


# Cooperative planning in childcare centers to improve physical activity: a qualitative investigation of directors' perspectives

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## Summary

Interventions to promote physical activity (PA) in childcare centers have been shown to increase children's PA levels; moreover, a growing number of evidence-based best practice guidelines exist for this setting. However, there is a lack of knowledge on the facilitators of and barriers to the successful implementation of PA guidelines and interventions. We used Cooperative Planning to improve capabilities for PA in childcare centers. This qualitative study aimed to explore childcare center directors' views on the Cooperative Planning process and identify the facilitators of and barriers to its implementation. We conducted guided semi-structured interviews with the directors of nine childcare centers after completion of the 12-month Cooperative Planning process. The interviews were recorded, transcribed and analyzed using qualitative content analysis with inductive category development. Facilitators and barriers were systematized according to the Consolidated Framework for Implementation Research (CFIR). Cooperative Planning was regarded as being helpful for structuring the process and involving all team members. Several facilitators within the CFIR domains inner setting (structural characteristics, networks and communications, implementation climate), outer setting (support from parents and provider), characteristics of individuals (intrinsic motivation of the staff) and process (individual drivers) were identified. The reported barriers included structural characteristics (e.g. lack of time), networks and communications (e.g. team conflicts) and characteristics of individuals (e.g. lack of willingness to accept change). Several contextual and interpersonal factors seem to influence the extent to which a Cooperative Planning process can be implemented by a childcare center's team. Future research is needed to evaluate the strategies needed to overcome the identified barriers.

**Key words:** childcare, cooperative planning, physical activity, qualitative research methods

## BACKGROUND

Physical activity (PA) in the early years of a child's life is favorably associated with a wide range of health indicators, including motor development, psychosocial health

and cognitive development (Carson *et al.*, 2017; Pate *et al.*, 2019; Veldman *et al.*, 2021). Therefore, it is important to promote PA in early-childhood education and care (ECEC) settings (Gordon *et al.*, 2013), especially

since the use of center-based childcare is highly prevalent, particularly in high-income countries. In Germany, 91.7% of children aged 3–5 years and 29.3% of children aged 0–2 years attend childcare centers (Statistisches Bundesamt, 2020). Attending ECEC is not obligatory in Germany, but since 2013, all children have had a legal entitlement to a place at center-based childcare or family daycare starting with their first birthday. ECEC in Germany is highly decentralized, with municipalities and districts being in charge of local provision as well as main actors in service funding. There is a diversity of providers, most of which can be classified as ‘free’ providers from the private nonprofit sector (e.g. social welfare agencies and the church). The 16 federal states have introduced curricula in order to increase pedagogical consistency, but these are not mandatory (Scholz *et al.*, 2019).

Different strategies and interventions for PA promotion have been developed and tested in this setting, and a growing number of best practice guidelines and PA recommendations exist for childcare centers (Finch *et al.*, 2016; Wolfenden *et al.*, 2020; Jackson *et al.*, 2021). However, there is a lack of evidence to inform the successful implementation of evidence-based policies, practices and programs in childcare centers (Larson *et al.*, 2011; Finch *et al.*, 2016; Jones *et al.*, 2017; Razak *et al.*, 2019; Wolfenden *et al.*, 2020). Implementation can be defined as ‘a process whereby specific strategies are used to facilitate the adoption of evidence-based interventions and change practice patterns within a specific setting’ (Wolfenden *et al.*, 2016). Several frameworks have been developed to systematize the conditions that facilitate the implementation of health promotion interventions. Of these, the Consolidated Framework for Implementation Research (CFIR) is one of the most widely used. The CFIR is comprised of common constructs from published implementation theories; it provides a structure to describe what works for whom in what context. The constructs are clustered in five major domains: intervention characteristics, outer setting, inner setting, characteristics of the individuals involved and the process of implementation (Damschroder *et al.*, 2009). In addition, some studies have identified specific implementation factors for childcare centers. As childcare centers differ in their prerequisites concerning infrastructure, staff, organization and readiness to change (Sharma *et al.*, 2014), the successful implementation of interventions seems to depend on the extent to which they are tailored to the specific needs of each childcare center and how context-specific barriers are addressed (Hnatiuk *et al.*, 2019). However, barriers are rarely identified or considered in implementation trials, and

there is a need for a more thorough understanding of these barriers in order to develop appropriate support strategies (Wolfenden *et al.*, 2016, 2020; Jones *et al.*, 2017).

Cooperative Planning is a promising participatory approach that enables the implementation of evidence-based PA interventions well-adapted to the respective context (Rütten, 1997). Our research project aimed at exploring if the children’s and staff’s capabilities for an active lifestyle could be increased through a Cooperative Planning process that involves the childcare centers’ directors and staff in planning and implementing center-specific PA programs, policies or environment changes. In each childcare center, a Cooperative Planning process targeting the improvement of opportunities for PA was initiated and supported by coaching. The project resulted in new PA programs as well as environment changes in the childcare centers and significantly increased the step counts for the children and childcare staff (Popp *et al.*, 2018; Müller *et al.*, 2020). Childcare center directors were primarily responsible for coordinating the Cooperative Planning process. Therefore, this qualitative study aimed to explore childcare center directors’ views on the guided Cooperative Planning process and to identify the facilitators and barriers in order to gain a deeper understanding of the circumstances under which childcare centers can benefit from that planning process. In addition, we aimed to explore possible associations between the facilitators and barriers identified by the childcare center directors and reported changes in the centers’ environment, policies, and practices.

## METHODS

The 12-month Cooperative Planning process was implemented in 12 childcare centers in two model regions in Bavaria, Germany. The staff and director of each childcare center formed a Cooperative Planning group under the guidance of researchers as neutral moderators. The Cooperative Planning process started with a kickoff workshop for all the childcare centers in each model region, where a self-assessment app was introduced (Ungerer-Röhrich, 2019). The participants were asked to use the app to assess the PA environments and practices in the childcare centers, including indoor and outdoor space, equipment, childcare center culture, activities offered, methods and didactics, education in motion, parental work, staff qualification and written policies. Then, two Cooperative Planning sessions took place in each childcare center utilizing the typical steps of Cooperative Planning (brainstorming, prioritization of action areas, goal setting, planning of specific

measures and finalization of an action plan). The team at each center was instructed to set three center-specific, measurable, attainable, relevant and time-bound (SMART) goals targeting PA based on the results of the self-assessment app and to use Goal Attainment Scaling to track the success at implementation (Kolip and Schaefer, 2013; Bjerke and Renger, 2017). The teams documented the implemented changes and the obtained levels of goal attainment. These varied between the childcare centers.

Guided semi-structured interviews were conducted with the directors of nine centers after the 12-month period. We used purposive sampling to include childcare centers with higher and lower levels of goal attainment. Initially, we had planned to conduct four interviews in each model region (two childcare centers with higher levels of goal attainment, two childcare centers with lower levels of goal attainment). However, as in one model region, the total number of childcare centers participating in the process was five, we decided to include all five directors. Two researchers (one in each model region) conducted the interviews in autumn 2017 using the same interview guide. Written informed consent was obtained from all the participants using forms approved by the Institutional Review Board of Coburg University of Applied Sciences and Arts. All the interviews were conducted face-to-face at the childcare centers. The interviews were audio-recorded, transcribed verbatim and analyzed in a qualitative content analysis with inductive category development using MAXQDA software by one researcher (VERBI GmbH, Berlin, Germany) (Mayring, 2010). The passages relevant for the research question were paraphrased, generalized and similar statements were aggregated. The results were discussed by the research team and checked against the domains and constructs suggested by the CFIR. In addition, we identified the factors that emerged in all interviews and used these characteristics to explore the differences between childcare centers with regard to the successful implementation of changes in the center's environment, policies and practices. Five dichotomized characteristics were summed up using a readiness-score: personnel situation: 1 = rather beneficial, 0 = rather tight; team cooperation: 1 = rather good, 0 = rather difficult; perception of time expenditure: 1 = rather appropriate, 0 = rather too high; perception of barriers: 1 = rather positive (challenges that could be accomplished), 0 = rather negative (setbacks); perception of parents: 1 = rather supportive, 0 = rather uninterested. We compared childcare centers with lower and higher readiness score with regard to the number of levels/areas with reported improvements.

## Study participants

Interviews were conducted with nine directors (one male, eight females) from childcare centers caring for different numbers of children (between 20 and 134 children) and in different locations (Table 1). The interviews had a mean duration of 60 min.

## RESULTS

### Childcare directors' role in the Cooperative Planning process

The childcare directors mainly considered themselves to be the person with the greatest responsibility for the success of the Cooperative Planning process. They described their role as being responsible for fulfilling the tasks of the project, organizing and structuring team meetings, communicating with the researchers, promoting the process and motivating the team members. One of the directors stated:

In this case, it was us [childcare director and representation] who had the lead and kept pushing it. It was not like the others didn't do anything on their own initiative; that's not what I want to say, but we had to set the dates and say, now we do this and that. (E3)

### Perception of the Cooperative Planning process

The Cooperative Planning process was regarded as being helpful for structuring the process, involving the entire team, and clarifying the goals (see examples below). The directors appreciated the instructions on how to set goals and make action plans, which structured the topic of PA promotion, but also allowed for center-specific actions. This is seen in the comments made by three of the directors:

As I said, we would have worked out something anyway. We just wouldn't have had your instructions. But we probably would have missed these. With this action plan, objectives, and things like that. It was just fine that we got this input on how to do that, but we would have worked on that topic anyway. So, it just did fit. (C4)

**Table 1:** Characteristics of the childcare centers

Size	
Mean number of children (range)	84 (20–134)
Mean number of staff (range)	14 (5–24)
Location	
Rural area (<5000 inhabitants)	2 childcare centers
(Small) town (5000–50 000 inhabitants)	6 childcare centers
City (>50 000 inhabitants)	1 childcare center

You helped us a lot; to be clearer about and—just to set these goals; we wouldn't have been able to do that alone. (E1)

And then we always had tasks; I think that was good, too. If you only meet and talk, nothing comes out of it at all. But if you really have to put it on paper and sit down there, how do we put it into words now, and to have the whole team involved in the elaboration of these tools, that has really helped a lot. So, I also really liked about the project that you had to do something again and again. And that it was not just such a big, confusing topic, but that it was really structured, step-by-step, that also contributed to the success. (C1)

I also found it very, very positive that we weren't forced into anything, but that we could make our own goals and we could also say, this is important for us right now, this is also realistic and not something where somebody would have said you have to do that and that. (C4)

### Facilitators and barriers

The directors identified several factors that facilitated the Cooperative Planning process reflecting the CFIR domains inner setting, outer setting, characteristics of individuals and process (Table 2). Within the inner setting domain, the directors mentioned certain structural characteristics: two directors reported a beneficial personnel situation that allowed for additional tasks. Another director indicated that it was essential to have a good infrastructure. The directors also described characteristics of the childcare center's team (networks and communications as well as implementation climate) as being important for the project's success: good team cooperation, the shared belief that PA was a high priority for the children, previous experience with similar projects, and pressure for change, which emerged from the staff's and parents' dissatisfaction with certain conditions in the childcare centers. Factors that can be seen as part of the outer setting and that were frequently mentioned by the directors were support from parents, in the form of manpower, financial, or material donations, and support from the provider, the administrating organization or municipality responsible for the childcare center, which is also connected to the allocation of financial and personnel resources.

With regard to characteristics of individuals, the intrinsic motivation of the staff was the only theme emerging from the interviews. One director emphasized that it takes individual drivers to push the process (e.g. the director himself/herself), which can be categorized as a characteristic of the implementation process.

The CFIR domains inner setting and characteristics of individuals also emerged from the identified barriers (Table 3). Structural characteristics, like the lack of time, personnel and financial resources, were the barriers that were most often reported. One director reported that infrastructural limitations hindered the implementation of certain actions, such as the installation of new equipment in the gym. Interpersonal and individual factors were also mentioned as barriers; team conflicts and a lack of openness to change among team members made the process more difficult for some of the directors. While intrinsic motivation was one of the most important facilitators, the lack of it was shown to be a barrier to the process. Some directors stated that the staff's motivation decreased when the process was tough or when things did not work out the way people had planned.

### Relationship between the barriers and facilitators and the reported changes in childcare centers

While some specific facilitators and barriers were identified as being issues at one childcare center, a range of factors emerged in all the interviews and were summed up using a readiness score. According to the readiness score, childcare centers can be classified into two groups: those with a lower score (between zero and two) ( $n = 5$ ) and those with a higher score (between three and five) ( $n = 4$ ). The directors of childcare centers with a higher readiness score reported a mean number of four areas with improvements, compared with a mean number of three areas with improvements within the group of childcare centers with a lower readiness score. The components 'personnel situation' and 'team cooperation' showed the closest association to the number of changes.

## DISCUSSION

This qualitative study aimed to explore childcare center directors' views on a guided Cooperative Planning process targeting the improvement of PA opportunities and to identify the facilitators of and barriers to successful implementation. Childcare directors accept a Cooperative Planning process because it helps the team improve the ways in which it promotes the planning and implementation of PA opportunities based on the childcare center's specific needs and preferences. This confirms the findings of a recent exploratory study that identified the adaptability or flexibility of a program to meet the needs of the specific childcare center as an important dissemination and implementation factor (

**Table 2:** Facilitators identified by the childcare center directors

Facilitators in the childcare center	Examples
CFIR domain: inner setting	
Structural characteristics	
Beneficial personnel situation	But we are also in a luxurious situation here. We have a good child-to-staff-ratio, when everyone is here; as I am usually free from group work, it was easy to handle. (C1)
Good infrastructure	It certainly was helpful that we already had some conditions that we could change for the better; we already have a nice gym, we already have some rooms that we could change, a big garden. . . So, I think we had felt before that we were moving and we just wanted to optimize it. (E3)
Networks and communications	
Good team cooperation	We actually always work like this, when somebody has an idea and convinces the others, we do the groundwork together. It was nothing unusual for us, the topic was unusual, sports and so, but us there together, getting literature, presenting or documenting something for the others, that is actually how we work. (E4)
Implementation climate	
High priority of physical activity	As we had already done a lot for physical activity beforehand, we didn't have to spend the time on those theoretical inputs you normally need for it. (C4)
Pressure for change	It was helpful that we, especially when it comes to the two gardens outside, knew that there was a great need to change something anyway. This was good, because it has bothered the colleagues for a long time, and the parents as well. (C2)
Previous experience with similar projects	The staff was already used to working with checklists, finding goals, working out action plans, and then implementing and documenting the measures. These were methods we already knew and therefore working like that was not an unusual task for the team. (C4)
CFIR domain: outer setting	
Support from parents	The help from parents was supportive, and that the municipality also offered so much help; and supported us; also, for outside, for our exercise area outside, they have trimmed the trees for us and things like that. (E5)
Support from the provider, the administrating organization or municipality	I found it really great that our administrating organization supported us like that. That they really said, this physical activity is the important thing in children's development and they want to keep putting it into practice in the kindergarten. (C4)
CFIR domain: characteristics of individuals	
Intrinsic motivation of the staff	As I've said, even though we are an old team and have relatively few young people, we were actually all enthusiastic and motivated; and we are actually like this in many things when something new comes our way—so that you don't rust. (E4)
CFIR domain: process	
Individual drivers	It takes somebody who pushes. (C2)

Farewell *et al.*, 2020 ). The adaptability of an intervention, defined as 'the degree to which an intervention can be adapted, tailored, refined, or reinvented to meet local needs', is also described in the CFIR as an intervention characteristic facilitating the implementation (Damschroder *et al.*, 2009). Allowing for center-specific adaptations seems to be highly important when

implementing PA opportunities through a Cooperative Planning process in childcare centers.

Several contextual and interpersonal factors seem to influence the extent to which a team at a childcare center can utilize a Cooperative Planning process and implement the resulting actions. The most prevalent facilitators and barriers were the personnel, time,

**Table 3:** Barriers identified by the childcare center directors

Barriers in the childcare center	Examples
CFIR domain: inner setting	
Structural characteristics	
Lack of time	I would say that in many parts, there was no different way and we couldn't get the most out of it due to the lack of time. (E1)
Tight personnel situation	The barriers actually were that three out of seven colleagues were absent, and then you have to see how you get by. Then, new colleagues come on board to help and [they] have to be familiarized with the work; and then I had to fully join the group work again and didn't have much time for other things anymore; these were the barriers for us last year. In fact, it really was the personnel situation. (C1)
Lack of financial resources	On this level, it really was the money; that we didn't find any sponsors and had to look first; some support to find more sponsors would have been nice. (E5)
Limited infrastructure	The room conditions as well, for example in the gym, the thing with the beams is not going to work due to the static requirements; and these are conditions you have, and you can't build a new kindergarten. (E3)
Networks and communications	
Team conflicts	There were disagreements within the team; one doesn't get along with the other and howsoever; I found it difficult and I was somehow really frustrated; it simply cannot be possible that I bear everything on my own again and don't get you on board. (E2)
CFIR domain: characteristics of individuals	
Lack of intrinsic motivation	I feel the tendency among the colleagues [...] that suddenly the questions come: "Do I have to come? I wanted to take the day off." [...] You notice it, and if there was nobody who pushed it, I imagine, that particularly in a center like ours, where physical activity has been taken much too less into consideration in the last decades, it can quickly die away again. (C2)
Lack of willingness to accept change	There are also colleagues who feel like they are losing something now, like they can't do the things they have done for years anymore. (C2)

financial and infrastructural resources of the childcare center. When these were lacking, they were more often mentioned as barriers. Importantly, the personnel situation seems to determine the extent to which the staff can work on additional projects. Staff shortage is an issue reported by more than 90% of childcare center directors in Germany, often leading to a vicious circle. Due to the tight personnel situation, the staff has to deal with a heavy workload, leading to more staff taking sick leave due to physical and mental stress (Wolters Kluwer, 2020). This problem needs to be addressed in the long-term to enable childcare centers to work on quality improvements, not just in the area of PA promotion. These results are in line with the finding reported in previous research that identified that environmental and social factors affect the implementation of PA policies, practices or programs in childcare centers. A recent systematic review identified the facilitators of and barriers to the implementation of environmental

recommendations to encourage PA in childcare centers, the majority of which could be classified either as environmental context and resources (e.g. time) or social influences (e.g. support from parents) (Razak *et al.*, 2019). The authors used the theoretical domains framework, which focuses on behavior change, to categorize the barriers and facilitators (Cane *et al.*, 2012).

We used the CFIR, a broad and comprehensive framework, to categorize the facilitators and barriers the childcare center directors identified. Within the major CFIR domains, the number of constructs emerging from the interviews differed, implying that some of the constructs seem to be more important for this setting than others are. Most of the identified facilitators and barriers in this study could be classified as characteristics of the inner setting. Resources were the most important structural characteristics. The cooperation within the team and the implementation climate (relative priority of PA and openness to change) were also often reported

as important facilitators or barriers. External support (from parents as well as from the provider/the administering organization) was an important factor from the outer setting. On the individual level, the intrinsic motivation of staff was the most frequently reported facilitator or barrier.

The broad scope of the CFIR is a strength, but there is also a need for specific implementation frameworks for health promotion in childcare centers. Different authors have made first suggestions that need to be validated: the Culture of Wellness in Preschools Dissemination and Implementation Framework (COWP D&I), partly based on the CFIR, was developed to conceptualize, measure and track the factors related to the dissemination and implementation of a multi-component health promotion intervention in early childhood education settings. The COWP D&I framework consists of intervention-, organizational- and individual-level constructs (Bergling *et al.*, 2020). Another framework specifically developed for childcare settings is the Conceptual Framework for Organizational Readiness to Implement Nutrition and Physical Activity Programs in Early Childhood Education Settings; it consists of structural and external factors (e.g. resources), staff attributes (e.g. staff cohesion) and other psychological factors (e.g. motivation) (Sharma *et al.*, 2014). Both frameworks have some common elements that can also be found in the CFIR: individual-level factors, such as beliefs, knowledge, self-efficacy, organizational and social characteristics, such as implementation climate, staff cohesion, leadership engagement and contextual factors, such as resources or external support. Our study's findings confirm that these factors have an impact on the implementation of a Cooperative Planning process targeting PA promotion in childcare centers. Although we did not find a significant correlation between the facilitators and barriers and changes in the childcare centers, the results indicate that there is a relationship between the identified factors and the childcare centers' capacity to implement change.

This study has some limitations. The interviews were only conducted with the directors of nine childcare centers, so the staff's perspective was not included. Furthermore, the interviews were conducted by the same researchers who were serving as neutral moderators of the Cooperative Planning process, which might have influenced some of the participants' answers. We used semi-structured interview guides and standardized procedures in order to reduce social desirability bias. Due to the small sample size, the generalizability of the results may be restricted.

Despite these limitations, this study introduces Cooperative Planning as an acceptable strategy to

support the implementation of PA promotion in childcare centers, and it expands the understanding of the facilitators of and barriers to implementing that process. Based on this understanding, future studies should investigate the strategies needed to overcome the identified barriers. Since the barriers are diverse, they require strategies on different levels: on the individual level, barriers, like a lack of intrinsic motivation, require the systematic implementation of theoretically based behavior change methods. Different strategies are needed to increase a childcare center's readiness on the organizational level, e.g. to improve the collaboration within the team. Structural characteristics like resources require strategies on a policy level, e.g. making higher investments in ECEC a political priority in order to attract qualified pedagogical staff. Furthermore, more research is needed to study a broad range of possible implementation factors and to gain more comprehensive knowledge of their relative significance and interdependence in childcare centers. A specific, validated implementation framework for childcare centers could be helpful.

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## ETHICAL APPROVAL

This study was approved by the Coburg University of Applied Sciences and Arts Ethics Committee.

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