a transfer-related motive for participation and is therefore considered separately. As can be seen from **Table 1**, the majority of educational professionals (94.3%; $n = 365$) agree or tend to agree with the statement that they are interested in the results.

5.2. To what extent are these motives fulfilled by participating in research projects?

The majority of respondents stated that the results of the last research project were reported back by the researchers: 70.0% of participants ($n = 262$) agreed or tended to agree with the statement ($M = 2.94$; $SD = 1.16$). This suggests that the researchers are aware of the importance of reporting results. At the same time, it is surprising that 20.0 % of respondents ($n = 77$) stated that they had not received any feedback on the results.

In the context of question 2, the next step is to determine the extent to which the educational professionals were able to utilize the results from the research projects for themselves and their educational practice. The results in **Table 2** suggest that the motive of expanding one's professional competencies was only

Table 1. Assessments of surveyed educational professionals and managers on the transfer-related motives for their participation in research projects and interest in the results (absolute frequencies, percentage distributions in brackets)

Transfer-related motives for participation	N	Does not apply	Tends not to apply	Tends to apply	Applies	M	SD
I hoped that I would be able to expand my skills	385	63 (16.3 %)	79 (20.5 %)	140 (36.3 %)	104 (26.9 %)	2.74	1.03
I wanted to be involved in the further development of the daycare center	386	17 (4.4 %)	51 (13.2 %)	127 (33.0 %)	190 (49.4 %)	3.27	0.85
I was interested in the results	387	6 (1.6 %)	16 (4.1 %)	115 (29.7 %)	250 (64.6 %)	3.57	0.64

Notes: Cronbachs- α : .51.

Table 2. Assessments of the pedagogical specialists and managers surveyed on the direct transfer-related benefits of their participation (absolute frequencies, percentage distributions in brackets)

Benefits of your own participation	N	Does not apply	Tends not to apply	Tends to apply	Applies	M	SD
I was able to expand my competencies	328	61 (18.0%)	101 (31.0 %)	98 (30.0%)	68 (21.0%)	2.54	1.02
I can use the research results for my daily work	329	70 (21.0%)	111 (34.0%)	94 (29.0%)	54 (16.0%)	2.40	1.01

Notes: Cronbachs- α : .85.

Table 3. Definition of subcategories for the category Lack of practical relevance of research (as perceived “disruptive factors”) with examples from the material

Category: Lack of practical relevance of research		
Subcategory	Definition	Example from the material
Lack of change in daycare center practice despite research	The research results do not lead to any noticeable changes in the framework conditions in daycare center practice	The fact that all research never leads to a reduction in the number of children
Practical problems are not the subject of research	The reality of day-care centers and the everyday problems they face are not made the subject of enough research	Too remote from practice, no reference to real everyday life

partially fulfilled through participation. Only 51.0% agreed or somewhat agreed with the statement “I was able to expand my professional competencies” ($n = 166$). Almost as many people ($n = 162$) stated that this statement did not apply to them personally or did not apply at all. The response distribution for the statement I can use the research results for my daily work is similar. Here, however, the majority of respondents (55.0 %) ($n = 181$) stated that this statement was not or rather not true.

5.3. What needs do educational professionals have regarding the transfer of results?

About the category of the lack of practical relevance of research, the interviewees describe that, in the context of the desired transfer, the framework conditions of their educational work remain unchanged despite research (Table 3). On the other hand, the responses to the second sub-category reflect the fact that the research questions addressed in the projects are not congruent with the challenges and unanswered questions of the day-to-day work of the educational professionals in the daycare centers. An expectation of the educational professionals can be identified here, which calls for a stronger focus on

the needs of the field.

5.4. Which transfer channels do educational professionals use to access research results beyond their project participation?

According to Buggenhagen, the channels that educational professionals use for information about current research results can be divided into communication-orientated transfer instruments (e.g. lectures at universities), media-based transfer instruments, and the area of meetings and conferences^[9]. Two of these categories were identified based on the results of the “Research meets daycare centers” project.

Table 4 shows an overview of the media-based transfer instruments, which are listed according to the frequency with which they are mentioned. It can be seen that the media of specialist journals, websites, and specialist books dominate. These media, which tend to be categorized as traditional, offer the educational professionals surveyed access to the latest scientific findings much more frequently than digital media (e.g. YouTube, podcasts).

Table 4. Response distributions to the question “Where do you obtain information about research in daycare centers?”, summarized in the multiple response set media-related transfer (sorted by frequency of mention)

Transfer channel: Media-bound transfer	N	Percent
Specialist journals (e.g. kindergarten heute, KiTa aktuell)	611	26.4 %
Internet pages/specialized portals	552	23.9 %
Specialized books	402	17.4 %
Television (e.g. news, reports, documentaries)	278	12.0 %
(online) Daily newspapers	268	11.6 %
Social media (Facebook etc.)	137	5.9 %
Youtube	42	1.8 %
Podcast	23	1.0 %
Total	2312	100.0 %

It is also evident that transfer through conferences and training courses is mentioned more frequently as an information channel compared to media-based transfer instruments. The research results are primarily transferred into educational practice via traditional training courses, but also via peer-to-peer dialogue within the team and specialist presentations at conferences (**Table 5**).

Table 5. Distribution of responses to the question “Where do you obtain information about research in daycare centers?”, summarized in the multiple response set “Transfer through conferences and training courses” (sorted by frequency of mention)

Transfer channel: Transfer through conferences and training courses	N	Percent
Further training	597	36.9 %
Collegial exchange in the daycare center/ team teaching	552	34.2 %
Lectures at conferences	467	28.9 %
Total	1616	100.0 %

5.5. To what extent is there a correlation between age and the use of transfer channels?

The calculation of the correlation coefficient shows a slight correlation between the age of the respondents

and the use of the transfer channels digital media ($r_{s \text{ age, SumTK_DigiMed}} = -.16; P < .001; N = 659$), traditional media ($r_{s \text{ age, SumTK_TradMed}} = .12; P < .001; N = 671$) and transfer through conferences and training courses ($r_{s \text{ age, SumTK_AusFob}} = .12; P < .001; N = 671$). This means that the younger the participants were, the more frequently they stated that they used digital transfer channels, the older they were, the more frequently they stated that they used traditional media and transfer through conferences and training courses. Taking into account the control variable of professional position, there were no changes in the strength of the correlations.

There was also a slight, significant correlation between the respondents’ professional position and the transfer channel transfer through conferences and further training ($r_{s \text{ BerufPos, SumTK_AusFob}} = .18; P < .001; N = 671$), i.e. managers selected answers in this category more frequently than educational professionals without a management function.

6. Discussion of the results

Regarding the results for answering question 1, it can be seen that the interest in research results and the associated goal of further developing their professional skills as well as the quality in their institution are decisive (transfer-related) motives for respondents to participate in research projects in their childcare centers. This means that there is not only great interest in the research results on the part of the scientific community but also the part of practitioners as a key target group for research ^[27]. However, in 20.0% of cases, results from the surveys were not reported back to the institutions at all or only with very long delays ^[10]. Firstly, this means that the professionals themselves are required to “actively research scientific findings from the daycare center sector via various publication organs” ^[10]. Secondly, they lack the direct benefit that they intended to derive from participation (or that they were promised) and thirdly, the personnel and time investment may not pay off (as expected) from the perspective of the provider or the institution. If, on top of this, the research is also said to lack practical relevance — noticeable in the lack of change in the early childhood education system and the lack of inclusion of pressing problems

in practice (question 3) — then, in the worst case, such experiences reduce the legitimacy of research and the willingness of professionals and managers or providers to accept future research inquiries ^[17]. Or, as a final consequence, they lead to employers (in the example: funding organizations) having to pay for the availability or release of their employees for research activities in the foreseeable future, for example, to balance the cost-benefit ratio. Finally, the lack of time and personnel resources in everyday pedagogical work is among the central reasons for the rejection of research requests and explains why “the strengthening of the secondary use of research data is regularly advertised and an examination of the possibilities in this regard is not only obligatory in third-party funding applications” ^[21, 27].

7. Implications for research practice

Research findings can enrich practice if researchers fulfill their “obligation to deliver” and report the research results back to practice after the project has been completed in a way that is appropriate for the target group (e.g. observing accessibility of content; concretization of practice-related conclusions) ^[9, 27]. These results can then be applied in daily work and thus contribute to the further development of pedagogical professionalism. The data on the utilization of transfer channels illustrates that educational professionals inform themselves about current research in the field of early education beyond their participation in research projects. This showed that younger professionals and managers

more frequently chose digital media as a source of information. In contrast, the two transfer channels of traditional media and conferences and training courses were chosen more frequently the older the participants were. Although there were only slight correlations based on the data material, they should be understood as an indication that, in addition to broad utilization of all transfer channels (including traditional media), digital media should also play an increasing role in the future, particularly concerning the younger generation of specialists and managers. This requires, among other things, an expansion of the technical equipment in the daycare centers (e.g. PC, WLAN), an automatic free subscription to academic journals for the daycare center sector (so-called “daycare center platform”) in combination with opportunities for exchange between research and practice from the perspective of practitioners ^[27]. For this reason, the transfer in favor of a sustainable research partnership with the daycare centers should be planned with additional financial and time resources in project applications ^[28–30].

8. Limitations

The information and access to the online survey were provided by the daycare center management. Furthermore, both access and the use of digital media in the context of the online survey were assumed on the part of the participants. The survey was only fully completed by $n = 670$ participants (55.8 %), which is partly due to the filtering process.

Disclosure statement

The authors declare no conflict of interest.

References

- [1] Stieve C, 2013, More Courage for Academic Professionalization: A Plea for New Efforts in Expanding Early Childhood Education Degree Programs, in *Equal and Yet Not Equal: The German Qualifications Framework and Its Consequences for Early Childhood Education Trainings*. DJI, Munich, 187–199.
- [2] Blatter K, Schelle R, 2022, Knowledge Transfer in Early Education. Models, Findings, and Conditions. An Expertise. https://www.dji.de/fileadmin/user_upload/bibs2022/DJI_Wissenstransfer_in_der_fruehen_Bildung_2022.pdf
- [3] Betz T, Cloos P, 2014, Childhood and Profession. Childhood Education as a New Professional and Research Field, in *Childhood and Profession: Contours of a Field of Research*. Beltz Juventa, Basel, 9–22.

-
- [4] Egert F, Eckhardt AG, Fukkink RG, 2017, Central Mechanisms of Action of Further Training for Quality Improvement in Child Day Care Centres. A Narrative Review. *Early Education*, 6(2): 58–66.
 - [5] Schütz J, 2023, Knowledge and Skills in Motion: On the Reflexive Mechanism of Transfer in Educational Professionalism, in *Transfer in Pedagogy and Educational Science: Between Science and Practice*. Beltz Juventa, Basel, 55–64.
 - [6] Wissenschaftsrat (Science Council), 2016, Knowledge and Technology Transfer as the Subject of Institutional Strategies, Position Paper, Wissenschaftsrat (Science Council). https://www.wissenschaftsrat.de/download/archiv/5665-16.pdf?__blob=publicationFile&v=2
 - [7] Gräsel C, Jäger M, Willke H, 2006, Konzeption einer übergreifenden Transferforschung und Einbeziehung des internationalen Forschungsstandes, in *Innovation and Transfer — Expertises on Transfer Research*. Schneider, Hohengehre, 445–566.
 - [8] Gräsel C, 2010, Keyword: Transfer and Transfer Research in Education. *Journal of Educational Science*, 2010(13): 7–20.
 - [9] Buggenhagen HJ, 2005, Scientific Monitoring and Innovation Transfer in Practice, in *Wissenschaftliche Begleitung bei der Neugestaltung des Lernens: Promoting Innovation, Ensuring Transfer*. Federal Institute for Vocational Education and Training, Bonn, 164–169.
 - [10] Lattner K, Rupprecht B, 2023, From Head to Hand!? Reflections on the Design of Access and Exit in Early Childhood Education Research as a Basis for Successful Transfer to the Educational Practice of Kita Employees, in *Transfer in Pedagogy and Educational Science: Between Science and Practice*. Beltz Juventa, Weinheim, 92–105.
 - [11] Lattner K, Rupprecht B, 2022, Early Childhood Education: New Research Ethical Requirements for Conducting Research in Preschools During Crisis Times, in *Corona and the Other Sciences: Interdisciplinary Lessons from the Pandemic*. Springer Nature, Wiesbaden, 29–43.
 - [12] Mackowiak K, Kula A, Brunemund L, et al., 2020, Promoting Social-Cognitive Problem-Solving Strategies of Preschool Children. First Results of the Joint Project KoAkiK. *Early Education*, 9(34): 110–117.
 - [13] Hasselhorn M, Köller O, Maaz K, et al., 2014, Implementation of Effective Action Concepts in Education as a Research Task. *Psychologische Rundschau*, 65(3): 140–149.
 - [14] Gräsel C, 2019, Transfer of Research Results into Practice, in *Grundschulpädagogik zwischen Wissenschaft und Transfer: Yearbook of Primary School Research*. Berlin: Springer Nature, Berlin, 2–11.
 - [15] German Society for Educational Science (DGfE), 2016, Code of Ethics of the German Society for Educational Science (DGfE). https://www.dgfe.de/fileadmin/OrdnerRedakteure/Satzung_etc/Ethikkodex_2016.pdf
 - [16] Rat for Social and Economic Data (RatSWD), 2017, Research Ethical Principles and Review Procedures in the Social and Economic Sciences. https://www.ratswd.de/dl/RatSWD_Output9_ResearchEthics.pdf
 - [17] Rupprecht B, Lattner K, 2021, Into the Field and Back: Practical Problems and Significance of Early Childhood Education Research in Daily Kita Life from the Perspective of Educational Professionals and Leaders, in *Research in Early Childhood Education XIV: Shaping and Experiencing Early Childhood Education Daily Life*. FEL, Freiburg im Br, 201–225.
 - [18] Kelle U, 2014, Mixed Methods, in *Handbook of Methods in Empirical Social Research*. Springer VS, Berlin, 154–166.
 - [19] Wagner P, Hering L, 2014, Online Surveying, in *Handbook of Methods in Empirical Social Research*. Springer VS, Berlin, 661–673.
 - [20] Leiner DJ, 2019, SoSci Survey (Version 3.1.06). <https://www.soscisurvey.de>
 - [21] Rau T, Letsch J, Wazlawik M, et al., 2017, Before Researchers Can Ask the First Question! *Social Passages*, 9(1): 97–112.
 - [22] Wolff S, 2005, Paths into the Field and Their Variants, in *Qualitative Research: A Handbook* (4th ed). Rowohlt, Reinbek b. Hamburg, 334–349.
 - [23] Porst R, 2014, *Questionnaire: A Workbook* (4th ed). Springer VS, Wiesbaden.
 - [24] IBM Corp, 2017, *IBM SPSS Statistics for Windows, Version 25.0*. IBM Corp, New York.

- [25] Kuckartz U, 2018, Qualitative Content Analysis: Methods, Practice, Computer Support (4th ed). Beltz Juventa, Weinheim.
- [26] Lattner K, Rupprecht B, 2021, Research Ethical Standards in the Context of Optimizing Educational Practice Through Research. Empirical Insights from the Project “Research Meets Kita”. Early Education, 10(3): 142–150.
- [27] Rupprecht B, Lattner K, 2023, The Ethical Paradigm in Early Childhood Education Research, in Researching in Early Childhood Education: A Critical Reflection of Methodological Approaches. Beltz Juventa, Weinheim.
- [28] Rupprecht B, Lattner K, 2022, Research Participation of Children Between Minimal Involvement and Decision-Making Power: Research Ethical Challenges and Perspectives of Research Subjects on Research in Kindergartens. Journal of Primary School Research, 15(1): 15–30.
- [29] Blatter K, Schelle R, 2023, Knowledge Transfer between Political Control Level and Science in Early Education. Models, Findings, and Conditions.
- [30] Janssen J, Laatz W, 2017, Statistical Data Analysis with SPSS: An Application-Oriented Introduction to the Basic System and the Exact Tests Module (9th ed.). Springer Gabler, Berlin.

Publisher’s note

Whioce Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Knowledge Transformation via Dialog: The Perspectives of Practitioners in Early Childhood Education

Regine Schelle¹, Kristine Blatter^{2*}

¹Faculty of Applied Social Sciences, Munich University of Applied Sciences, Munich 81243, Germany

²State Institute of Early Childhood Research (IFP), Munich 80797, Germany

**Corresponding author:* Kristine Blatter, kristine.blatter@ifp.bayern.de

Copyright: © 2023 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract:

Knowledge transfer, understood as the collaborative transformation of knowledge through practice and research, demands dialogue among the participants. This involves the exchange of not only knowledge but also behavioral and interpretative patterns. A content analysis of five group discussions conducted in early childhood education and care centers unveils that practitioners primarily highlight existing barriers to productive dialogue between research and practice. These barriers include the perceived lack of practical relevance in research, a vague conception of research, and a hostile relationship between the two domains. Addressing these diverse needs for action is pivotal for achieving sustainable, practice-oriented development and fostering the necessary connectivity among the participants.

Keywords:

Knowledge transfer
Early education
Knowledge transformation
Group discussions
Research-practice dialog

Online publication: December 22, 2023

1. Introduction

The question of how empirical findings can become relevant for action in practice is increasingly at the center of educational science discourse ^[1-2]. In the multidisciplinary debates, it is becoming apparent that the idea of a linear transfer of knowledge is increasingly being replaced by that of a reciprocal, interactive transfer process between equal actors ^[1-2]. Scientific knowledge is therefore not adopted one-to-one by practice but only becomes connectable through “reinterpretations” of the scientific interpretations offered ^[3]. It is evaluated by

subjects with their logic, processed and integrated into their bodies of knowledge so that new knowledge can emerge, i.e. it is transformed. Dewe emphasizes that this transformation of knowledge is by no means the exclusive task of practitioners, but that all relevant actors, including researchers, participate in such processes ^[4]. He speaks of the constitution of a “third field of knowledge”, which is fed by interactions between the actors and makes it possible to relativize different perspectives ^[1-2, 4].

To initiate such a process of knowledge transformation, a dialogue between relevant actors from

different systems, such as representatives of providers, researchers, or educational professionals, is crucial. This is because they are shaped by the respective logic of action of their organization and act as autonomous and control subjects ^[5]. Through dialogue, it is possible to make patterns of interpretation and action as well as bodies of knowledge easier to understand and to transform knowledge ^[6]. This article takes up this perspective and aims to clarify how educational professionals perceive such a dialogue. To this end, selected results from five group discussions in daycare centers (Kitas) are presented, which were conducted as part of the project “Metavorhaben: Quality development for good education in early childhood (MetaQEB)” project.

2. State of research and research question

The conditions for knowledge transfer can be described as an under-researched topic for early education ^[1–2]. However, findings from various fields of research provide indications of the relevance attributed to dialogue and cooperation between the actors involved.

For example, studies from social science utilization or transfer research show that the exchange between research and practice is a prerequisite for transfer. A DFG priority program from 1982 can be seen as the starting point here, which stimulated a discourse on a new conceptualization of the relationship between science and practice ^[3]. Utilization is outlined as an adaptation process that takes place in interaction systems in which the actors from different areas communicate and differentiate themselves from one another, i.e. relate to one another ^[7]. Studies can also be found for social pedagogical fields of work that emphasize a “dialogical transformation of knowledge” if practices in social pedagogy are to be changed ^[6]. Dialogue is a concrete practice that takes place between acting subjects. The aim is to initiate processes of understanding the different perspectives on the same object.

Results from implementation research in the education sector also show that dialogue between those involved is a success factor for the further development of practice. As a result of a systematic overview of 33

studies, Schrader et al. pointed out that, in addition to other factors, a changed culture between research and practice is crucial for the successful implementation of innovation ^[8]. Such a culture should be characterized by cooperation and the active involvement of practitioners in the implementation process. In addition, practitioners must be recognized (e.g. through public acknowledgements, assignment of expert status). Roth et al. also emphasized the importance of developing a common language and reflecting on the implementation process between practitioners and academics ^[9].

Studies from the USA on “research-practice partnerships”, which are regional, long-term collaborations between representatives from research and practice, also provide indications of the relevance of dialogue between research and practice ^[10]. These are successful in terms of the sustainable further development of systems, routines, and behaviors if they are characterized by joint negotiation processes and shared decision-making power ^[11]. In addition, it is crucial that the participants overcome barriers due to different languages and thus broaden their perspectives ^[10]. Uncertainties, different expectations about norms and responsibilities as well as possible conflicts should be dealt with in a solution-oriented manner ^[11].

The selected research results cited above indicate that a dialogue between practice and research can also be considered a prerequisite for the effective further development of the field of work in early education. This article follows on from this. It focuses on the question of how educational professionals in daycare centers perceive the dialogue with researchers and what expectations they associate with it.

3. Method

In October 2021, the authors conducted five problem-centered group discussions with educational professionals in daycare centers ^[12]. The sample (**Table 1**) was drawn from a wide range of daycare centers in terms of organization, size, and location ^[13].

Each group discussion was opened with an impulse based on results from quality research ^[14]. If more specific statements appeared necessary, problem-orientated follow-up questions along a guideline were

Table 1. Daycare centers information

Daycare center	Participants	Qualifications	Location	Operator	Number of children cared for
2	3 (management, deputy management, 1 paedagogical specialist)	1 nursery school teacher 1 childcarer 1 qualified social pedagogue	Big city	Free	22
3	7 (management, deputy management, 5 paedagogical specialists)	7 nursery teachers	Medium-sized city	Communal	260
4	5 (deputy head, 4 paedagogical specialists)	1 primary school teacher 1 university degree(unspecified) 2 nursery teachers 1 childcarer	Metropolis	Free	88
5	7 (management, deputy management, 3 educational specialists, 1 trainee, 1 FSJ student)	5 nursery teachers 1 in training to become an educator 1 A-levels (FSJ)	Large town	Free	up to 41
7	3 (management, deputy management, 1 educational specialist)	2 nursery nurses 1 childcarer	Rural community	Free	43

Notes: Stellvertr. = deputy; päd. = pedagogical; Azubi = trainee, FSJ = voluntary social year; Two further planned discussions (Kita 1 & 6) could not be held at short notice due to an infection with COVID-19 in the daycare center and a cancellation without further justification.

possible^[12]. The open and flexible guidelines covered the following topics: pedagogical professionals' expectations of research, cooperation with researchers, reception of research findings, team conditions, and local structures.

The fully transcribed group discussions were analyzed using content-structuring content analysis to draw a thematic cross-section through the extensive data material^[15–16]. Based on initiating text work for each group discussion, which allows an interpretative approach to the data material, case summaries were created with initial hypotheses and decisive lines of argumentation^[15]. The subsequent development of a category system initially considered deductive main categories (MC) along the guideline, which were expanded inductively from the data material with main and subcategories (SC). Thematic, analytical, and natural categories were used, the meaning and coding rules of which were recorded in a category manual with anchor examples^[15]. The data material was coded along the category system (10 HK, 59 UK) using the MAXQDA 2022 program^[23]. This was done in the sense of a “subjective assessment”, in which two researchers coded the data material independently of each other and then compared the codes. Consensual coding was achieved by preparing memos and comparing

disputed codes; for detailed information on the methodological approach^[15, 17–18].

For the present partial evaluation of the data material, the focus was on the categories that provide information on how educational professionals assess the dialogue with researchers. These main categories and their subcategories are:

HC Description of research by practice (UK: “this” research, tasks, disciplines);

HC Gap between practice and research (UK: unrealistic research, cooperation and participation, little recognition by research, researchers do not know practice, research questions);

Consequences of research (UK: Foundation of education, Usable for action, No added value, Pressure on professionals, Pressure on parents, Optimization of childhood, Produces nothing new, Constantly sets new trends).

4. Results

In all five group discussions, the educational professionals negotiated how the relationship between practice and research can be defined from their

perspective. The content of the discussions is presented below as a cross-section along key topics and illustrated using quotes. Scenic and contextual information was added to illustrate the atmosphere and possible role conflicts within the group ^[12].

4.1. Unknown dialogue partners

The topics of the group discussion initially show that the respective tasks or logic of action of the potential dialogue partners are difficult to assess from the perspective of the participating professionals.

In all five daycare centers, for example, it was discussed that researchers could not easily understand the conditions under which practice takes place, the processes in the daily routine, or the pressure to act under which professionals operate. The professionals in daycare centers 3 and 7 confirmed that it was important for the researchers to experience everyday educational life, and to immerse themselves in it to find out what it means. In the group discussions, a demarcation between practical and research activities becomes clear, as the following example from daycare center 5 impressively shows. Here, there is ongoing speculation as to why the results of the quality research, which were described as the initial impulse, attest to the daycare centers being of poorer quality than the professionals expected.

B1: If the researchers perhaps do not/

B3: (quietly) Have the knowledge.

B1: Have never worked practically on the child, but only think about quality, but not

B2: Yes.

B3: Yes.

B1: About the realization of quality.

B7: And about working with the child.

B1: And that this could perhaps be organized more simply in practice than it is seen from the outside. Or is seen. I mean, that happens to us too, that parents sometimes do not see it, yes? That they still think we play all day and do not recognize the quality behind it, yes?

B7: Drinking coffee.

B3: Mhm (affirmative). (Daycare center 5, 70–83, smoothed transcript).

This excerpt shows that educational professionals are looking together for answers as to why quality can

hardly be assessed from the outside. They lack the necessary experience if they have never had to realize quality in practice. Researchers, like parents, are seen as “outsiders” who are also unable to recognize quality from the outside.

The group discussions also make it clear that the participants cannot fully understand the tasks and areas of responsibility of the researchers. The research objects and questions from different disciplines (in particular neurobiology, developmental psychology, linguistics, and medicine) associated with the term “research” in the group discussions seem unclear. This diffuseness is reflected in formulations such as “this research thing” (Kita 3, B4, 206) or “this research” (Kita 4, B3, 596). Research is “somehow” trying something out (Kita 7, B1, 612) and takes place in some “research science buildings” (Kita 3, B2, 471). The paedagogical professionals attribute tasks such as improving the staff situation or enabling free access to libraries or zoos to the researchers (Kita 3, 4 & 5). Here, different actor levels, that of politics and research, are mixed and the desire for an improvement in the work situation is clearly expressed by the professionals in all group discussions. Accordingly, research is presumably also addressed here as an actor that should contribute to such an improvement.

4.2. Dialogue relationship with obstacles

The second thematic focus of the group discussions relating to the dialogue between researchers and educational professionals bundles indications of how the participating professionals experience the relationship with researchers.

It was thematized in Kita 3 and 7 that research seeks too little contact with the practice and that practice is not listened to. The consequences of practice through the implementation of new research findings, such as support programs, are of little interest (Kita 2 & 7). In Kita 7, these statements are embedded in a discussion that is characterized by a certain resignation in various phases. Research could hardly contribute to improving the situation and neither professionals nor children would benefit from research results, also because political decision-makers would refer too little to these results. The professionals in daycare center 2, on the other hand,

fundamentally doubt the usefulness of research results and consistently lack an interest in research in feasible, real-life practice.

Researchers also give too little back to practice, as discussed in daycare center 5, which has already taken part in several research projects. Everything is provided, the children and professionals are motivated and the daily routine is adapted. However, no feedback is received from the researchers, even though the participants believe they have a ‘duty to provide it’. In the discussion, this lack of feedback is also seen as a lack of appreciation. In other group discussions, too little recognition from researchers is also discussed. For example, the professionals in daycare center 3 discuss the fact that researchers do not value the skills and knowledge of the professionals enough. The educational professionals also described themselves in other phases of the discussion as pedagogical staff also described themselves as passive performers in other phases of the discussion, who are rarely listened to and hardly involved in decisions. In Kita 7, using the example of the mandatory observation forms introduced by the Ministry of Social Affairs, which the professionals regard as the result of research work, it is argued that the professionals are denied the competencies to carry out observations independently.

The professionals in daycare centers 3 and 5 not only do not feel recognized but from their point of view the field of work and their personal commitment are partially devalued by research results. This is illustrated by the following quote from daycare center 3, in which a specialist refers again to the initial impulse, the results of quality research, towards the end of the discussion about possible cooperation between practice and research. Even though the professional laughs at several points, her concern is clear.

“But the research has also told us that we are not good enough. (laughs) So we can probably stand on our heads and do all sorts of things. I actually think that is a real shame. Because you have to make such an effort and do so much and try so hard and, yes, you like doing the job. But if you then get something back from research, but it’s not excellent - (laughs) (several laughs) and I have to read up again in my free time because I cannot do it at work and do something in my free time, but

it’s not excellent. (laughs)” (daycare center 3, B1, 284, smoothed transcript)

In addition, the participants initially seem to hold research and its results in low regard. A common thread running through the five discussions is that research produces results that are of little use in practice. The results are produced under ideal conditions and look good on paper but have little to do with the reality in daycare centers. The results are “smoke and mirrors”, as they could not be implemented by the “average teacher or child carer” (Kita 4, B3, 763) under the conditions in the daycare center. This aspect is brought into the discussion by the language support worker from daycare center 4, who describes herself as having an affinity for research and also emphasizes elsewhere that there are important research findings, but that they are difficult to implement. Kita 5 and 7 also emphasized that research results and innovations in the field of work are important. However, the results are not sufficiently applicable to the challenges of practice.

Furthermore, Kita 3 discusses that researchers have too narrow a view of educational processes and that each discipline only produces results within its boundaries. This means that the complexity of pedagogical practice cannot be taken into account and pedagogical objectives can hardly be considered. In Kita 3, it is discussed in detail and possibly in the sense of striving for consensus on how theoretical impulses from the training of professionals (e.g. saying no is forbidden) or from science (e.g. asking every child before nappy-changing whether they agree to it) are too one-dimensional and fail to meet practical requirements.

Although research findings are relevant for the foundation of training (Kita 4 & 5), research is often an end in itself. According to Kita 4, the body of knowledge in daycare centers is already very large, yet research continues without any consequences. Kita 3 criticizes the fact that it is often incomprehensible why certain research questions are formulated as such. The associated constant expectations of changes in educational practice were described in the discussion by the management, the deputy management, and also by a participating group leader as stressful. In this context, the following quote may indicate that there is a lack of appropriate moderation of change processes in this daycare center.

“Because you just get the feeling that what often overwhelms us or what comes at us from all sides is becoming more and more and comes from a lot of clever research. There was something interesting. We still have to include THAT. And can we not perhaps? And that is what is simply putting more and more pressure on our chests. (...)” (Daycare center 3, B2, 142, smoothed transcript)

The discussion in Kita 4 must be viewed in a more differentiated way in this context. Only in this discussion — despite the phases in which the professionals take a critical stance towards research results — is the aspect of how scientific findings can be used meaningfully for their actions addressed in response to questions from the moderator. The professionals concluded that this provided security and orientation and that it made it easier to understand why children or parents act in a certain way. The acquired knowledge can be called up at the moment when it is needed in action.

4.3. Potential for and through dialogue

The group discussions include discourse on the motivation of the participating professionals to engage in dialogue with researchers and the potential they see in this.

In daycare center 2, for example, the idea is discussed that an exchange between practice and research is important so that research is informed more quickly about social developments that are noticed earlier in practice. In Kita 3, the professionals expressed the hope that the dialogue would enable them to get to know each other and that transparent information about developments could be passed on. It is possible that more impact could be achieved if research and practice were to cooperate to improve the situation in daycare centers (Kita 7). For empirical findings to bring about sustainable changes in practice, dialogue is important.

Well, also with much more communication with each other. Not just putting it over because we’re now saying that’s good and you’re doing it down there, but really communicating on a level (Daycare center 7, B1, 493).

The educational professionals (Kita 2, 5 & 7) argue that participation in the development of new ideas for the field of work brings decisive advantages

for the practical relevance of research results. The idea of joint development of projects, programs, and so on, is described: Research and practice observe the implementation, exchange ideas, reflect together, and then — if necessary — change processes. In addition, the idea that professionals themselves (co-)research is formulated as beneficial (Kita 3). However, the time required for such active participation must be manageable given the tight staffing situation in the daycare centers (Kita 2 & 7).

5. Discussion and conclusion

The topics of the group discussions show that the participating professionals were fundamentally dissatisfied with their work situation. The cooperation with parents, which was mostly perceived as complicated, the poor staffing situation, or the lack of recognition from society characterized individual phases of the discussions. In some cases, the question of knowledge transfer seemed to act as an outlet for expressing their own frustration and excessive demands. In particular, when the professionals appeared emotionally affected, e.g. due to the pedagogically questionable wishes of parents, new, completely overwhelmed colleagues, or the noticeable devaluation of their professional competencies, a “ramping up” of this frustration cannot be ruled out despite appropriate moderation during the discussions. The professionals’ view of research and its results can also be influenced by this.

Nevertheless, the group discussions revealed very serious, reflective, and controversial discussions between the professionals regarding their perception of the dialogue with research ^[12]. In summary, the analyses show that educational professionals particularly address the barriers to a profitable dialogue with researchers. The potential dialogue partners, their approach, and tasks are difficult to assess. The relationship between practice and research is usually described as a gap and, as Coburn and Penuel emphasize, two different cultures are emerging.

This can also be linked to the fact that the participating professionals describe empirical findings as more of a burden than support. There is hardly any indication of added value for professional action, as the consequences of research do not seem comprehensible

or are experienced as negative. It can be assumed that this critical view of research results is not necessarily an expression of their poor quality or a lack of interest on the part of the professionals. Primarily, a communication problem becomes apparent, which is caused by various barriers to communication. Professionals lack access to empirical findings as well as opportunities and places for reflection to engage with them. The available findings on the relevance of a joint dialogue are reflected in the results of the group discussions. It can be assumed that greater participation by educational professionals and regular and ongoing dialogue between researchers and professionals should have a positive effect on the ability to connect empirical findings and thus on their evaluation by professionals. The group discussion in Kita 4 shows, for example, that a link between scientific knowledge and their actions is probably not immediately apparent to educational professionals. It only becomes clear that scientific knowledge can be beneficial through intensive discussion in interactive contexts.

The group discussions were primarily, but not exclusively, attended by professionals with a qualification as an educator. It is not possible to judge whether academic training opens up a different, more natural access to scientific knowledge. Irrespective of this, the topics in the group discussions allow the conclusion to be drawn that the professionals' knowledge seems to be strongly "embedded" in their practical work and is difficult to access explicitly^[19]. This points to the underlying assumption of this article that empirical findings must be transformed so that they can be integrated into the professional knowledge of the professionals and thus only become connectable through dialogue.

Even an exchange as the lowest-threshold form of dialogue presupposes that one can rely on a flow of information^[20]. Based on the analyses described above, there is a clear need for action here. This becomes even clearer if one strives for a co-construction of knowledge as a form of cooperation for a knowledge transformation as a dialogue, as described above, which is characterized

by joint tasks and further development as well as shared responsibility and trust^[20].

If a reciprocal connection between practice and research, between professional and scientific knowledge is to be established through dialogue, this requires not only time and financial resources but also opportunities for dialogue and encounters through an appropriate infrastructure^[2, 6]. Also relevant are (regional) strategies to continuously overcome this lack of exchange, which is often described as a gap^[21]. Forms of participation by practitioners in research processes should be examined, as well as further moments of equal encounters between researchers and educational professionals in the form of regional, longer-term networks. Recognizing each other's knowledge is crucial for this, as is valuing the professional knowledge of professionals and practice as a place of knowledge production^[22]. The discourses in the participating daycare centers, in which possible potentials are discussed, show that there are certainly starting points for stimulating or intensifying such a dialogue.

6. Limitations

The study is exploratory in nature and thus, as a first step, points to the contexts, motives, and interests of educational professionals about the dialogue with researchers. The survey took place in autumn 2021 amid the ongoing COVID-19 pandemic. This tense situation may have had an impact on the professionals' perspective, as did the increasingly noticeable staff shortage and dissatisfaction with the work situation. The influence of the problem-focused initial impulse on the topic setting cannot be clearly reconstructed. Regardless of these possible influencing factors, the group discussions show that the professionals seriously, reflectively, and controversially deal with the perception of the dialogue with research, the consequences of research, the scope of empirical findings, and their expectations — also far beyond the topic of quality research.

Funding

The "Metavorhaben: Quality Development for Good Education in Early Childhood (Meta-QEB)" Project was funded by the Federal Ministry of Education and Research, with the funding code 01NV1801.

Disclosure statement

The authors declare no conflict of interest.

References

- [1] Blatter K, Schelle R, 2022, Transfer in Early Childhood Education as Knowledge Transformation. Theoretical Localization and Fields of Action, in *Transfer in Early Childhood Education. Research in Early Childhood Education XV. FEL*, Freiburg im Breisgau, 21–50.
- [2] Blatter K, Schelle R, 2022, Knowledge Transfer in Early Education. Models, Findings, and Conditions. DJI, Munich.
- [3] Beck U, Bonß W, 1989, Scientificisation without Enlightenment? in *Neither Social Technology nor Enlightenment? Analyses of the Use of Social Science Knowledge*. Suhrkamp, Frankfurt a. Main, 7–45.
- [4] Dewe B, 2005, From Knowledge Transfer Research to Knowledge Transformation: Mediation Processes — Changes in Meaning, in *Knowledge Transfer through Language as a Social Problem*. Peter Lang Wissenschaftsverlag, Bern, 365–379.
- [5] Heid H, 2015, Educational Research in the Context of Social Practice. On the (Social) Conditions of the Possibility of Influencing Educational Practice through Educational Research. *Zeitschrift für Pädagogik*, 61(3): 390–409.
- [6] Sehmer J, Gumz H, Marks S, et al., 2020, Dialogical Knowledge Transformation. On the Contribution of Qualitative-reconstructive Research to the Social Work Project, in *Social Work as a Project. Contours of discipline and profession*. Springer VS, Wiesbaden, 171–184.
- [7] Lüders C, 1991, Searching for Traces. A Literature Review on Utilisation Research, in *Pedagogical Knowledge*. Beltz, Weinheim, 415–437.
- [8] Schrader J, Hasselhorn M, Hetfleisch P, et al., 2020, Keyword Contribution Implementation Research: How Science can Contribute to Improvements in the Education System. *Journal of Educational Science*, 23(1): 9–59.
- [9] Roth HJ, Ucan Y, Sieger S, et al., 2021, Keyword Implementation Research between Intervention and Transfer in the Contact of Multilingualism and Language Education. *Journal of Educational Science*, 2021(24): 775–818.
- [10] Coburn CE, Penuel WR, 2016, Research-practice Partnerships in Education: Outcomes, Dynamics, and Open Questions. *Educational Researcher*, 45(1): 48–54.
- [11] Penuel WR, Allen AR, Coburn CE, 2015, Conceptualising Research-Practice Partnerships as Joint Work at Boundaries. *Journal of Education for Students Placed at Risk*, 20(1–2): 182–197.
- [12] Kühn T, Koschel KV, 2018, *Group Discussions. A Practical Handbook*. Springer VS, Wiesbaden.
- [13] Flick U, 2014, *Qualitative Social Research*. Rowohlt, Reinbek near Hamburg.
- [14] Lamnek S, 2005, *Qualitative Social Research* (4th ed.). Weinheim, Basel: Beltz.
- [15] Kuckartz, U. (2016). *Qualitative content analysis. Methods, practice, computer support*. Weinheim, Basel: Beltz Juventa.
- [16] Lamnek S, Krell C, 2016, *Qualitative Social Research*. Beltz, Weinheim.
- [17] Guest G, MacQueen KM, Namey EE, 2012, *Applied Thematic Analysis*. Thousand Oaks: SAGE Publications, New York.
- [18] Schelle R, 2023, Group Discussions with Educational Professionals, in *Knowledge Transfer in Early Education. Empirical Findings from a Qualitative Study*. DJI, Munich, 13–42.
- [19] Thole W, Milbradt B, Göbel S, 2016, Capturing Knowledge Empirically — Methodological and Practical Research Considerations on Research Design, in *Knowledge and Reflection. Everyday Life in Child Day Care Centres in the View of Professionals*. Springer VS, Wiesbaden, 145–172.
- [20] Gräsel C, Fußangel K, Pröbstel C, 2006, Encouraging Teachers to Co-operate — A Task for Sisyphus? *Zeitschrift für Pädagogik*, 52(2): 205–219.
- [21] Farley-Ripple E, May H, Karpyn A, et al., 2018, Rethinking Connections between Research and Practice in Education: A

Conceptual Framework. *Educational Researcher*, 47(4): 235–245.

- [22] Thole W, 2018, Dealing with Knowledge. How Communication between Socio-educational and Scientific Practice Could Succeed. *Forum Youth Welfare*, 18–22.
- [23] VERBI Software, 2021, MAXQDA 2022. VERBI Software, Berlin.

Publisher's note

Whioce Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

