

# Ergotherapie

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Adaptation for the Cognitive Orientation  
to daily Occupational Performance  
Approach in group setting for children  
with Developmental Coordination  
Disorder

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A DELPHI STUDY

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# Adaptation for the Cognitive Orientation to daily Occupational Performance Approach in a group setting for children with Developmental Coordination Disorder – A Delphi Study

Bachelorarbeit der Academie voor Ergotherapie  
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## Informative Summary

The present study focuses on how the CO-OP Approach™ can be applied in a group setting with children with DCD.

Based on the master's thesis by Frentzen (unpublished Master thesis, 2020), a Delphi study with two rounds was conducted. The first round of this study was an online questionnaire distributed to the experts by the snowball method. Since there are obviously few experts on this topic and the response rate of the first round of questioning was too low, the researchers changed the method for the second round. The results from the first round were the basis for the next round. The following round was an online group discussion with a moderator.

The participating experts in the second round were given a summary of the results from the first round. Subsequently, the experts shared their opinions on the different focus points (Key features 2, 4, 5, and 6) to get a more in-depth view of the intervention protocol.

The results of this study are divided into qualitative and quantitative results. The qualitative results are analysed following Mayring (2015). The quantitative results could be statistically processed using the Excel tool. In summary, the results are sufficient to specify Frentzen's (unpublished Master thesis, 2020) intervention protocol.

The next step is to conduct an intervention study using the intervention protocol of Frentzen (unpublished Master thesis, 2020) and the present study to make changes if necessary.

It would be desirable to be able to establish a suitable group offer for children with DCD in the German occupational therapy practice context soon.

Based on the results of this study, the researchers do wish that in the future, children with DCD will receive a suitable group intervention in the German, as well as in the international occupational therapy setting. The CO-OP Approach™ is a study-based approach that has been refuted in children with good results and is, therefore, a good starting point for group intervention.

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## List of abbreviations and List of Figures

<b>A</b>	
<b>ADD</b>	Attention Deficit Disorder
<b>ADHD</b>	Attention Deficit Hyperactivity Disorder
<b>C</b>	
<b>CAOT</b>	Canadian Association of Occupational Therapists
<b>CMCE skills</b>	Canadian Model of Client-Centred Enablement Skills
<b>CMOP-E</b>	Canadian Model of Occupational Performance
<b>CO-OP Approach™</b>	Cognitive Orientation through daily Occupational Performance Approach
<b>COPM</b>	Canadian Occupational Performance Measure
<b>CPPF</b>	Canadian Practice Process Framework
<b>D</b>	
<b>DCD</b>	Developmental Coordination Disorder
<b>DPA</b>	Dynamic Performance Analysis
<b>DSM-V</b>	Diagnostic and Statistical Manual of Mental Disorders 5
<b>DSS</b>	Domain Specific Strategies
<b>E</b>	
<b>EST</b>	Ergotherapeutisches Sozialkompetenz-Training
<b>etc.</b>	et cetera
<b>e.g.</b>	exempli gratia; For example
<b>G</b>	
<b>GDPR</b>	General Data Protection Regulation
<b>GPDC</b>	Goal Plan Do Check
<b>I</b>	
<b>ICD-10</b>	International Statistical Classification of Diseases and Related Health Problems
<b>i.e.</b>	id est; In other words
<b>M</b>	
<b>MKT</b>	Marburger Konzentrationstraining
<b>P</b>	
<b>PA</b>	Participant
<b>PA 1/2</b>	Participant 1/2
<b>PACS</b>	Paediatric Activity Card Sort
<b>PEGS</b>	Perceived Efficacy and Goal Setting System
<b>PQRS</b>	The Performance Quality Rating Scale
<b>R</b>	
<b>RCT</b>	Randomised Controlled Trail

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## Abstract English

This research is based on the findings of Frentzen's (unpublished Master thesis, 2020). The aim is to explore the feasibility of adapting the Key features of the CO-OP Approach™ in a group setting for children with DCD.

In a two-round Delphi study, experts were asked about the adaptations of the single Key features. The first round was conducted using an online questionnaire. The data collection method for the second round had to be changed. So, the results were discussed in an online group discussion with two participants. The evaluation was done with Excel and in accordance with Mayring (2015).

The results showed further adaptation of the Key features 1, 2,4, and 7. This led to a revision of the proposal on the intervention format of Frentzen (unpublished Master thesis, 2020).

The study validated and extended the adaptation for the implementation of the approach in the group setting.

Key words: Cognitive Orientation to daily Performance Approach , CO-OP, DCD, group intervention, Germany, international, children, occupational therapy

## Abstract Deutsch

Diese Untersuchung basiert auf den Ergebnissen von Frentzen (unveröffentlichte Masterarbeit, 2020). Ziel ist es, die Durchführbarkeit der Anpassung der Hauptmerkmale des CO-OP-Ansatzes™ im Gruppensetting für Kinder mit DCD zu untersuchen.

In einer zweistufigen Delphi-Studie wurden Experten zu den Anpassungen der einzelnen Schlüsselmerkmale befragt. Die erste Runde wurde mittels eines Online-Fragebogens durchgeführt. Für die zweite Runde musste die Methode der Datenerhebung geändert werden. So wurden die Ergebnisse in einer Fokusgruppendifkussion mit zwei Teilnehmern diskutiert. Die Auswertung erfolgte mit Excel und in Anlehnung an Mayring (2015).

Die Ergebnisse zeigten eine weitere Anpassung der Schlüsselmerkmale 1, 2, 4, 6 und 7. Dies führte zu einer Überarbeitung des Vorschlags zum Interventionsformat von Frentzen (unveröffentlichte Masterarbeit, 2020).

Die Studie untermauerte und erweiterte die Adaptation zur Umsetzung des Ansatzes im Gruppensetting.

Schlüsselwörter: Cognitive Orientation to daily Performance Approach , CO-OP, Gruppenintervention, Deutschland, international, Kinder, UEMF, Ergotherapie

## Abstract Nederlands

Dit onderzoek is gebaseerd op de bevindingen van Frentzen (ongepubliceerde masterproef, 2020). Het doel is het om de haalbaarheid van de aangepaste kenmerken van de CO-OP Approach™ voor groepsbehandelingen voor kinderen met DCD te onderzoeken

In een Delphi-studie met twee rondes werden experts gevraagd naar de aanpassingen van de individuele hoofdkenmerken. De eerste ronde werd uitgevoerd met behulp van een online vragenlijst. Voor de tweede ronde moest de methode van gegevensverzameling worden aangepast. Daarom werden de resultaten besproken in een focusgroepdiscussie met twee deelnemers. De evaluatie werd uitgevoerd met Excel en in overeenstemming met Mayring (2015).

De resultaten bleken een verdere aanpassing van de hoofdkenmerken 1, 2,4,6 en 7. Een herzien versie van het voorstel over het interventieformat van Frentzen (2020) werd in deze studie beschreven.

De studie onderbouwde en breidde de aanpassing uit om de aanpak in de groepssetting te implementeren.

Trefwoorden: Cognitive Orientation to daily Performance Approach, CO-OP, DCD, groepsinterventie, Duitsland, internationaal, kinderen, ergotherapie

## 1. Introduction

More than 5% of school-age children (Statista, 2021) experience exclusion in their everyday life, as they are not able to catch the balls when playing, jump over the rope or ride a bike with friends. In addition, they are often admonished at school for being clumsy and untidy. All this results in these children being less confident, less able to build friendships, and, in the worst case, isolating themselves. Behind all this stands the second most common diagnosis on occupational therapy prescriptions in Germany 2019 (Statista, 2021), Developmental Coordination Disorder (DCD).

The high prevalence, the long-term effects on the everyday life of these children, and the long waiting lists in occupational therapy practices make it obvious that there is a high demand for an effective and client-centred treatment option. The guideline for the treatment of DCD published in 2019 recommends the use of the already well-explored Cognitive Orientation to daily Occupational Performance Approach, short CO-OP Approach™, for the individual setting (Blank & Vinçon, 2019). This is not only considered evidence-based but also in keeping with the new paradigm of occupational therapy.

Due to the multiple socioemotional consequences of DCD, the guideline also recommends the use of group therapies for the treatment of DCD (Blank & Vinçon, 2019). Despite a prevalence comparable to that of Attention Deficit Hyperactivity Disorder (ADHD) (Robert Koch Institut, Abteilung für Epidemiologie und Gesundheitsmonitoring, et al., 2018), for which some group services exist, none yet exist for children with DCD.

Children nowadays spend most of their time in the school context and within different group constellations. It is often in these contexts that they experience difficulties with their coordination and motor skills (McWilliams, 2005). This supports the need for context-based group intervention for children with DCD.

As already described by Green and Martini (2017), the CO-OP Approach™ can also be applied in group settings with some adaptations. These were explored by Frentzen (unpublished Master thesis, 2020) in a scoping review.

After presenting the findings and several ideas for further research, the motivation for this thesis emerged. All researchers have a strong interest in the CO-OP Approach™ as well as in the further development of an effective therapy offer in the pediatric field. This is to meet the need for an adequate treatment approach adapted to the needs of this clientele.

After the master's thesis presentation at ZUYD University and the further research interest, cooperation with the ICAN Academy and the author of the Master's thesis was developed.

This led to the research question, *"What should an intervention protocol look like for the CO-OP Approach™ in groups for children with DCD?"* Which, in turn, the researchers divided into the sub-questions: "What are experts' opinions about the intervention format of the CO-OP Approach™ (structural elements) within the group setting? What are experts saying about how the essential elements of the CO-OP Approach™ could be considered in group therapy? How can the essential elements and the structural elements of the Approach be adapted to the group setting? Especially client-chosen goals in group settings".

The presentation of the answers to the research question in a revised intervention format aims to provide a basis for a subsequent intervention study. This will enable the implementation of the CO-OP Approach™ in group settings to be taken into practice.

This would be achieved through a two-stage Delphi survey with experts in the field of CO-OP in groups. The development of the questionnaire and the interview questions are based on the results of Frentzen (unpublished Master thesis, 2020). Through the Delphi study, these are underpinned and expanded with qualitative data.

For this purpose, the theoretical background to the topic of the thesis was developed through extensive literature research.

Therefore, the authors used various public databases, Google Scholar, OTseeker, or PubMed. The online library of the ZUYD Hogeschool "DIZ home access" was also consulted. In addition, private literature and other specialised books from the library of the ZUYD Hogeschool and the University of Karlsruhe were consulted.

Each research was catalogued in a spreadsheet. The search terms used, the operators, the limitation, and the number of hits were noted. This is shown as an example in figure 1.

Database DIZ			
Limitations	Duration	Language	Publication form
	2000-2021	English	
Keywords and operators	Limitations		Score
Group intervention or group therapy	Full text access		8,540,052 <ul style="list-style-type: none"> <li>Group intervention (Article)</li> </ul>
Group intervention or group therapy AND children	Full text access		2,880,377 <ul style="list-style-type: none"> <li>Cognitive Orientation to daily occupational performance (CO-OP) as group therapy for Children living with motor coordination difficulties: An integrated literature review (Article)</li> </ul>
Group intervention or group therapy AND children AND dcd or developmental coordination disorder	Full text access		56,687 <ul style="list-style-type: none"> <li>Implementing the Cognitive Orientation to daily occupational Performance (CO-OP) approach in a group format with children living with motor coordination difficulties (Article)</li> </ul>

Figure 1: List of Literature research

The studies were classified into the evidence pyramid according to Tomlin and Borgetto (2011). There are a total of four sides of the pyramid, which should help researchers to classify the studies they find according to a certain scheme. It can be divided into descriptive research (bottom of the pyramid), experimental research (side of the pyramid), outcome research (side of the pyramid), and qualitative research (side of the pyramid). Each side can be further classified in a number range from one to four. The lower the existing study can be classified, the higher the quality could be proven. For scientific work, the side of the pyramid, i.e., descriptive research, is not appropriate, as it has very little significance (Tomlin & Borgetto, 2011).

The literature provides an understanding of the clinical picture, the occupational therapy model on which the CO-OP Approach™ is based, and a detailed explanation of the approach. To further emphasise the importance and necessity of this research, the current situation regarding the existing group offers in the German occupational therapy setting is also explained.

The final discussion of the master's thesis by Frentzen (unpublished Master thesis, 2020) is followed by a description of the methodology chosen to answer the research question. This is followed by the implementation of two Delphi rounds and their evaluation. Finally, all results are presented and discussed in context. Thus, an extended intervention format can be presented, and limitations and further research can be addressed.

## 2. Theoretical background

In the theoretical background, the clinical picture of Developmental Coordination Disorder (DCD) is explained in more detail according to the newly published DCD guideline (Blank & Vinçon, 2019). This provides a connection between the clinical picture and the conducted Delphi study. Furthermore, the Canadian Model of Occupational Performance and Engagement (CMOP-E) is discussed as it forms the frame of reference of the investigated approach. After giving an overview of the Disorder, the Canadian model, the general state of group intervention in Germany is shown. To contextualize this with the topic, the CO-OP Approach™ and the state of evidence of the CO-OP in groups are described. Finally, it is referred to the master's thesis by Frentzen (unpublished Master thesis, 2020), which forms the basis of this work.

### 2.1 Developmental Coordination Disorder (DCD)

Clumsy children whose handwriting cannot be read or who can not tie their shoes stand out in everyday life. It is not an isolated case or simply clumsiness (Blank & Vinçon, 2019). This disorder is known as Developmental Coordination Disorder and, according to various studies, is prevalent. For example, Sujatha, Alagesan, Lal, and Rayna (2020) showed in their study that 3.8% of 944 children between the ages of eight and 17 had DCD. It also became clear that boys had a higher prevalence (5%) than girls in the same age range (2.7%). In the following section, the appearance of this disorder, the diagnostic criteria, comorbidities, and effects on the participation and emotional development of the children will be discussed. Finally, according to the newly published DCD guidelines (Blank & Vinçon, 2019), the therapeutic options for the treatment of DCD will be named.

Following the “International Statistical Classification of Diseases and Related Health Problems” (ICD-10) (“Bundesinstitut für Arzneimittel und Medizinprodukte: ICD-10-WHO,” 2021), the developmental disorder is divided into four subtypes, which can also occur together or in combination. It can occur in gross motor functions (F82.0), fine and graphomotor skills (F82.1), oral motor skills (F82.2), and unspecified motor dysfunctions.

Referring to Blank and Vinçon (2019) and the classification, all types of DCD have in common that the disorder without exception has its onset in infancy or early childhood. The developmental delays or limitations of functions are thus linked to the biological maturation of the central nervous system. Contrary to outdated assumptions that the developmental disorder grows out, current evidence suggests that DCD is a recurrent and remitting disorder.

The American Psychological Association published the classification system “Diagnostic and Statistical Manual of Mental Disorders” (DSM-V), which has formulated four criteria for diagnosis that are also included in the guidelines (Blank & Vinçon, 2019).

#### Criterion 1

Motor skills that are significantly below the level that would be expected based on the child's age and reasonable opportunities to acquire the skills.

They are usually conspicuous by careless and clumsy movements that not infrequently lead them to them bumping into someone or knocking something over. The child may have difficulty riding a bicycle or tricycle safely. He or she may not be able to write or draw within the lines, and catching and throwing balls may also show up as a difficulty.

To give an example, activities that require coordination of both body halves, such as cutting with scissors, jumping, or bike riding, challenge these children greatly (Missiuna, Rivard & Pollock, 2011).

#### Criterion 2

The second criterion refers to the effects of the limitations described in criterion 1 on everyday life. Here, both activities of daily living and school performance are included. Typically, limitations are perceived in all areas of participation (self-care, productivity, and leisure); if this is not the case, the diagnosis of DCD is not made.



#### Criterion 3:

This third criterion points out, that the limitation in motor skills, as already describes above have to become visible in childhood. Only than it can be diagnosed as DCD.

#### Criterion 4:

The last criterion describes that it must be excluded that the primary cause of the impairment is not due to another medical, neurological, or psychological diagnosis, such as infantile cerebral palsy or autism spectrum disorder.

DCD may occur in isolation but is often associated with other disorders such as learning disabilities and attention deficit disorder. This type of motor impairment is a chronic, non-curable condition and, if not treated, leads to massive challenges in daily life, even in advancing age (Missiuna & Pollock, 2015).

Furthermore, Zwicker, Suto, Harris, Vlasakova, and Missiuna (2017) or Mandich, Polatajko, and Rodger (2003) describe those children with DCD often experience psychosocial issues in their everyday life. Blank and Vinçon (2019) showed that a high number of individuals suffer from peer problems (53%) or emotional problems (70%). The level of children with DCD and attention deficits as ADHD (50-60%) is also relatively high. Those children often must cope with social anxiety, a lower self-concept, and self-esteem. In literature, the effect of impairments of motor skills on self-esteem is discussed quite often (McWilliams, 2005; Zwicker et al., 2013; Cairney, Rigoli, and Piek, 2013). Due to the difficulty in learning motor skills, children with DCD constantly experience setbacks and failures in everyday life.

As the article of McWilliams (2005) states, children spend most of their time in motor activities, especially at the age of five to ten, this leads to a high level of frustration in children with DCD. It can be observed that these children avoid motor activities as protection and therefore isolate themselves from their peers at the very same time. Hence, the child is extremely restricted within their social participation and in the development of new skills. This leads to low self-esteem, a poor self-efficacy expectation, and a negative self-image. Social anxiety often arises because of isolation, as the child has fewer opportunities to develop social skills in dealing with peers (McWilliams, 2005).

All this has a high impact on the child's participation and quality of life, as well as on the child's psychological development. As already shown in the study by Sujatha B., Alagesan, Lal, and Rayna (2020), the rate is significantly high, which, in addition to early diagnosis, also requires efficient treatment. This can also prevent comorbidities in the socio-emotional context at an early stage because research on adults with DCD showed a high rate of depression and anxiety disorders because of low self-esteem (Blank & Vinçon, 2019).

As DCD is not a developmental disorder that improves over time without therapy and the rate of affected persons is very high, a revised version of the S3 guidelines for diagnosis and therapy was published in 2019 (Blank & Vinçon, 2019). This states that an activity and participation-oriented approach should be used in the treatment of motor impairments. The literature and research show, for instance, good evidence for the Cognitive Orientation to Daily Performance approach (CO-OP Approach™). In addition, due to the pursuit of context-based treatment approaches, treatment in a group setting is recommended under certain conditions. The availability of evidence-based group interventions for this population is still limited. However, Green and Martini (2017) have already described how the CO-OP Approach™ can be adapted to be implemented as a group intervention. Likewise, Frentzen (unpublished master thesis, 2020) has drafted a proposal for an intervention protocol based on a scoping review.

## 2.2 The Canadian Model of Occupational Performance and Engagement (CMOP-E)

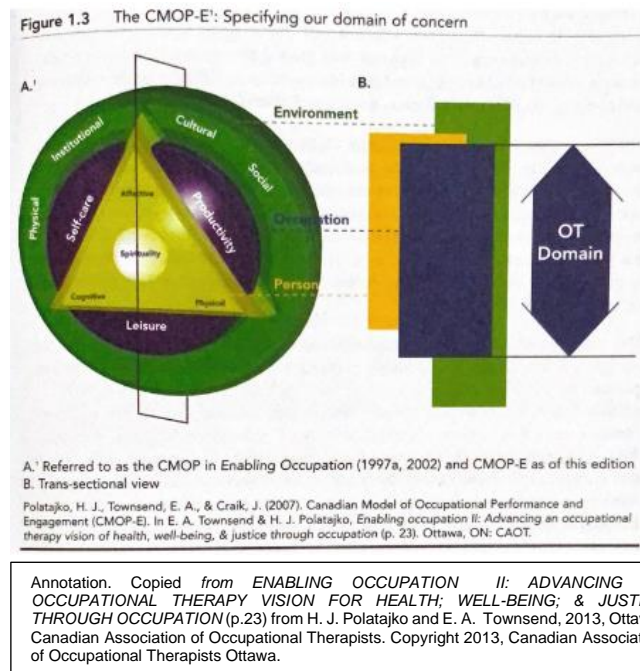
(Polatajko et al., 2013)

The Canadian Model of Occupational Performance and Engagement (Polatajko et al., 2013) is used within this bachelor thesis to underpin the research question and theoretical background of this study. As it is a client-centered and activity-orientated model with an occupational -focus, it forms one of the theoretical backgrounds of the CO-OP Approach™. The CMOP-E (Polatajko et al., 2013) was also used as a frame of reference in this thesis.

The Canadian model consists of the following components: the Canadian Model of Occupational Performance (CMOP-E), the Canadian Practice Process Framework (CPPF) (Polatajko et al., 2013),

and the Canadian Model of Client-Centred Enablement (CMCE) Skills (Townsend et al., 2013). In 1997, the Canadian Association of Occupational Therapists (CAOT) introduced the Canadian Model of Occupational Performance (CMOP). This content model was then expanded and supplemented in 2007 by Canadian occupational therapists around Helen Polatajko. Here an essential component of today's CMOP-E was added, the engagement (abbreviated E). The CMOP-E offers a graphical representation of the assumption that occupational performance is the direct result of the dynamic relationship between the person (spiritual, affective, cognitive, and physical components), occupation (self-care, leisure, and productivity), and environment (cultural, social, institutional, and physical components).

Figure 2: CMOP-E



Children with DCD suffer not only from difficulties in the area of motor function but also from the resulting social and emotional problems, the CMOP-E can be utilized to gain a holistic view of the problem. Thus, children are impaired by their clumsiness in many areas of the social environment, but also especially in coping with school activities (productivity). As already described, this often leads to low self-esteem, social anxiety through isolation, and a lowered expectation of self-efficacy. To support practice transfer, the model includes the Canadian Occupational Performance Measure (COPM), which is intended to promote high-quality, client-centered, activity-focused, and evidence-based practice (Law, et al., 2020). The information collected here from the areas of self-care, productivity, and leisure can thus be integrated into the basic concepts of the CMOP-E in a simplified way. As studies on COPM have already shown, working together and participating in the formulation

of goals has led to an increase in motivation and goal-oriented work (Enemark Larsen, Rasmussen, & Christensen, 2018).

Complementing the content model and assessment, the process model, the CPPF, and the CMCE support professional reasoning and the client-therapist relationship. Both the CPPF and the CMCE illustrate the dynamic collaboration between client and therapist. The CMCE describes the 10 core competencies of an occupational therapist to enable the client to participate in meaningful daily activities. Thus, the model represents what the occupational therapist does (Townsend, et al., 2013).

The CPPF supports and structures the therapist in implementing a client-centered, activity-based, and evidence-based practice. Among others, the four elements are societal context, the practice context, and the frame of reference. The fourth element is process oriented. These are: Enter/ Initiate, Set the stage, Assess/ Evaluate, Agree on objectives/Plan, Implement plan, Monitor/ modify, Evaluate outcome, Conclude/ Exit (Craik, Davis, & Polatajko, 2013).

When applying the CO-OP Approach™, the CMCE skills coach and collaboration (Townsend et al., 2013) are particularly important.

These two CMCE skills are most important for group therapy because they enable the children in therapy to share their experiences with the other children, and they can learn from them (Townsend et al., 2013). The CMCE skill collaborate is important for children to achieve the goals they have set for themselves. The researchers opine that the CMCE skills of coaching and collaborating are very important for the entire process. The accompanying therapists also need this CMCE skill to guide the children in their process.

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### 2.3 Group intervention general

In this section, the general explanation of the evidence pyramid according to Tomin and Borgetto (2011) is presented first. Afterwards, it will be explained what generally defines a group, and finally, the reference to the German health system will be taken.

„A group is an aggregate of people who share a common purpose that can only be achieved through collaboration. Groups are organized systems of interrelated, interactive, and interdependent individuals“ (Scaffa, 2019, p. 539).

A group is defined as a group when more than two people are working on the same goal (Online Lexikon für Psychologie und Pädagogik: Gruppe“, n. D.). In group therapy, individuals can learn about and cope with their social behavior and emotions (Ezhumalai, Muralidhar, Dhanasekarapandian & Nikketha, 2018). In the group setting, the focus is on both the client's problems and the other group members. In this setting, the clients are supposed to learn and understand the characteristics of the whole group to allow them to enhance their relationship skills. According to Ezhumalai, Muralidhar, Dhanasekarapandian, and Nikketha (2018), there are the following assumptions about group therapy that group therapies can: help all group members, can learn from each other, the group members can grow together, and thus new friendships can develop (Ezhumalai, Muralidhar, Dhanasekarapandian & Nikketha, 2018).

When forming a group, the therapist must ensure that the children are approximately the same age and have similar difficulties. In addition, it is important that the children have the same attitude and that none are left behind in the group process because all the children should learn from the group therapy and come out of the process stronger (Löcker & Menke, 2011).

In the study „Occupational therapists prefer combining multiple intervention approaches for children with learning difficulties“ (Nelson, Copley, Flanigan, & Underwood, 2009), seven participants were asked for their opinion about using different approaches in a therapy setting. For the cognitive approaches, these participants say: "Therapists indicated that a cognitive approach was useful for addressing concerns in two major areas: motor skills and memory/organization" (Nelson, Copley, Flanigan & Underwood, 2009, p. 57). The participants also say: "Therapists perceived that they used these techniques to improve the child's self-awareness and self-regulation, with the aim of better preparing themselves for tasks and increasing task mastery" (Nelson, Copley, Flanigan & Underwood, 2009, p. 57). These results indicate that it is important for occupational therapists to use different approaches in therapy to provide adequate therapy for the children. This study was a qualitative study, which according to the pyramid of Tomlin and Borgetto (2011), can be classified as evidence level 3. because it was conducted on several people but has low quality. In the study, only two quality criteria for a qualitative study were mentioned. However, it is not exactly explained how it was done, which is why evidence level 3 was taken.

According to Kolehmainen et al. (2012), well-formulated goals are very important for therapy. When setting goals, it is important to ensure these are specific treatment goals relevant to the everyday life of the child and family being treated and goals that are created with all parties involved, such as parents, child, and teacher. Kolehmainen et al. (2012) also state that it is important that progress in the treatment process is relevant to the goals.

The following section shows a general overview of group therapy offers applied in the German occupational therapy context. As will be shown later, there are different offers for group therapy in the German occupational therapy context, but no specific and evidence-based group therapy for children with DCD.

Most of the time, children with DCD have other difficulties. For these difficulties, children can receive group therapy. The fundamental problems described in the guideline (Blank & Vincon, 2019) are not sufficiently addressed in the group therapies presented. In the literature, not many studies are listed that

prove that there is a group therapy offer for children with DCD. The researchers found a study about "the Wunstorfer Concept in a schoolchild with developmental coordination disorder (DCD) – a case study" (Sos et al., 2019). As this is only a case study, the result is not representative and significant enough for the approach. For better results, more studies need to be done. According to Tomin and Borgetto (2011), the existing study can be classified as evidence level 4 since it belongs to clinical experimental research. Evidence level 4 was taken because it was a single case study and the client served himself as a control group. Below, the most common occupational therapy group offers in the German context are briefly explained, and the current evidence is shown. Group therapy is not aimed at children with DCD. There is evidence that would support the implementation of group therapy in practice and to establish it nationwide in Germany. The following occupational therapy group programs are briefly explained below: the "Ergotherapeutisches Sozialkompetenz-Training"(EST) by Löcker & Menke (2011), the "ATTENTIONER" by Jacobs & Petermann (2013), the "Marbuger Konzentrationstraining" (MKT) by Domsch & Graf (2007), the "Training mit aufmerksamkeitsgestörten Kindern" by Lauth & Schlottke (2019), and finally the "Wunstorfer Konzept" by Winter (2014).

### 2.3.1 "Ergotherapeutisches Sozialkompetenz-Training (EST)"

(Löcker & Menke, 2011)

In social skills training, children learn about courses of action and how they can successfully implement them. The different behaviors depending on the child's stage of development.

The "Ergotherapeutisches Sozialkompetenz-Training (EST)" has been developed for a group of six children aged seven to ten years. The children should be able to write short sentences for this training.

In the group, the children exchange their previous strategies and thus learn from the other children.

The group therapy sessions are always conducted by two occupational therapists.

The training takes place once a week for 90 minutes and should be carried out over 14 sessions without long breaks. The sessions are conducted in the occupational therapy office, and for the last 15 minutes of each session, it would be good to have a second room so the parents and children have enough space to let the session review happen. For the "Ergotherapeutisches Sozialkompetenz-Training (EST)" no studies were found, and for this reason, it is to be questioned for the occupational therapy setting because studies always prove whether training or a therapy method is successful, or it is not useful. Some articles are describing how the training can look like, i.e., in the school setting, but no studies have been done about the improvement through this training.

### 2.3.2 "Attentioner"

(Jacobs & Petermann, 2013)

In this type of group therapy, children learn strategies how to concentrate on one task without distraction from an irrelevant stimulus. In addition, the children learn to divide their attention between two or more stimuli, so it is possible to work on different tasks in parallel, as is often required in school.

The training is suitable for children between seven to fourteen years. The program consists of 15 sessions with a weekly duration of 60 minutes. Groups are formed with a maximum of four children of approximately the same age and can be done by one therapist, but it is advisable to do it with two.

The training is specifically designed for focused (selective) and divided attention and is intended to encourage children to be more independent in their tasks. In addition, this training attempts to target socially desirable behavior and create a transfer to everyday life. In each session, up to four tasks should be performed. Before the training starts, a meeting with the parents should take place and after the last session. A study by Jacobs and Petermann (2008), called "Attention Therapy in Children- Long-Term Effects of the "ATTENTIONER" (Jacobs & Petermann, 2008) was found on PubMed ("PubMed.gov," n.d.). In this study, subjects, children with attention deficit disorder, were measured before the intervention, after the intervention, and at a follow-up 10-76 months after the intervention. The subjects showed average scores around attentional control in the follow-up measurement and thus stable therapeutic success with this training program can be concluded. However, this is the only study on this program. Unfortunately, there is no further research with this program and thus the evidence situation is presented more specifically.

### 2.3.3 “Marburger Konzentrationstraining (MKT)”

(Domsch & Graf, 2007)

The “Marburger Konzentrationstraining (MKT)” is for children from the first to the fourth class. With this method, children learn how to use this type of self-instruction step-by-step to finish one task at a time.

It teaches children how to concentrate or not lose focus on a task while another child wants attention, for example. (Krowatschek, Albrecht & Krowatschek, 2007)

In first grade, children are expected to concentrate on a task for fifteen minutes. Attention span varies by age group. MKT is geared toward attention deficit hyperactivity disorder (ADHD) and attention deficit disorder (ADD) children, but it can be used with any child. MKT can be used with children from school age (six years old) to 11-12 years old. The goals of MKT for school-age children for example, are: becoming confident with one's strengths, learning to accept failure, and strengthening the parent-child relationship (Krowatschek, Albrecht & Krowatschek, 2007). In a group design, the children should be at the same developmental level so that all children can benefit from the group. The group size is differentiated by how much experience the trainer has. Three to four school children can participate in the MKT training at the same time. The training is intended for six sessions, with each session lasting 75 minutes once a week. In the study "Individual findings on the implementation of the “Marburger Konzentrationstraining” in math and German lessons" (Hövel & Hochstein, 2020), it is shown that the “Marburger Konzentrationstraining” can be good training for children with ADHD. It has been shown that the children who participated in this study were able to apply the strategies they learned to their everyday school life based on the classroom checklist and were able to make improvements in their classroom as a result. Critically, from the point of view of the study for children with DCD being conducted here, the “Marburger Konzentrationstraining” is specifically for children with ADHD and is therefore not transferable for the clinical picture of DCD being investigated here. Again, at the current time, children with DCD are receiving occupational therapy intervention that is not specific to their main problem in Germany.



### 2.3.4 “Training mit aufmerksamkeitsgestörten Kindern von Lauth & Schlottke”

(Lauth & Schlottke, 2019)

The training is a cognitive-behavioral therapy program for attention deficit disorder. It was invented for children from six to twelve years.

The three cardinal symptoms for the diagnosis of ADHD are inattention, hyperactivity, and impulsivity. Inattention is diagnosed when children get distracted very quickly and cannot finish a task. Children that are very hyper and motor restless can be diagnosed with hyperactivity, and children that cannot wait to say something and blurt out the answer before the question is fully asked can be diagnosed with impulsivity.

According to the ICD-10 (“Bundesinstitut für Arzneimittel und Medizinprodukte: ICD-10-WHO,” 2021), these cardinal symptoms must have been present for at least six months, and each cardinal symptom still has its sub-items that must be stated to make this diagnosis.

Children with ADHD often suffer from comorbidity, which means they have another condition in addition to ADHD. The training was designed for individual therapy but is also implemented in groups. In this training, children learn to acquire better behavior, new behavior patterns are to be learned, parents are to be supported in the transfer to everyday life, and teachers should support children in the school setting in the same way. The training is divided into four therapy modules: Basic training, strategy training, parent counseling, and teacher guidance. No study was found for the training with attention-disturbed children by Lauth and Schlottke (2019).

### 2.3.5 “Wunstorfer Konzept”

(Winter, 2014)

This concept is intended to make the therapy process transparent. The “Wunstorfer Konzept” can be seen as a guideline for therapy, as it is structured into different topics. Furthermore, the “Wunstorfer Konzept” “consists of six building blocks:

1. assessment, goal setting, and therapy planning
2. therapy design
3. Wunstorfer basic training
4. parent counseling
5. environment counseling
6. evaluation, and documentation” (Winter, 2014, p. 24).

This concept refers to the theoretical background of the CMOP-E and the CPPF. A case study was found for the “Wunstorfer Konzept”, which was described in a little more detail at the beginning of chapter 2.3.

## 2.4 Cognitive Orientation through daily Occupational Performance (CO-OP)

(Polatajko & Mandich, 2004)

In the following chapters, the researchers will briefly introduce the CO-OP Approach™. This is not a complete presentation of the CO-OP Approach™ but an overview of how the Key features have been used or not in research so far. All Key features will also be considered in the group setting.

### 2.4.1 General information about CO-OP

The CO-OP Approach™ was developed for children with DCD (Polatajko & Mandich, 2004). It was developed by Helene Polatajko and Colleagues in 1990 (Missiuna et al., 2001). The Approach is client-centered, performance-based, and problem-solving. It enables skill acquisition through the use of a process strategy and the use of Guided discovery (Polatajko & Mandich, 2004). CO-OP is a treatment where the children are actively involved in finding solutions to their problems. It is also a verbal approach and is focused on occupational performance (Polatajko et al., 2001). The CO-OP Approach™ is mostly for children between seven and twelve years of age (Polatajko, Mandich, Miller, et al., 2001; Taylor, Fayed, & Mandich, 2007). Ward and Rodger (2004) and Taylor, Fayed, and Mandich (2007) conducted two separate studies to prove that the CO-OP Approach™ can be used with children from five to seven years. The results show that younger children may have the metacognition for the CO-OP Approach™. Ward and Rodger (2004) found out that through the use of new goal setting strategies, for example, “Perceived Efficacy and Goal Setting System” (PEGS) (Missiuna & Pollock, 2000), the children can identify their own goals. The children can draw on the metacognition strategies they have learned during the sessions and improve on tasks that are important to them (Taylor et al., 2007). It is to say that the CO-OP Approach™ is suitable for children younger than 7 years.

In Polatajko & Mandich (2004) and Polatajko, Mandich, Miller, et al., (2001), the authors describe the first five studies conducted to prove the efficiency of the CO-OP Approach™. The first study was a series of single-case experiments and the second one was a replication of these single-case experiments with a different therapist. Then the researchers conducted a follow-up study to see how the children from the first two studies are doing and if they are still applying the CO-OP Approach™. The fourth study was a Clinical Replication – Pilot Randomised Controlled Trial (RCT). And the fifth study was again a replication study (Polatajko, Mandich, Miller, et al., 2001). These studies are briefly named and not describe in detail as, firstly, they were conducted almost 20 years ago. Nevertheless, these are the first five studies and are important to the CO-OP Approach™. The researchers approve during these studies and developed the intervention protocol for the CO-OP Approach™ which is described in Polatajko and Mandich (2004) in Chapter 3.

For the ongoing research, the focus is on the newer studies conducted between 2000 and 2021. In the last 21 years, about 93 studies and articles were published with the CO-OP Approach™ to different topics. Most of the study results (81 published studies and articles) were found through the ICANCOOP (“ICANCOOP,” n.d.) website, which linked directly to PubMed (“PubMed.gov,” n.d.). Other studies were found through the literature lists of articles or studies by using the DOI number. Others were found through a search within the Zuyd Library (“Zuyd Bibliotheek,” n.d.).

There is an increase in studies regarding the CO-OP Approach™. In the years 2019 and 2020, in total, 24 studies were carried out and published according to PubMed (“PubMed.gov,” n.d.).

For the CO-OP Approach™ with Children with DCD, there were about 20 studies and articles published. For the use of the CO-OP Approach™ in groups, there were 11 studies and articles published, including the diagnoses DCD and cerebral palsy.

15 studies were published for the use of the CO-OP Approach™ with neurological themes like Cerebral Palsy, Brain Injuries, or Dystonia with children, and 23 studies were published for the diagnosis of stroke and other neurological diseases with adults.

Five studies were published on the CO-OP Approach™ with the Autism Spectrum Disorder. One study each was published on the use of the CO-OP Approach™ with Down Syndrome, Pervasive developmental disorder, and ADHD.

Over the years, the CO-OP Approach™ has developed beyond the diagnosis of DCD (Polatajko, 2017). As mentioned above, the main published studies include now stroke, chronic stroke, brain injuries, children with Asperger syndrome, and children with brain injuries or other neurological dysfunctions. The different study designs include single-case experimental design studies, quasi-experimental

studies, and randomized controlled trials (Dawson, McEwen, & Polatajko, 2017). All these studies prove the efficacy of the CO-OP Approach™ (Dawson, McEwen, & Polatajko, 2017).

The further development of the CO-OP Approach™ is important to bring the CO-OP Approach™ to a broader field of people who can benefit from it and to show how adaptable the CO-OP Approach™ is for the use of with different therapists.

#### 2.4.2 CO-OP elements

The CO-OP Approach™ has structural and essential elements. The structural elements are more flexible to adaptation than the essential elements. The reason the structural and essential elements are mentioned is that, in this research, the goal is to find out how the structural and essential elements of the CO-OP Approach™ must be adapted to fit into the group setting for children with DCD. Because the structural and essential elements are important for the use of the CO-OP Approach™ it has to be evaluated which are practical for the use in a group setting and or how the different elements need adaptation to fit in a group setting. To get a usable intervention protocol for the CO-OP Approach™ in a Group setting, it is important to compare recent studies and see how different researchers reacted to different topics and problems and how this is useful for further developing the CO-OP Approach™ in group setting and for the ongoing research.

##### 2.4.2.1 Structural elements

The CO-OP Approach™ is usually applied in the individual setting through twelve one-to-one sessions, each about an hour long. Parents are encouraged to observe at least 3 sessions. The first session where the Goal-Plan-Do-Check strategy is introduced is the session when the therapist does the Dynamic Performance Analysis (DPA) (Polatajko, Mandich, & Martini, 2000) with the child. Within the last unit, the identification and use of domain-specific strategies are observed (Polatajko and Mandich, 2004). The therapist encourages the parents/ or significant other to observe as many sessions as possible to encourage the generalization and transfer (Polatajko et al., 2001). The parents/ or significant other are asked to help the children with the homework for the next session and to encourage the children to use the new skills he/she already has learned whenever it is appropriate (Polatajko & Mandich, 2004).

There are different approaches in the frequency and duration of the sessions in the CO-OP Approach™ and how the parents and significant others are involved during therapy. Some therapists applied the approach through 12 sessions, twice a week for 60 minutes. They also created an extra meeting with the parents to discuss the approach in detail and how the children can be supported. They also created a booklet for more information (Araújo, Cardoso, & de Castro Magalhães, 2017). Araujo, Cardoso, Polatajko, and de Castro Magalhães (2021) researched the results of the CO-OP Approach™ with and without parental coaching. In the RCT (Randomised Controlled Trial) Study from Araujo, Cardoso, Polatajko, and de Castro Magalhães (2021), the parent coaching group received an extra four 60-minute coaching sessions. The results showed that there was no significant improvement for the children. The researchers suggest that there is no extra coaching necessary if the parents are actively involved and cooperate during the approach. A Randomised Controlled Trial Study has the evidence level 1 according to Tomlin and Borgetto (2011). Within this study type, there is an intervention group and a control group (Perkhofer et al., 2016). This method is used to collect data to prove the efficacy of, for example, a treatment like the CO-OP Approach™ with Children with DCD over another treatment approach that could be used for Children with DCD. In an RCT Study Design, the participants are mostly blind randomized in the groups (Perkhofer et al., 2016). Using the literature of Perkhofer et al. (2016), it is clearly stated that the study from Araujo, Cardoso, Polatajko and de Castro Magalhães (2021) is very important to the use of the researchers to have valid evidence about the involvement of the parents during the CO-OP sessions.

There are several factors to consider when a parent/ significant other is involved. The individual schedules, family routines, plus other activities of the children or their siblings must be regarded when considering parental involvement during the therapy sessions. It is also to be considered whether the therapy sessions are taking place during the summer holidays or school term (Martini et al., 2020). In a recent study from Martini and Savard (2021) to use the CO-OP Approach™ in a group setting, the parents had a small introduction to the approach and were provided with a journal to keep track of the strategies that were discovered and reviewed over the day and the homework given to the children. The parents were also asked to attend the last 30 minutes of each day, and they were welcome to observe



as many sessions as they would like to get familiar with the CO-OP Approach™ as it can help with generalization and transfer at home.

In the individual setting, there is a one-on-one child-therapist ratio. For CO-OP in the group setting, there is no unified procedure for the structural elements of time, duration, parents/ significant other involvement, and therapist- child-ratio. There are intensive settings, for example, summer camps, where each day, the child participates in two 50-minute group interventions and has a total of eight sessions in four days. Parents should be present the last 30 minutes of each day and were invited to two evening information sessions about the CO-OP Approach™. The Therapist-child-ratio was four adults to seven children (Martini et al., 2020). Zwicker et al. (2014) provided the CO-OP Approach™ also in an intensive summer camp setting. This camp was held from Monday to Friday (9 am to 3 pm) over two weeks. Every child participated in different group-based activities and took part in four 1.5 hours sessions within the two weeks to work on their own goals. The therapist-child ratio was 1:2. Another summer camp over four days with two 50 minutes group sessions was also held. There was the option for individual one-on-one sessions (Martini, Mandich, & Green, 2014). Dunford (2011) researched an intensive group intervention. The children participated in eight 50 minutes sessions over two weeks. Two experienced occupational therapists supervised the group (Dunford, 2011). In contrast to the intensive summer camp setting or other intensive settings, the CO-OP Approach™ with groups can be applied in a weekly, less intense setting. In over ten weeks, the approach was applied once a week for 60 minutes. The ratio was four children to two CO-OP trained and experienced therapists (Thornton et al., 2015). In Thornton et al. (2015) the groups were found on common occupational performance problems. Another way of a group intervention is an after-school setting. Over 20 weeks, children had a one-hour group session. During this setting, the parents had to be present during the first two sessions, a review session in week 11, and they were present for the final three sessions. The parents were also asked to attend the last ten minutes of each session (Martini, Mandich, & Green, 2014).

Looking at the literature, there are significant differences in how the CO-OP Approach™ should be applied in groups. In particular, the structural elements should have a guideline. There is less information on how the groups should be selected and different opinions on the appropriate therapist: child ratio per group. Also, the training of the therapists is not equally specified.

#### *2.4.2.2 Essential elements*

In the CO-OP Approach™, there are seven Key features which are: client-chosen goals, dynamic performance analysis, cognitive strategy use, guides discovery, enabling principals, parent/ significant other involvement, and intervention format (Polatajko & Mandich, 2004). These are essential to the CO-OP Approach™ and together they define CO-OP as: “a client-centered, performance-based, problem solving, approach that uses strategies, identified through a process of Guided discovery, to enable skill acquisition” (Polatajko & Mandich, 2004, p.51). The Key features must be implemented by the therapist (Polatajko & Mandich, 2004). In the following section, the Key features that are the most important for the use of the CO-OP Approach™ will be described briefly. To give a complete overview of all Key features see figure 3.

It has to be considered carefully which elements are going to be removed or added to keep the essence of the CO-OP Approach™ (Skidmore et al., 2017). If the essential and structural elements are incorporated in the implementation and alteration, or adaptation of some elements is accepted, and the outcome that is expected does not change. Skidmore et al. (2017) state “...that further studies should examine the tolerance of selected adaptations for yielding expected outcomes of CO-OP”. In this research, the adaptation of the essential and structural elements, especially for the use of the CO-OP Approach™ in a group setting, will be explored with the help of experts to develop an intervention protocol for use.

Figure 3: Key features

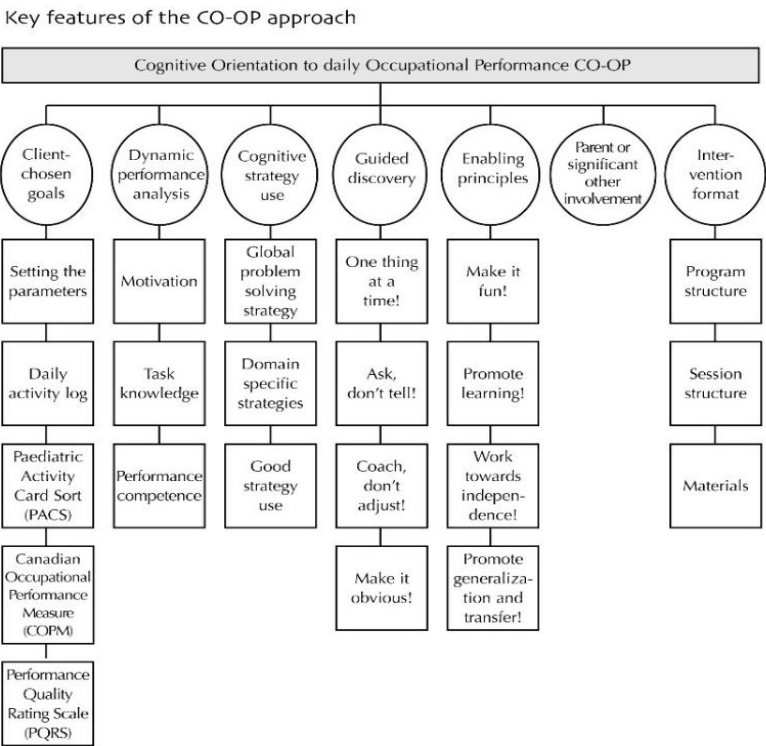


Figure 11  
Enabling Occupation in Children: The Cognitive Orientation to daily Occupational Performance (CO-OP) Approach © CAOT 2004

Annotation. Copied from Enabling Occupation in Children: *The Cognitive Orientation to daily Occupational Performance (CO-OP) Approach* (USB figure 11) from H. J. Polatajko and A. Mandich, 2004, Ottawa: Canadian Association of Occupational Therapists. Copyright 2004, Canadian Association of Occupational Therapists Ottawa.

### **Key feature 1: Client-chosen goals**

CO-OP is a client-centered approach, and therefore the child takes an active part in choosing the goals. There are different options on how to set goals with children. There is no evidence, how the goal-setting progress is done in a group setting.

In the individual setting, the parents are involved in the goal-setting process. The Daily Activity Log is also used to get more information about a typical day in the child's life. The therapist uses the Daily Activity Log to start a conversation with the child and to set a framework for the goal setting. The Daily Activity Log may also help to identify potential areas of difficulty and potential goals (Polatajko & Mandich, 2004).

To set the parameter means to choose the goals that will be worked on during the treatment with the CO-OP Approach™. To set the goals, the therapist has different options. The most common goal-setting strategies are described briefly below.

The "Daily activity log" is a simple tool that divides the day into half-hour intervals. It can be used to keep track of the day's progress or to describe a typical day. It is important to use a typical school day and not a holiday or a weekend. The Daily Activity Log provides the therapist with information about a typical day in the child's life. It is also a way to start a conversation with the child about the things he or she wants, needs, or is expected to do. It will also help identify potential areas of difficulty and potential goals of the child (Polatajko & Mandich, 2004).

To start the goal-setting process, a therapist can use the "Examination of the Perceived Efficacy and Goal Setting System (PEGS)" (Missiuna, Pollock, Law, Walter, & Cavey, 2006). The PEGS has 24 picture cards. All cards are presented in pairs, one card with the child doing the task competently and the other with the child doing the same task less competently (Missiuna et al., 2006). The cards are placed on piles like the "more competent" and "less competent" piles. The start for the goal-setting is the cards on the "less competent" pile. It is important to ask the child about the context of each task and so on (Missiuna et al., 2006).

Another tool for the goal-setting phase is "The Paediatric Activity Card Sort (PACS)" (Mandich, Polatajko, Miller, & Baum, 2004). The PACS is an interactive way to bridge the relationship of occupation's performance-related components with occupational engagement. The Assessment has 75 cards divided into four categories with typical activities of the children. It helps to identify the goals of the children, and it is administered individually (Mandich, Polatajko, Miller, & Baum, 2004). The German Version of the PACS is the German "Fotointerview". With the German "Fotointerview", it is possible to select occupation-based goals with the children and support the children in reaching their goals (Peters, 2018).

To identify the goals, the Canadian Occupational Performance Measure (COPM) (Law et al., 2020) is used either in combination with the PEGS (Missiuna, Pollock, Law, Walter, & Cavey, 2006) or PACS (Mandich, Polatajko, Miller, & Baum, 2004) or instead of the mentioned assessment. The advantage of using the COPM is it is a semi-structured interview and is divided into 3 sections. Productivity (e.g., for children school), self-care, and leisure (Law et al., 2020).

The Goal Setting varies in different studies. The COPM (Law et al., 2020) was used mainly with parents (Dunford, 2011). In other studies, the COPM (Law et al., 2020) was used as a rating scale for the performance before and after the treatment (Zwicker et al., 2014), but in most studies, the COPM (Law et al., 2020) is only named and not described in which context it was applied (Anderson, Wilson, & Carmichael, 2018; Thornton et al., 2015; Martini, Mandich, & Green, 2014; Zwicker et al., 2014; Dunford, 2011; Chan, 2007). The PEGS were also used to identify the goals of each child (Thornton et al., 2015; Zwicker et al., 2014; Dunford, 2011) but likewise, with the COPM (Law et al., 2020), it is not mentioned how the researchers applied the PEGS (Missiuna, Pollock, Law, Walter, & Cavey, 2006) within the group setting or individually. The COPM (Law et al., 2020) is often only used with parents or caregivers. A study with Children in Korea (Kang et al., 2008) showed the effectiveness of the client-centered use of the COPM (Law et al., 2020).

The Performance Quality Rating Scale (PQRS) measures the performance of an individual via observation or video-based (Martini, Rios, Polatajko, Wolf, & McEwen, 2014). The use of the PQRS is often in combination with the COPM (Law et al., 2020). The use of this combination is described in (Anderson, Wilson, & Carmichael, 2018). The PQRS assesses the performance activities that were identified in the COPM (Law et al., 2020). The activities are executed without verbal or physical guidance in the normal environment, for example at home or within the community and not in a "clinical" setting

(Martini, Rios, Polatajko, Wolf, & McEwen, 2014). The PQRS is a 10-point scale where 1 indicates the child cannot perform the task at all and 10 indicates the child can perform the task well (Miller, Polatajko, Missiuna, Mandich, & Macnab, 2001).

Within the CO-OP Approach™, the client-centered goals are important. Mostly the goal-setting phase is in the individual setting with parents present. The literature does not state a way to apply the goal-setting phase within a group setting. It can be said that the COPM, the PEGS or PACS, and the PQRS are important in this phase. It must be further evaluated if and how the goal-setting phase can be adapted in the group setting or if it should stay in the individual setting and the group's form after the goal-setting phase.

## Key feature 2: Dynamic Performance Analysis (DPA)

To identify the breakdown points of a task and to test solutions, the Dynamic Performance Analysis (DPA) was developed. It is a framework to analyse the performance of a person performing the occupation, task, or activity (Polatajko, Mandich, & Martini, 2000). The DPA is integrated into a Top-Down Approach and only focuses on the actual performance in the context (Polatajko & Mandich, 2004; Polatajko, Mandich, & Martini, 2000). During the baseline measurement, when the child performs his goal to the therapist, the DPA is initiated. The use of the DPA continues through the whole treatment (Polatajko & Mandich, 2004). The information that the DPA gives the therapist is used to guide the child to discover, learn and apply strategies for a solution to achieve his or her goal (Polatajko & Mandich, 2004).

Polatajko, Mandich, and Martini (2000) developed a decision tree for the DPA. It is based on questions for the performer prerequisites and the performance requisites. The tree, as shown in figure 4, guides the therapist through the DPA. It helps to decide whether to continue with the DPA or to end it.

To start the DPA, it must be established if “the child has the prerequisites for performance: motivation, and basic task knowledge” (Polatajko & Mandich, 2004, p. 62).

The first and essential part is to figure out if the child is motivated to do the task. The CO-OP Approach™ focuses on the client-chosen goals. There is a good chance the child is motivated to do the task.

With a motivated child, the therapist must observe the task performance and needs to find out on what level of task knowledge the child starts. In case the child is not motivated, the therapist must stop the DPA and find a solution to motivate the child (Polatajko & Mandich, 2004). The second step is to find

Figure 4: Decision Tree

Dynamic Performance Analysis (DPA) Decision Tree

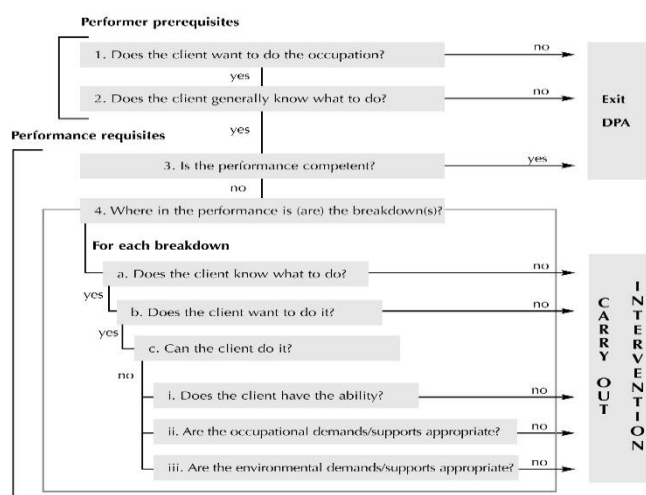


Figure 12.  
Enabling Occupation in Children: The Cognitive Orientation to daily Occupational Performance (CO-OP) Approach © CAOT 2004.  
Reprinted with the permission from Polatajko, Mandich & Martini, American Journal of Occupational Therapy, 54 (1), 69. © 2000, AOTA Inc.

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out the level of task knowledge of the child. For that, the therapist can either observe the child or ask questions. It is important to stop the DPA if the child has little to no task knowledge (Polatajko & Mandich, 2004).

In the focus of the DPA, there is performance competence. Within this step of the DPA, the therapist observes and takes notes about the performed task and evaluates if it was competent or not. If not, the therapist notes the errors or breakdown points. This will help identify the dimensions of performance complexity, and it will help the therapist find possible sources of errors and possible aspects that should be considered in solving the problem. Performance problems could be body orientation, object manipulation, task structure, and environment (Polatajko & Mandich, 2004).

Polatajko, Mandich, and Martini (2000, p.71) stated that "... Rather, DPA acknowledges that optimal performance is the product of the interaction of person, environment, and occupation and, thus, highly individualistic". The DPA places the child within the occupation that takes place in interaction with the environment and is the center of the analysing process (Polatajko, Mandich, & Martini, 2000).

There is no evidence in the literature on how the DPA can be used in group settings with children with DCD.

### **Key feature 3: Cognitive Strategy use**

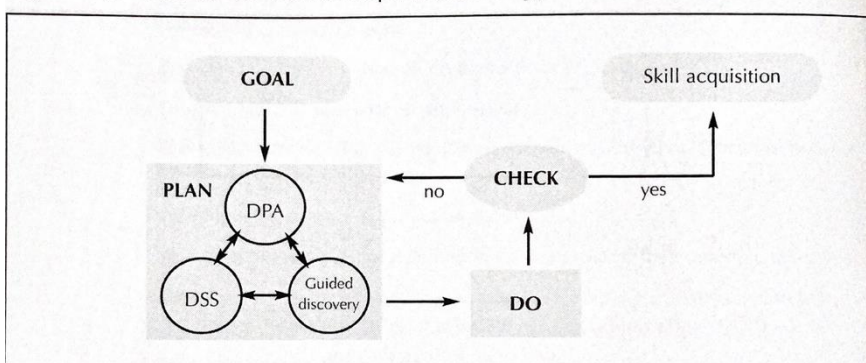
The use of the cognitive strategy is important in the CO-OP Approach™. Within the CO-OP Approach™, these strategies are used to "... bridge the gap between ability and performance, to support skill acquisition, generalization and transfer" (Polatajko & Mandich, 2004, p.66). To help the children achieve their performance goals, they get introduced to the Goal, Plan, Do, Check strategy (Polatajko & Mandich, 2004). There are different ways to teach children the Goal, Plan, Do, Check strategy. In the individual setting, the children are introduced to a puppet for example, "Commander Goal, Plan, Do, Check". The puppet has to be named "Goal, Plan, Do, Check" to make it more visual for the children (Polatajko & Mandich, 2004). The four steps to teaching a child the Goal, Plan, Do, Check strategy are simple. First, the child gets introduced to the strategy in a fun manner to help the child associate and remember the strategy. Secondly, the child must repeat the strategy in their own words. Thirdly, the use of the strategy is modeled by the therapist by saying the words Goal, Plan, Do, Check, and talking throughout the performance of a task. Fourth, the child must demonstrate their understanding of Goal, Plan, Do, Check by teaching the therapist a skill of choice (Polatajko & Mandich, 2004).

The Goal, Plan, Do, Check strategy will be described briefly. The child has a goal, and this can be very specific or more of a word-wild matter. With the goal, the child starts to develop a plan. It is important to help the child understand

that some plans may work, and others maybe will not work and for that understanding, all plans must be tried out by the child. To help the child understand, the therapist helps to identify plans that do not work. Once one plan works frequently, it results in the Do part of the strategy. The last part is the Check. The check can be different for every child; for example, it could be how long a child can skip rope. If the check is not completed, the child must go back to the step of the plan and adjust the plan or maybe develop a new one.

Figure 4: Process of Strategy Use

Figure 14b The CO-OP Domain Specific Strategy Use Process



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If Check is completed the child has acquired a new skill it can go to the next goal on the list (Polatajko & Mandich, 2004).

The global strategy of Goal, Plan, Do, Check can be used as a framework. It can be used during the intervention and afterward. The Domain Specific Strategies (DSS) are specific to a task. As shown in figure 5, the DSS, DPA, and Guided discovery are mutually dependent and influence each other. These three are an essential part of the step Plan.

In the group setting there is also the use of a puppet Goal, Plan, Do, Check (GPDC). In an after-school setting and a summer camp setting both had a similar “Detective Club” theme, and the therapists used a puppet for example “Chief GPDC”, to introduce the global strategy to the children (Martini, Mandich, & Green, 2014). In both settings, the Domain Specific Strategies (DSS) were documented in a book (personal club wallets or Detective Casebook) (Martini, Mandich, & Green, 2014). The Domain Specific Strategies are not introduced from the beginning like the GPDC Strategy is. The DSS are introduced to help problem solve an issue (Polatajko & Mandich, 2004).

There is not much evidence except the article from Martini, Mandich, and Green (2014) that states the use of the Goal, Plan, Do, Check puppet or how to use the Domain Specific Strategies within the group setting.

#### **Key feature 4: The Guided discovery**

As in the literature, there is almost no evidence on how the Guided discovery could be used in the group setting. This needs further research to find out how to apply it to a group of children.

To give a short overview of the different parts of the Guided discovery, they will be described briefly.

##### **One thing at a time**

In the CO-OP Approach™, it is important to do only one thing at a time especially when a child has problems learning a new skill. From a learning perspective, it is not feasible to learn more new things at once (Polatajko & Mandich, 2004).

##### **Ask don't tell!**

The most powerful technique in the Guided discovery is to ask the right question. With the help of questions, the child will be guided to discover the answer to his or her performance problem. By asking specific questions, the focus can be drawn to the domain-specific strategies that are relevant for the performance, such as: “body position; the portion of the task to be attended to; the specifics of the task; the feel of the movement; or the missing task knowledge” (Polatajko & Mandich, 2004, p.84).

During the asking process, it is important to be aware that the child may change the plan completely. It is important to avoid yes/no questions to help the child figure out what the problem is (Polatajko & Mandich, 2004). It is also important to recall guidelines to pose a question, for example, like allow the child time to think about the question before asking again or another question. It is also important to periodically summarize what has or has not been dealt with or solved (Polatajko & Mandich, 2004).

As mentioned above, the asking process is important but also listening and observing what the child is doing and saying is important (Polatajko & Mandich, 2004).

##### **Coach, don't adjust!**

Coach, don't adjust is the physical equivalent of the verbal ask don't tell. Usually, the therapist instinctively adjusts the level of difficulty or other factors to help the child succeed (Polatajko & Mandich, 2004). In the CO-OP Approach™, the therapist has to be aware of this behavior and it is important to guide the child to discover the task or environment adjustment he or she must make to succeed with the performance. For the child to understand the role adaptive strategies have within the performance they must be brought to the attention of the child and the child needs to learn how to use these strategies (Polatajko & Mandich, 2004).

##### **Make it obvious!**

The last part of the Guided discovery is “Make it obvious!”. There is a great effort in the CO-OP Approach™ to make the solution of performance problems obvious because children with motor-based performance problems do not learn from observation or watching other children do something (Polatajko & Mandich, 2004). To make it obvious the attention needs to be drawn to the specific skill or questions are asked in that way, that the answer is obvious for the child (Polatajko & Mandich, 2004). Feedback from the therapist plays a major role. The Therapist helps the child to identify what contributed or hindered the performance and this helps the child to be aware of how this plan worked or which strategy influenced the performance (Polatajko & Mandich, 2004).

These four steps are important to help guide the children to solve their performance problems. There is no evidence on how this Key feature must be adjusted to fit in the group setting or how it could be applied within the group setting.

#### **Key feature 5: Enabling principals**

The enabling principles apply to all aspects of the CO-OP Approach™. The enabling principles are “Make it fun!”, “Promote learning!”, “Working towards independence” and “Promote generalization and transfer” (Polatajko & Mandich, 2004).

Make it fun is an important principle. Fun makes learning much easier and there is greater success. For Children with Developmental Coordination Disorder learning a new skill with the CO-OP Approach™ is hard work and to keep the children engaged fun is an easy tool (Polatajko & Mandich, 2004). Besides the therapist, the use of the Goal, Plan, Do, Check Puppet plays an important role in the implementation of this principle. When the therapist is in an easy-going and playful manner and exaggerates movements while showing the child something it not only helps with the fun part, it also helps with the Guided discovery (Polatajko & Mandich, 2004). To apply the enabling principle of “Make it fun” in a group setting, the therapist could use an overall theme like a Detective Club (Martini, Mandich, & Green, 2014; Green, Chambers, & Sugden, 2008). The group setting itself could be a good promoter of the enabling principle “Make it fun” because the children can work together.

To promote learning, the CO-OP Approach™ values specific techniques like reinforcement, direct teaching, modelling, shaping, prompting, fading, and chaining (Polatajko & Mandich, 2004). The ultimate goal for the children while using the CO-OP Approach™ is to use strategies whenever or wherever they are appropriated by themselves (Polatajko & Mandich, 2004). For this skill, it is important to remember the Goal, Plan, Do, Check Strategy, continue with the DPA and come up with a plan and carry the plan out to check if it worked (Polatajko & Mandich, 2004). The group setting could be helpful for these enabling principles because children can learn from each other and help each other, and this will help promote learning and work towards independence. There is no evidence in the literature about it.

The last enabling principle is “Promote generalization and transfer” (Polatajko & Mandich, 2004).

To support generalization and transfer in the group setting, the use of logbooks or casebooks could be used for documenting the strategies learned and how they were applied at home (Capistran & Martini, 2016; Martini, Mandich, & Green, 2014). The study from Capistran and Martini (2016) showed that a transfer-task may be a good approach, but there needs to be further research.

During a recent study in a summer camp setting, it was noted that there were no significant changes in an untrained task. Parents reported that at the end of each summer camp day, the children were unable to practice tasks or do the homework that was given (Martini & Savard, 2021). Also, in this study, to help parents support their children with generalization and transfer, they were provided with a journal to keep track of the strategies learned and the homework given to get a better understanding of how the CO-OP Approach™ is working (Martini & Savard, 2021).

Generalization and transfer are important to show how successful the CO-OP Approach™ is. It helps the children to create new strategies or adapt old strategies to a new task. This part is hard to prove with the literature as there is not much evidence about generalization and transfer. To explore this part of the CO-OP Approach™ in the individual and group setting further research is needed.

The Key features 6 (Parents or significant other involvement) and 7 (Intervention format) are structural elements and already mentioned above.

#### **2.4.3 CO-OP Groups**

Looking at the literature, the studies for the CO-OP Approach™ in a group setting with children with DCD are limited. As already mentioned in the previous chapter, the CO-OP Approach™ for children with DCD is currently the best evidence-based approach.

The studies already conducted showed positive results, but there is no consistent way of the intervention format as described in chapters 2.4.1 and 2.4.2. The results showed that all studies conducted CO-OP Approach™ in a group setting with children with DCD took place in different settings, in different countries, and with different therapists, which means there is no consistent procedure for the implementation.

As described in chapter 2.2, group therapy is also recommended but not yet sufficiently researched. The literature review showed that until 2020 six (Frentzen, unpublished Master thesis, 2020) studies

have been conducted on the CO-OP Approach™ in a group setting and one was published in 2021. This represents a rather low state of evidence and literature resources now. However, from various aspects, the need for such an approach is very high. The significantly high prevalence shows the researchers the need for an effective therapeutic approach for this client group. The demand for short and time-efficient treatments regarding the long waiting times increases this pressure. In addition, there is a positive aspect of group therapy for children with DCD.

In addition to the studies already listed, Green and Martini (2017) have published initial applications of the CO-OP Approach™ in a group setting. Furthermore, Frentzen (unpublished Master thesis, 2020) has conducted a scoping review of the current evidence base and developed a possible intervention protocol for group therapy. Preferably, this literature-based protocol should be further researched within an intervention study. Due to the pandemic situation, this was not possible. Therefore, further in-depth research and differentiation of the results with the help of expert opinions are needed to ensure a practicable form for practice.



## 2.5. Master thesis by Frentzen

(unpublished Master thesis, 2020)

In her master thesis, Frentzen (unpublished Master thesis, 2020) conducted a scoping review to answer the first research question, "What is known from the existing literature about implementing the CO-OP Approach™ in a group setting for children with motor impairments? (Frentzen, unpublished Master thesis, 2020)." It was found, as described above, that there is a gap in knowledge about the topic. Several studies show that the essential elements are applied but not modified in the group setting. No intervention format has been published yet that supports the application of the CO-OP Approach™ in group settings. Based on the literature, she developed a proposal for an adapted intervention format for the implementation of group intervention with the CO-OP Approach™. To answer her second research question, "How can the CO-OP Approach™ be implemented at the primary school in a group treatment for children with motor impairments, based on the implications for clinical practice? (Frentzen, unpublished Master thesis, 2020)" she worked out additional specific adaptations for the school setting. Frentzen's (unpublished Master thesis, 2020) work indicates that more research is needed on her proposal of adaptation for the group setting.

This includes referring to the *intervention format*, the ideal *duration*, and *intensity* of group therapy, and ideas for *involving parents or significant other* in the structural elements.

Further research is also needed on the essential elements of *client-chosen goals*, *dynamic performance analysis*, *Guided discovery*, and the *enabling principle*.

Concerning *client-centered goals*, Frentzen (unpublished Master thesis, 2020) describes the role of PQRS assessment within group therapy as an important point for further research. In addition, further research is needed on which assessment is best suited for group therapy and how goal setting takes place. It is also not yet known how a re-evaluation of the goals is carried out, for example in the form of transfer goals.

Another point that should be differentiated is the use of *dynamic performance analysis* (DPA) in group settings. So far, the literature does not provide any information on how children in group settings benefit from it and how they are involved.

The same applies to *Guided discovery*. There is also a need for research on how it is adapted to the group setting. Above all, how and who carries it out and what restrictions exist in the group setting.

Another important aspect of the *enabling principle* is generalisation and transfer, which in the individual setting is usually ensured by homework. Here it is important to get more information on how the transfer can be achieved in a time- and resource-saving way. This means how homework should be prepared and structured or what other possibilities exist for this.

In combination with the low state of evidence, it shows the need for an evaluation of the experiences of therapists who have already worked with CO-OP in the group setting. This could provide more in-depth information on how to implement the essential and structural elements in a group setting.

### 2.5.1 Conclusion

In this conclusion, the above-mentioned points are briefly summarized. The CMOP-E is the basis of this thesis. It is an occupational therapy model and thus reflects the occupational therapy perspective. Both the therapy approach (CO-OP) and the model (CMOP-E) have a client-centered and activity-oriented approach. For this reason, the above therapy approach, as well as the model, can be used in combination. As described above (chapter 2.2), the model has its assessment (COPM). The COPM is an important assessment because it can be used in the goal-setting phase, both in the CO-OP and in the CMOP-E. It relates to the three life domains of self-care, productivity, and leisure. This gives the therapist an overview of the areas in which the child with DCD has difficulties. In the goal-setting phase, parents or significant other must be present so that they can perceive the child's motivation for the selected goal to be able to support the child in the further course. As Enemark Larsen et al. (2018) shows, that the COPM increases the motivation of the child and therefore improves the goal setting.

There is a high prevalence of DCD, but few published studies in this area. The guideline recommends group therapy for children with DCD. If children do not receive adequate therapy, problems as low self-

esteem, low self-efficacy expectations, and a negative self-image may occur. Social anxiety often results from isolation, as the child has fewer opportunities to develop social skills with peers.

As described before, Kolehmainen et al. (2012) state that motivation plays an important role in goal setting. In the German occupational therapy context, there are some group interventions. However, these are not suitable for children with DCD, as they have been developed for children with other diagnoses. This allows a critical look if these pieces of training are effective in an occupational therapy context for children.

This shows the need for an evidence- and occupational-based approach for children with DCD in groups, as is mentioned in the guideline for the treatment of DCD, published in 2019. As listed previously, there are limited studies on the topic of CO-OP in groups. The existing studies do not have a consistent approach and rarely build on each other to verify existing results. Through this information, the research needs of this thesis were revealed.

To contribute to closing the research gap in the treatment of children with DCD, there is a need to continue Frentzen's (unpublished Master thesis, 2020) research. This can help to provide adequate and disorder-specific treatment.

Frentzen (unpublished Master thesis, 2020) already indicated which elements need further research to be implemented in practice. These indications form the basis of the research questions of this thesis.

1. *What experience do experts have in applying the Key features of the CO-OP Approach™ in group settings?*
2. *Which adaptations of the Key features are necessary to be able to apply CO-OP in a group setting?*

To obtain answers to these two research questions, additional sub-questions were formulated to help in answering them.

- What is the ideal duration and intensity of CO-OP in a group setting?
- How can parents and significant others be involved in the group setting?
- Which assessment should be used for goal setting, and how is this conducted?
- How can the re-evaluation of the transfer goal be carried out?
- How do therapists use the PQRS in a group setting?
- How do experts conduct DPA in a group setting?
- What adjustments do experts make to Guided discovery in the group setting?
- How do experts ensure generalisation and transfer with a focus on structuring homework?

### 3. Method

In the following, the exact methodological procedure of the conducted study is described. Since a change of method took place within the research process, the general procedure was described first. Then the entire research process was presented graphically to provide an overall view. Subsequently, the individual methodological procedures of the two rounds were described separately and explained in more detail.

#### 3.1 Study design

The aim of the research and collaboration with the ICAN Academy is to develop an intervention protocol that can be used in practice for group interventions with children with DCD.

The next step in the research chain is to investigate the possibilities of implementing a group intervention according to the CO-OP Approach™ for children with DCD based on the intervention protocol that has been developed by Frentzen (unpublished Master thesis, 2020). To further refine the results obtained based on a scoping review and thus contribute to a subsequent intervention study. Due to this, the results should be systematically presented to international experts on this topic and further defined based on the experts' opinions.

Within qualitative research, the experience of the interviewees on certain topics is explored. According to Perkhofer, Gebhart and Tucek (2016), qualitative research can be described by five characteristics. These include subject-relatedness and everyday orientation (1), openness, and reflexivity (2). The focus here is on the subjective experience of everyday life and a systematic and theory-based approach. Further characteristics are an explorative character and inductive theory building (3) as well as theoretical sampling (4) and an interpretative evaluation procedure (5).

Various options are available for this in research. Within quantitative research, the focus is on a deductive approach to test theories or hypotheses. With the help of standardized procedures, a nomothetic statement can be made. Due to characteristics such as objectivity, reliability, and validity, quantitative research is highly differentiated compared to qualitative research (Perkhofer, Gebhart, & Tucek, 2016).

To achieve a systematic differentiation of the results by experts, it is suitable to conduct a multi-round Delphi study in which both, quantitative and qualitative approaches, are combined.

According to Häder (2014), one aim of a multi-round Delphi study is to structure uncertain knowledge. It also helps to systematically capture both quantitative and qualitative opinions on a given issue. In addition, it is an effective way to pave a pathway for further intervention studies on the presented issue through broad expert opinions. As the topic is primarily researched and applied in English-speaking countries, the Delphi survey can be used as a cost-effective and high-quality approach to gathering opinions from international experts, as the survey can be conducted with few barriers (Ritschl, Stoffer, Bösendorfer & Höchtl, 2016).

The Delphi Method cannot be described by a universal definition but is equally divided into four different types in the literature. Häder (2014) describes the types in his book as follows. Type 1 of the Delphi study is the Aggregation of ideas, a purely qualitative method that aims to collect as many ideas as possible to solve a problem. Here, experts are selected based on their expertise and questioned on a topic using open questions within open questions. If the focus of the investigation is the determination of an issue and thus an improvement of the prediction on a specific topic, the procedure of type 2 (Determination of a factual situation) Delphi study is suitable. Here, as with the subsequent Type 3, both quantitative and qualitative procedures are used to define the facts as precisely as possible. Type 3 of the Delphi study is therefore known as Identifying expert opinions. Likewise, Type 2 and Type 3 use open and above all closed questions and qualitative rounds for operationalization. The difference between the two types lies in the selection of experts and the envisaged goal. Type 2, for example, does not use formalized rules to recruit experts, whereas Type 3 involves a deliberate selection of experts. As already mentioned, the goal of type 2 is to improve the determination of the facts, whereas type 3 aims to identify and qualify the views of experts. Type 4 of the Delphi survey, called Consensus Delphi, is even more differentiated to reach a consensus. Here the surveys are purely quantitative, and the operationalization of the topic is highly differentiated, and only standardized assessments are used. A

qualitative round is dispensed with, and the experts work towards a consensus on certain questions, which makes a quantitative procedure necessary (Häder, 2014).

To be able to answer the research questions and guiding questions of the present study, it is first necessary to further qualify and develop the results elaborated by Frentzen (unpublished Master thesis, 2020). This should be done based on the opinions of international experts. Since some items of the intervention protocol currently still have a very wide and undefined range, it is not possible to aim for a consensus here. Accordingly, the application of the type 3 Delphi study is indicated for the research work.

This led to the planning of a Delphi study in two rounds. This survey was to be carried out through two questionnaires, one based on the results of the previous one. The first questionnaire has a more quantitative focus, and the second round should concentrate on more qualitative aspects. Both were evaluated according to previously defined schemes.

#### 3.1.1 Change in the method for the second round

The evaluation of the first round of questions revealed a need to adjust the planned implementation of the second round. Further reasons are explained in chapter 4.6. Instead of a second online questionnaire, there was a need for a focus group interview as described in Kühn and Koschel (2018). An important characteristic of the focus group interview is that all participants already have experience in the field being investigated. They must be able to express their perceptions and opinions. In this form of group discussion, the group itself is not in the focus of the survey, but more offers the opportunity to gain a broad spectrum of perceptions and ideas as the participants stimulate each other. As Häder (2014) describes, no negative effects of a group discussion could be observed in comparison to a type 3 Delphi study. The focus group also proceeds regularly in two rounds, as the Delphi study that was planned.

Thus, the results of the first round were incorporated into an interview guide based on prioritization. This included all questions and topics that did not provide sufficient information for implementation in practice during the first round of questions or where information was provided that required further discussion. As there are different understandings in the word focus group discussion, it will also be named as online group discussion for better understanding, even if it is conducted after the description of Kühn and Koschel (2018).

### 3.2 Preliminary Considerations

#### 3.2.1 Planned Sample size

The literature contains a wide variety of information on the size of the sample. Depending on the type and purpose of the Delphi study, the information varies additionally (Ritschl, Stoffer, et al., 2016). The sample size for the first round of the survey was based on the information from Häder (2014), in which a smaller sample size demonstrably did not lead to inferior results and statements and is also easier to organize. Based on this and according to the available resources, the researchers aimed for a sample size of N=15.

#### 3.2.2 Planned number of survey rounds

Two rounds with one questionnaire each were planned. In the second questionnaire, the results of the first questionnaire were to be further substantiated. Due to the low number of participants, the design was changed, and instead of the second questionnaire, an online group discussion with the participants from the first questionnaire took place. The online group discussion was led by an external moderator, video- and audio-recorded and transcribed verbatim afterwards.

#### 3.2.3 Selection of Experts

Within the literature, there is also no common statement on the definition of an expert. Ritschl, Stoffer, Bösendorfer, and Höchtl (2016), for example, describe the decision as to whether a person belongs to the group of experts or not as subjective. Accordingly, before the start of the study, characteristics were derived which, in the view of the researchers, should be present in the experts to work with the questions. This enabled the formulation of the inclusion and exclusion criteria. No direct pre-selection of experts

took place in advance. Further details are given in 3.3.2. Among the characteristics of an expert, the researchers chose:

1. participants have knowledge of the CO-OP Approach™ that can be demonstrated by a completed training course
2. the participants are able to pass on experiential knowledge about working with the approach in groups
3. the participants have already done research on the CO-OP Approach™.

Not all characteristics have to apply to the participant. Characteristic 1 in combination with 2 or 3 is of particular importance.

### 3.3 Sample

#### 3.3.1 Inclusion and exclusion criteria

As described above, inclusion and exclusion criteria were formulated from the defined characteristics of the potential participants. These criteria were shared with the potential participants during recruitment and were also included as drop-out questions in the first questionnaire.

1. Participants work or have experience with the CO-OP Approach™ in a group setting (three to max. twelve persons)
2. The participants have already conducted research on the CO-OP Approach™.
3. CO-OP instructors with at least 10 years' work experience with the CO-OP Approach™

#### 3.3.2 Recruitment

For the recruitment, the researchers created a flyer presenting the most important facts. This flyer was published via "Facebook", "LinkedIn", "Twitter" and "Instagram". In addition, some participants who were known in advance to meet the inclusion criteria were contacted personally by e-mail. The participants were at least trained in the CO-OP Approach™. This contact was not made by the researchers themselves but by an ICAN instructor. This was done to achieve a greater reach and importance for participation.

Furthermore, the researchers used the snowball method. In this procedure, the flyer is forwarded to third parties, and thus, experts can receive information from the research, even if they were not explicitly contacted. Through this procedure, further experts can be recruited for the research. With this procedure, Häder (2014) points out that the experts must plan more time until they can complete the recruitment because the snowball procedure takes longer until the information has been disseminated.

#### 3.3.3 Evaluation of the experts

The evaluation of the experts in the online questionnaire was done with in the first few questions, where the researchers asked about the experience with working or doing research in a group setting. If both questions were answered with "no", the expert was eliminated from the evaluation of the questionnaire. This was necessary because the researchers did not want hypothetical opinions on how the CO-OP Approach™ should be adapted for the group setting.

For the online group discussion, the experts from the questionnaire that fulfilled the criteria were contacted.

#### 3.3.4 Ethical aspects

For this thesis, no ethics board is needed, as Delphi studies generally interview experts (Stamm et al., 2016).

At the beginning of the online questionnaire, the participants had to sign the informed consent, which complies with the "General Data Protection Regulation" (GDPR) guidelines ("Gdpr. eu," n.d.) see appendix B. In this statement, it was pointed out that personal data is only important for the second round of the research and will be deleted afterward. Furthermore, it was explained that the results would be anonymized.

### 3.3.5 Guaranteeing anonymity

Due to the small number of participants, this paper refrains from describing the experts in more detail. A rough description of the participants is given in the section on the sample. In the informed consent, participants were informed that their data would be anonymized and be deleted after finishing the analysis.

## 3.4 Data collection method

Due to the current pandemic situation and the international influence, the researchers decided to use an online questionnaire. One advantage of an online questionnaire is that it is economical and independent of time and space. This makes it particularly suitable for international surveys. In addition, fewer biases can occur during data evaluation (Perkhofer, Stamm, Ritschl, Hirmann, Huber, Unterhumer, et al., 2016).

### 3.4.1 General information on the question constellation

The research questions derived from the master's thesis by Frentzen (unpublished Master thesis, 2020) provided orientation for the constellation of questions. In terms of content, the studies presented as well as the proposal for the intervention protocol by Frentzen (unpublished Master thesis, 2020), formed the basis for the questions created.

The questions were structured by a literature-supported explanation. The questions were of qualitative and quantitative nature. The structure of the individual questions was based on the intervention protocol from the CO-OP Approach<sup>TM</sup>. As far as possible, the questions were sorted according to the seven Key features to make it as easy as possible for the experts. The questions aimed to explore the different opinions of the experts and compare them with the statements in the literature. Some questions used a ranking that was based on the scale level of the COPM. This was chosen as it can be assumed that the participants are familiar with it. Thus the 1 is not applicable and 10 is fully applicable. Other questions were open-ended to get a broader range of opinions from the experts. For all questions, the experts could give their opinion in an extra text field to ensure that there is sufficient space to capture the experience and advice from the experts. For more information, see examples of the questionnaire in appendix C.

### 3.5 Research process



Figure 5: Research process



## 4. First Delphi round

### 4.1 Questionnaire development

The development of the questions referred to the discussion part of the master thesis by Frentzen (unpublished Master thesis, 2020). Based only on literature, these results were to be validated with the help of targeted questions from experts. It was important to develop a part of the questions on demographic background, work experience, etc. to have statistical evaluations. The other questions were introduced with the help of a statement or explanation, which was supported with literature. The questions were partly for ticking, assessing, or also for free writing. The aim was to give the experts enough possibilities to tell the researchers their opinions about the topics. First, the questions were compiled in a Word document and evaluated with the help of the supervisor and client. The changes were incorporated, and the questions were further refined. In the end, the questions were inserted into "Questback" ("Questback Essentials," n.d.) and sorted again according to the Key features after consultation with the client.

### 4.2 Pretest

For the pre-test of the questionnaire, the researchers chose two persons. When the questionnaire was finished, the two pre-testers received the link for the questionnaire by E-Mail with a feedback sheet. The exemplary questions can be taken from appendix E. The two pre-testers had seven days to send their feedback on the questionnaire to the researchers for the pre-test. From the first pre-tester, the researchers received feedback on the questionnaire after three days. This feedback was about changing some of the questions so that they would be understood in the right context, as well as about wording and changing the order of the questions.

Furthermore, the correct expressions of the CO-OP Academy were given to the researchers so that they could be changed. This pre-tester stated that it took her 30 minutes to complete the entire questionnaire. Thus, giving the researchers a time frame to include in their cover letter to the questionnaire that was published later. After the second pre-tester received the link via email, the researchers received feedback on the questionnaire within one day. This feedback was that the privacy policy for the questionnaire would still have some gaps, and therefore the privacy policy was not agreed to. As a result, these pre-testers could not continue to participate in the questionnaire and thus could not report back any feedback on the understanding of the questions or length of the completion time. On the other hand, this feedback was very important for the researchers, as it allowed them to revise the privacy policy again and thus ensure that the privacy policy for the published questionnaire contained all important information. Due to the feedback, the researchers could revise the questionnaire again and then publish the questionnaire for the public.

### 4.3 Data Collection

In total, the questionnaire was online from the 18<sup>th</sup> of May to the 31<sup>st</sup> of May 2021. 14 Experts received a personalized email with the participation link to access the questionnaire. Further, the participants were contacted via various social media platforms, and everyone could access the questionnaire via the link published on the flyer. After one day, two participants had taken part in the survey. After another six days, four people had completed the questionnaire. On the ninth day, a reminder was sent to the participants again by an ICAN instructor. After the Reminder, two more responses to the questionnaire were received.

### 4.4 Data analysis

The evaluation of the qualitative part of the questionnaire was carried out following Mayring (2015). The first difficulties arose with the definition of the term content analysis because there is no exact definition of the term. This is because a content analysis is not only limited to communication but also pays attention to other aspects (Mayring, 2015). Every person that deals with a content analysis create his definition of this term (Mayring, 2015). According to Mayring (2015), content analysis follows a certain scheme and rules. In addition, it is essential that a set goal is pursued and that conclusions can be



drawn about various aspects at the end. There are different types for the analysis of texts, which will be named briefly in the following. First, there is frequency analysis, valence and intensity analysis, and contingency analysis. Frequency analysis is roughly about how often a feature occurs, and it is compared to other variables. In the valence and intensity analysis, the text elements are divided into two or more-level assessment scale. The contingency analysis focuses on whether the same text elements are mentioned in the same or similar context and how the frequency looks like (Mayring, 2015). In the technique for qualitative content analysis, Mayring (2015) describes a specific procedure of this content analysis, which will now be explained in more detail, as it is an integral part of this analysis. It starts with the "embedding of the material in the communication context" (Mayring, 2015, p. 51). This indicates that the material is always understood within the communication context that has been created. As the next step, the "systematic, rule-guided procedure" is named. This means that the researcher establishes rules in advance, to which she or he adheres during the evaluation/interpretation and thus also has an orientation in the entire process. This can be understood, for example, that the researchers have thought in advance about the order in which the material will be evaluated one after the other. Next are the "categories at the heart of the analysis". The categories are important because they make the results comparable, even if several researchers are involved in the work. Within this analysis, quality criteria are also very important such as objectivity, reliability, and validity. Concerning the qualitative content analysis, the intercoder reliability is of great importance since several persons are involved in the evaluation, and thereby the results must be compared to present at the end a common result. Once the steps described above have been completed, the next step is to pose the question for the analysis. Because an analysis cannot be accomplished without a question. Thereby the creation/determination of the question can be divided into two steps. First, the direction of the analysis can be determined. In general, Mayring's stepwise approach can be seen in figure 7 (Mayring, 2014).

Figure 6: Figure 6: The Qualitative Data analyse process

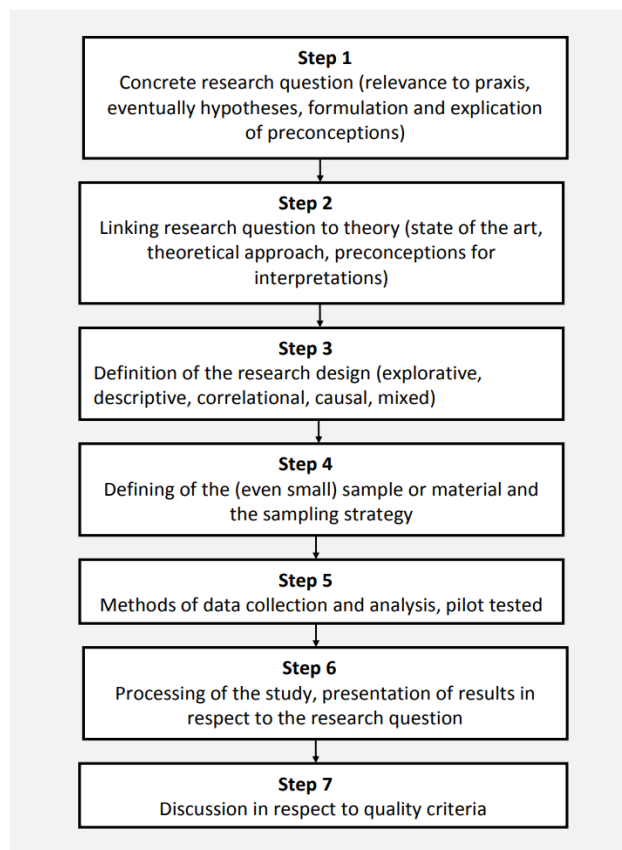


Figure 1: Step-by-step model for the research process

Annotation. Copied from *Qualitative Content Analysis: Theoretical Foundation, Basic Procedures and Software Solution* (p. 15) from P. Mayring, 2014, Klagenfurt: Open Access Repository. Copyright 2014 Open Access Repository Klagenfurt.

The "theory-guided differentiation of the question" can also be used for the question of the analysis. It should be noted, however, that if this type of questioning is chosen, the question must be precisely explained, and usually, it is still divided into sub-questions. To start analysing the transcribed text, the flow model must be set up. This includes the coding unit, the context unit, and the evaluation unit. The term "coding unit" (Mayring, 2015, p. 62) describes the smallest unit of material that may be included under a category. The context unit is for the exact opposite. Because under it is described, which is the largest text component, which may be counted to a category. Finally, there is the evaluation unit. This means which parts of the text are evaluated one after the other, and thus an order of analysis is created (Mayring, 2015, p.61).

To analyse the quantitative results, the researchers decided to use the Excel tool. The questionnaire tool Questback ("Questback Essentials," n.d.) gives the researchers the possibility to export the answers from the questionnaire into an Excel table. The researchers took this step and thus had the qualitative and quantitative results in one Excel spreadsheet. Thus, it was easy for the researchers to record and interpret the quantitative results. At the same time, the Excel tool is helpful for the quantitative results, as it can be used to quickly and easily create statistics that visually show the results.

#### 4.5. Quality criteria

Research has different quality criteria. Quality criteria for qualitative research could be, for example: "authenticity, credibility, confirmability, transferability and dependability" (Perkhofer et al., 2016, p. 128). The more strategies described in a study, the higher the quality of this study. According to Perkhofer et al. (2016) on one strategy to the quality criterion credibility for the best possible quality of qualitative results is the discussion with colleagues. This means that the researchers discuss the strategy, the method, and e.g., the analysis with each other and with colleagues. Under the credibility, the strategy triangulation is also counted. In this research, there was the researcher triangulation, because it is understood that the researchers deal with the data analysis in parallel and discuss these results afterwards. Since the researchers in this study always exchanged with each other and the data analysis was conducted in parallel, this quality criterion is counted as high. In the present study, the quality criterion authenticity can be described as high because the researchers kept a kind of research diary through their protocol. Through the protocol, the traceability of the individual steps and decisions can be extracted.

## 4.6 Outcomes

The first Delphi round was an online questionnaire with the online survey tool “Questback” (“Questback Essentials,” n.d.). The questionnaire was divided into quantitative and qualitative questions to gather as much information as possible. The quantitative findings will be described in chapter 4.5.2, and the qualitative findings will be described in chapter 4.5.3.

### 4.6.1. Participants

In the first round of the questionnaire, a total of six people took part. One participant (PA) had to be excluded from the evaluation because the inclusion criteria did not apply. The participant did not indicate any experience in research or implementation of group interventions according to the CO-OP Approach™. Further information can be found in the following figures 8 and 9.



Figure 8: Research experience of experts

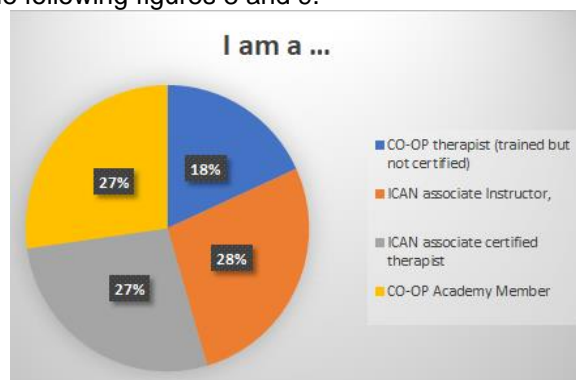


Figure 9: Highest CO-OP certification of Participants

### 4.6.2 Quantitative findings

The quantitative results of the first survey round are presented according to the order of the seven Key features.

#### Key feature 1: Client-chosen goals

According to the question about the implementation of the goal setting for the group treatment, three experts indicated implementing the goal-setting individually with the child. The other two participants indicated others, i.e., no explicit way of goal setting. The question about working on the goals asked whether the children work on their own goals in the group and whether they are also involved in working on the goals of other children. On the first point, the range of agreement was five to ten.

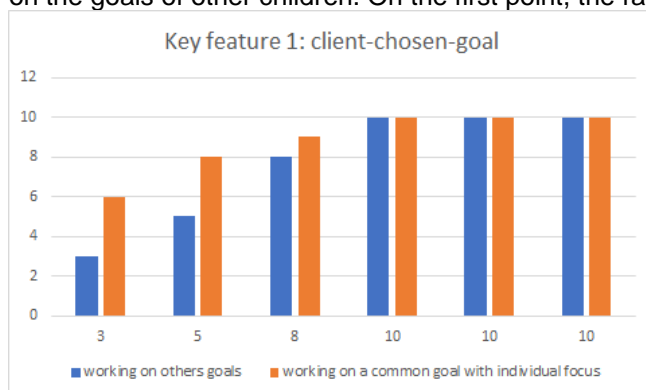


Figure 10: Approach to working on client-centered goals

#### Key feature 2: Dynamic performance analysis

Regarding Key feature 2, it was asked how the therapists introduce the global strategy of Goal,Plan,DO,Check in the group. Four participants stated that they used their own chosen example. One person stated "others" but did not give any further information. The importance of the Dynamic Performance Analysis (DPA) was stated as important by all participants.

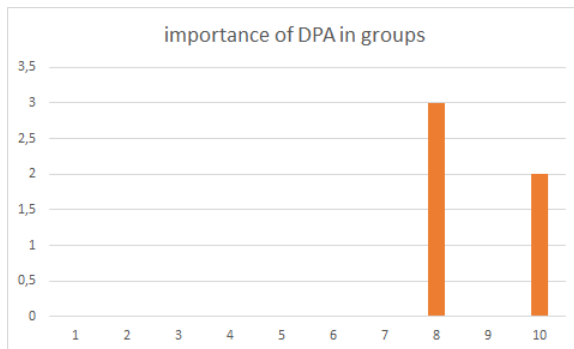


Figure 11: Importance of DPA in groups

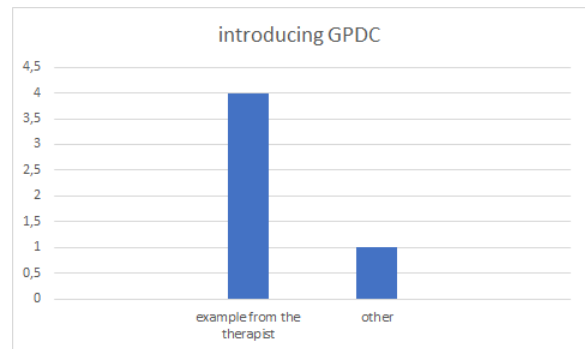


Figure 12: How to introduce the GPDC- Strategy

### Key feature 6: parent or significant other involvement

For the Key feature 6 (parent or significant other involvement), the researchers only conducted qualitative questions to get more in-depth information on how to adapt this Key feature in a group setting. For this reason, this Key feature is only mentioned in the qualitative findings in chapter 4.5.3.

### Key feature 7: Program structure (duration)

In terms of implementation duration, three participants indicated a group session of 60 minutes. The other two participants indicated 90 minutes. Furthermore, four participants stated that a weekly session of 60 minutes was ideal. One participant stated that an intensive training session was ideal. Thus, there is a range from once-a-week á 60 minutes to an intensive group provision for the frequency of group provision. For the total length of the group process, two participants indicated that 12 sessions were sufficient. One participant indicated that six sessions of 60 minutes were sufficient for the entire process. Another participant indicated that 15 sessions with a length of 60 minutes are sufficient for this. Thus, again, there is a range of six sessions to 15 sessions and a time range of no information to 60 minutes per session (figure 13). This Key feature also includes group size. On this topic, three participants indicated four children, and two participants indicated six children for a group. Thus, it can be said that an ideal group size for this setting is from four to six children. On the topic of therapist child ratio, participants indicated the following: two participants indicated one therapist and one assistant for four children. Another participant indicated that one therapist should be counted for two children. The other two participants indicated other, but then no further information. With the above information, a therapist-child ratio can be generalized as follows: one therapist to two children (figure 14). The other results are illustrated in appendix D.

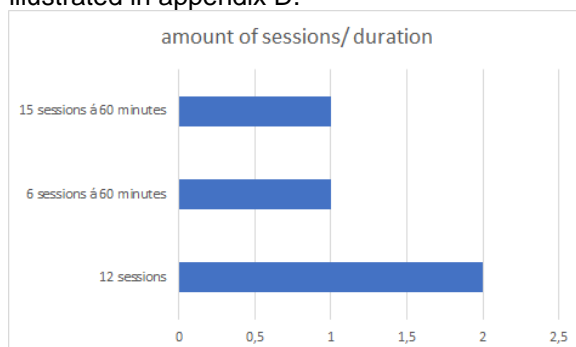


Figure 13: Amount of Sessions and Duration

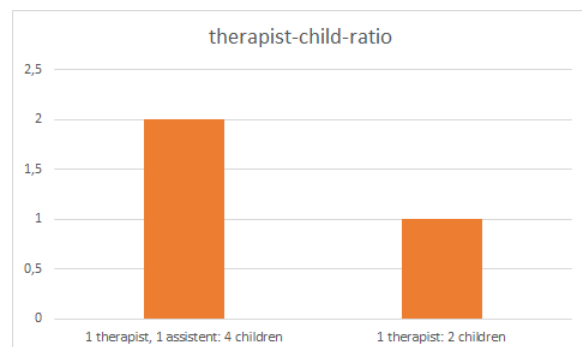


Figure 14: Therapist – Child- Ratio

#### 4.6.3 Qualitative Outcomes

##### Key feature 1: goal setting, use of assessments goals, baseline assessment

On the topic of goal setting, participants gave different information about which assessment they use and in which setting they conduct goal-setting. Four participants stated that they set goals in an individual setting. One participant stated that they set goals in the individual setting at the beginning, and then later in the group, they set a new goal that fits the individual goal. One of the participants stated that a logbook was kept in advance by recording activities that the child needs to do or wants to do. On the topic of assessments used in the goal-setting phase, four participants indicated using the COPM. Two participants indicated using the PEGS. Once indicated the PACS, the Plus McMaster hand-holding protocol, and the PRQS.

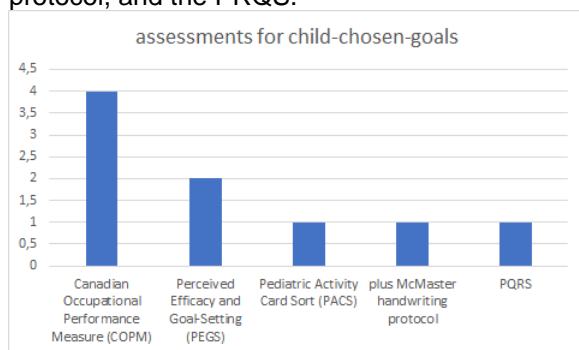


Figure 15: Assessments for Goal-Setting

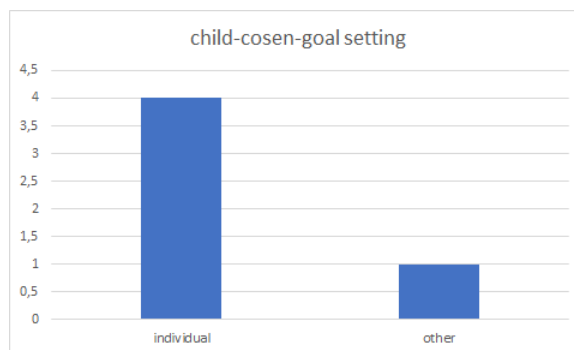


Figure 16: Setting for choosing the goals

##### Key feature 5: ensuring the enabling principles

Regarding the Key feature "enabling principles", the participants stated that they apply them in the same way as in the individual setting. No challenges were mentioned in the implementation of the enabling principles. Rather, it was stated that the group setting even supports items such as "promote learning" and "generalization and transfer". As the children can adopt strategies from others and learn from their ideas and problems, they have a better awareness of the analysis of performance problems.

##### Key feature 6: extra meeting for parent involvement, introducing CO-OP to parents and the group

Regarding the Key features 6, one participant stated in the questionnaire that in the first session and the last session, the parents or significant other is present within the units. In general, participants indicated that more time is needed for parents or significant other throughout the process. Another participant stated that it is important to include the parents or significant other without the children in the group process so that the parents understand the importance of homework. Moreover, it is important for parents to be involved in goal setting, so they know their children's goals and can support them as they move forward. Another participant stated that parents or significant other should be present for the first two sessions and as they progress, they should be present in the room for the last 10 minutes of each additional session to discuss the new homework with them. Key features 6 also include how the CO-OP Approach™ is taught to parents. The participants gave different answers to this in the questionnaire. One participant stated that there is a pre-meeting where parents learn about the approach, and then they are given a book with the most important information to take home so that parents have the information to review. Another participant indicated using a PowerPoint to convey the information to parents, and after the PowerPoint, parents get a handout to take home. Another participant stated that in the first session, the parents and the children are present, and, in this session, the CO-OP Approach™ is explained. Through questions shown, the children and adults can see if the solution to the problem has been found or if it needs to be started all over again.

#### 4.7 Conclusion for second Delphi round

After reviewing and evaluating the first Delphi round, it became apparent that the required and previously determined sample size could not be achieved. This ruled out the second round of written questioning with a quantitative focus due to a too small, expected amount of data. However, the evaluation of the data revealed questions and topics that need to be analyzed and expanded in more depth.

These are:

- **Key feature 2:** Dynamic Performance Analysis
- **Key feature 4:** Guided discovery
- **Key feature 5:** Enabling principals
- **Key feature 6:** Parent or significant other involvement
- **Key feature 7:** Intervention format

To focus more on the qualitative perspective and thus specify the results regarding the intervention format, an online group discussion was planned for the second round. For this purpose, the following questions were created to consider the desired depths in the group discussion.

- **Key feature 2**
  - What do you think is necessary to be able to carry out the DPA in the group setting? Or is it relevant for the group at all?
- **Key feature 4**
  - What is needed to implement these steps successfully? Are the proposed aspects realistic for practice? What is your opinion?
- **Key feature 5**
  - How can the renewed implementation of standardized assessments be implemented in terms of time and organization in practical work, and how can the transfer goal be checked?
  - Are the children and parents left alone with the transfer goal? Is it possible to carry out the re-evaluation in a time- and cost-efficient way?
  - Should the logbook be included in the therapy (e.g., at the beginning of the therapy)?
  - What advantages and disadvantages do they see in the different options, and what do they see as feasible in actual practice?
- **Key feature 6**
  - What is your opinion and preference on the different options?
- **Key feature 7**
  - What do you think should be given specifically by the intervention protocol, and what aspects should have several options for the therapist?
  - Where should already set materials (PowerPoint, logbook structure, etc.) be given?

The above questions will be used to gather in-depth information on the necessary elements of the intervention protocol for the group setting.



## 5. Second Delphi round

As described in chapters 3.1.1 and 4.6, the method was changed for the second Delphi round.

### 5.1 Development of interview guideline for group discussion

A discussion guide ensures that all topics are considered. The guide defines the topics in advance but also provides a structure for the participants' discussion of the individual topics. The participants must be allowed to contribute their ideas and impulses to the discussion. It also gives the moderator the chance to go into more depth on specific topics (Kühn & Koschel, 2018).

The creation of the guideline for the online discussion is based on the topics that emerged from the questionnaire. It was possible to form five main topics. For each topic, a statement was made by the researchers to stimulate discussion among the experts. For a short overview, see figure 17.

For the guideline, the researchers decided to use a qualitative basic understanding for their guideline. A manual should be a support for the moderator but should not be too structured. Through the guideline, all important aspects can be recorded and discussed in a document in advance of a group discussion. Thus, it gives an overview of the topics to be discussed, which should be addressed in the group discussion. The guideline should provide a general structure but does not have to be applied in the same order in the discussion group. A good visual representation of the questionnaire makes it easier for the moderator to maintain an overview in the group discussion. It makes sense to work with topic blocks. This means that first, a heading of the topic is named, and below this, either key points or further in-depth questions can be set up. To maintain an overview, Kühn and Koschel (2018) suggest specializing the importance of the topics and listing them in such a way that the most important topic comes first in the guide. Before taking up the first block of topics, it is useful to briefly introduce the topic so that all participants in the group discussion are on the same scientific level. In general, a guide can have the following basic structure: it starts with an introduction phase. It continues with a warm-up phase followed by the main part and ends with a conclusion part.

Theme/ Summary	Question	Time
Short introduction and introduction of the researchers, moderator and the schedule	For evaluation purposes and transcription, we will now record this group discussion.	5 minutes
Short introduction of the participants	What is your relation to CO-OP?	2 minutes per participant
<b>Dynamic Performance Analysis in Group setting</b>		
The evaluation showed that the dynamic performance analysis (DPA) is elementary for the group setting. However, the participants described different approaches for the DPA.	What do you think is necessary to be able to carry out the DPA in the group setting? Or is it relevant for the group at all?	10 minutes
<b>Guided discovery</b>		
On the topic of Guided discovery, there was a variance in implementation. Some stated that it is used at the point DO and CHECK. Others indicated that the children support each other in the CHECK step and parents are closely involved in these steps. For implementation, things like Captain Goal Plan Do Check or a whiteboard are included so that all children can check off problems and difficulties and share the solution with the group.	What is needed to implement these steps successfully? Are the proposed aspects realistic for practice? What is your opinion?	10 minutes

Figure 17: Sample from Interview Guideline

### 5.2 Selection of participants and moderator

For the second round of this study, participants from the first round were asked in writing if they would participate in an online group discussion. One person who could not participate in the questionnaire wanted to participate in the second round. In the end, two participants agreed to participate in the online group discussion. For the moderation, the researchers chose their client because she was familiar with the topic and gave the researchers a good feeling to conduct the online group discussion in such a way that there would be good material to evaluate at the end.

A moderator is important for a group discussion, as this allows a "red thread" to be followed and one person to keep an eye on what is happening in the group. As Kühn and Koschel (2018) say a moderator is neutral in his or her position. An important point of a moderator is that the person can think analytically and give clear and structured summaries now and then.

The invitation for the online group discussion was sent to five people by e-mail. Two of the persons accepted and three persons could not participate as shown in figure 18.



Figure 18: Invitation for Participants for online Group Discussion

### 5.3 Data collection

As already described in chapter 4.6, the researchers got their data for the second round from the results of the first round. From the results, a guideline was created to give the moderator the most important information for the online group discussion. The online group discussion was video recorded and audio recorded. After the participants gave their consent so that the researchers could create a transcript as they proceeded. The transcription was done with the help of the program "Amberscript" ("Amberscript," n.d.). The transcript of 01:21:50 hours was then revised section by section by the researchers and checked for possible errors. The researchers decided to do an online group discussion as international experts participate. This seemed to be the safest way to obtain in-depth information from the experts due to the current COVID-19 pandemic.

Another point why the researchers chose the online group discussion is that this form of group discussion is cost-effective. As the method was changed within the research process, this also had a considerable impact on the timing of the study. The form of the group discussion is cost-effective, time-saving, and offers the possibility to obtain in-depth information. To obtain anonymity, the participants were given numbers to analyse the data later in the process.

### 5.4 Data analysis

The analysis of the qualitative data of the group discussion was carried out following Mayring (2015). In the theory- and rule-based analysis, the focus is on providing the results as systematically as possible. The procedure of the content analysis conducted here is illustrated graphically once again in figure 19. It is important to mention that this content analysis was only based on the process model of Mayring (2015).

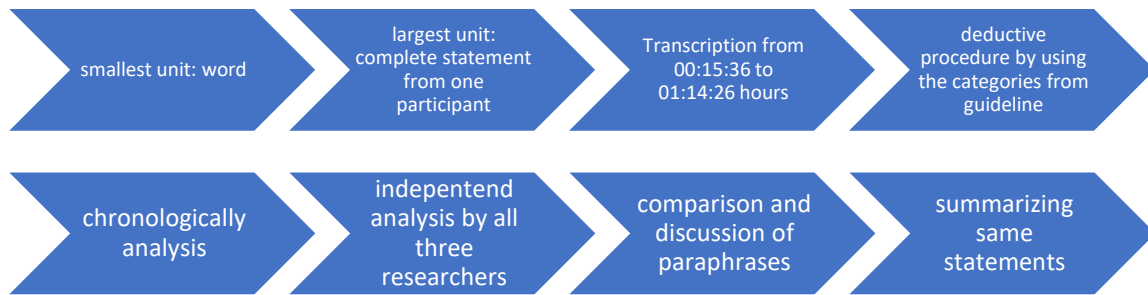


Figure 19: Process of Data Analysis

The first step was to determine the smallest coding unit. Here, the single word was defined as the smallest unit and the largest unit as a complete statement by the participant. The analysis was carried out chronologically based on the transcript and started after the greeting at minute 00:15:36 and ended at 01:14:26. In analyzing the group discussion, the researchers proceeded deductively, as in the first round. The previously defined categories corresponded to the Key features to be explored, which can also be taken from the guideline. The transcript was analyzed independently by all three researchers. This ensured the reliability of the research results, and only minor deviations were found. The paraphrases were also created independently of each other. Afterwards, the researchers compared and discussed the different paraphrases and analyses. Finally, identical statements were summarized.

## 5.5 Outcomes

In the second round of the Delphi study, the focus was on generating qualitative data. As described in chapter 3.1.1 there was a change in the method. Instead of a second online questionnaire, the researchers conducted an online group discussion to corroborate the data from the first round; an online group discussion was conducted as already described. The data collected and analysed are presented below.

### 5.5.1 Participants

The recruitment process for the online group discussion was as followed. The participants of the online questionnaire gave their consent and provided the researchers with an E-Mail address to be contacted for the second round of the Delphi study. Because of the change in method from an online questionnaire to an online group discussion, the researchers reached out to all participants to find a possible date for the online group discussion in the week from the 5<sup>th</sup> to the 9<sup>th</sup> of July 2021. 4 potential participants could not take part in the discussion. One participant did not respond back. One participant responded but wanted further information about why there was a change in the method to take part. One participant missed the deadline of the first round but contacted the researchers. Since so few participants took part in the first round, the criterion that only participants from the first round may take part in the second round has been removed. The inclusion and exclusion criteria were also extended, the new inclusion criterion was that the participants must have experience with CO-OP. This resulted in the participant who missed the first round being able to participate in the second round. At the end of the recruitment phase, the researchers had two participants for the online group discussion.

All participants signed the informed consent form. The online group discussion was a small group with only two participants and therefore there is no further description as the researchers need to ensure the anonymity of the participants.

### 5.5.2 Qualitative findings

All qualitative findings were analysed and presented in consideration of the seven Key features of the CO-OP Approach™. For the qualitative data analysis, the chronological order as stated in the guideline is again considered. It starts with Key feature 2 and ends with Key feature 7. For better readability, Participant 1 will be abbreviated as PA 1 and Participant 2 as PA 2 in the following, and so the following results can be noted.

#### **Key feature 2: DPA**

To obtain more in-depth information on Dynamic Performance Analysis (DPA), the question “Is the DPA relevant for the group at all?” was asked. The following answers emerged from the group discussion.

Participant 2 (PA 2) stated: “It’s that I think is essential and integral part in group to iterative process of the CO-OP Approach™ and that doesn’t change in the group model.” It was also mentioned that when doing the DPA keep the children engaged and keep the group hierarchy in mind.

The first DPA is important. It helps with the understanding of the process of CO-OP by identifying the problem and guiding discovery to the solution.

Participant 2 cited, “I think the first DPAs you do are the critical ones to get the buy-in with the understanding of the process of co-op identifying the problem. . . .”

The moderator asks for advantages and disadvantages when doing the DPA in a group setting. The disadvantage of doing the DPA in a group setting is time. One of the advantages of doing the DPA in a group setting is that the children can see what they cannot do, and others can, but also if they can do a task and others cannot. They see that everybody has different abilities and that they are not the only ones who cannot do a task. The children can switch from a “helpee role” into a “helper role” and help others solve a task. Within the group, the children can see that there are different ways to do a task or different solutions to the problem.

And the one wonderful thing about. . . working in groups is the children see that there are many different ways to do things. . . . And different solutions. And they get that in the group process, I think, much quicker than they do in a one to one (PA 2).

After discussing the provocative question of the necessity of DPA in the group setting, the participants were asked about the required changes to apply it in the group setting.

In the group setting, the therapist can combine the DPA with the PQRS. It is more a sharing process than an individualized DPA. "And so, it's more of that slightly more sharing rather than individualized DPA". . . . "There's some flexibility in how you go about doing that in a positive way" (PA 2).

During the DPA it is important to keep the kids engaged. If they start to wander off, let them be part of the process by helping to find a solution to the problem. If there are enough resources, the therapist should do a one-to-one DPA and bring the solutions back to the group. Often the therapist and the child or children are doing the DPA together at the same time. And the DPA happens often throughout the session. "So oftentimes the therapist is doing the DPA at the same time as the children". . . . "So DPA is something happens iteratively meaning over and over again throughout the session" (PA1).

During the DPA the therapist never sees all the breakdown points of the task. Sometimes there are too many breakdown points to figure out which is the most important one. In the group setting when doing the DPA there is not always time to write the breakdown points down. "So as a therapist, you will not always have the time to write down the breakdown. It happens. I always tell therapists that doing CO-OP is hard work because your brain is always thinking, you're always analyzing, and it gets easier over time and the more often that you do it" (PA 1).

Bike riding is a good example, . . . , because . . . , the child cannot put both feet on the pedals. That's the first breakdown. But you don't see the other breakdown because that breakdown prevents the past from continuing (PA 1).

The DPA and Guided discovery cannot be seen as an indivual part of the approach. "It's connected or even intertwined with the Guided discovery because you move immediately onto Guided discovery" (Moderator). Because the DPA and Guided discovery are connected, the children are aware that other children can come up with a strategy to their problem. They also become aware that there are different ways to find the breakdown point. It is also possible even if the child is working on their own goal in the DPA to find a solution in the group. The other children in the group can help the child with his/her task performance. "... they'll have awareness." Participant 2 stated.

With the DPA the parents should be present during the first session, to take the pressure of the children in a new setting. As a therapist, you can include the parents in the process of explaining the approach. By doing so choose something difficult for the parents to do, that the children can see nobody can do everything.

So, to take the pressure of that, I had usually in the first session I had the parents in with us so that for the whole session. So, they got an understanding of the CO-OP Approach™ and we had the children work to get their parents to do something difficult. And we chose a very difficult task of putting a little hoop around your ankle and you had to jump around a ball that you hop and skip over (PA2).

#### **Key feature 4: Guided discovery**

As already described, the DPA and the Guided discovery are intertwined. "It goes fluently from a DPA into a Guided discovery and come up with plans to find solutions for the problem" (Moderator). Thus, it goes directly to the statements of the participants on Key feature 4. The moderator also focused on the topics of necessities and changes for practice as well as the opinion on realistic implementation.

Within the Guided discovery, the children can switch from a "helpee role" into a "helper role" and help other children discover a strategy for their problem. The Guided discovery is not in a specific phase of the approach it is constantly present throughout the process. "I see it is that integrated, iterative passage, and it's not linear or circular process, one before the other. . . ." (PA 2). The Guided discovery can be seen as "... the sauce that links everything together..." (PA 2). Within the Guided discovery, the use of a puppet may be helpful to make it more fun (see Key feature 5). The puppet can pretend to not know something and often the children listen to the puppet more than to the therapist.

So, he had like the police hat and the badge and then the children, you know, they had casebooks. So that was the theme. And one of the good things about the . . . puppet is that they often listen to the puppet more than they listen to the therapist (PA 1).

#### **Key feature 5: enabling principles**

The results regarding the fifth Key feature "enabling principals" should provide answers to the following questions from the guideline.

How can an evaluation of the transfer be ensured and implemented in practice?

Should a logbook be introduced at the beginning of therapy, and what would be the advantages and disadvantages of this?

Even though the focus was on the item "generalisation and transfer", the experts stated that CO-OP in a group setting additionally favors the item "promote learning".

While the children participate in supporting other children in analyzing their tasks, the children continue to learn ways to analyze tasks and develop strategies (PA 1).

" . . . I think the advantage for generalization and transfer is that they are doing and seeing it with other children and are able to analyze other children's and suggest strategies to other children as well" (PA1). Furthermore, the experts agree that generalisation and transfer are more incorporated in the group setting.

In this regard, PA2, which has currently conducted an online group format, states that transfer is also strongly dependent on the setting. She reports the following in this regard.

So bringing it so that the transfer has been tremendous and within the home there to different activities at the plan, that strategy might work for something else because they can go and get their bathrobe, they can go and get the apron, or they can go and find a different thing to tie. (PA2).

PA 2 goes on to describe the use of detective tasks at home. The children then record the results in their logbooks.

They . . . reported how they'd use their strategies or try the strategies at home. And they would get stickers on how successful that may or might have been. They'd get a super big sticker if they'd come up with a new strategy of their own and worked that out because it's the generation of ideas, isn't it? That's the process that's so important. And they'd also they could give themselves an extra star if they had been able to come up with something different, that they tried (PA2).

In the individual setting, an untrained goal is used to test the transfer (see chapter 2.4.2.2), and the following results were obtained in response to the feasibility in the group setting.

PA 1 reported that the re-evaluation through an untrained goal is a very high level, and it is difficult to implement and control. Instead, PA 1 also recommends the use of the logbook for this purpose.

#### **Key feature 6: parent or significant other involvement**

After the topics of generalisation and transfer have been discussed, a related Key feature "involvement of significant other" is additionally important in the implementation. As already described, cooperation is an important basis for successful therapy. For this purpose, the experts were asked for their opinion and preference on the different options given for the involvement of significant others. The options emerged from the evaluation of the first round of the questionnaire. These were a booklet or a pre-meeting with a PowerPoint presentation. For better readability, significant others are not mentioned. In this case, when parents are mentioned, they are meant in the same way.

To introduce the CO-OP Approach™ to the parents and children, the parents should be completely involved in the first session. To break the ice, it is very helpful to let the parents do something they cannot do. This way, the children see that not everyone is always good at everything. In turn, the parents can better put themselves in their children's shoes and understand the CO-OP process.

And it's interesting how many of the parents opted out. They didn't feel they could do it. They were too shy. They were too embarrassed. So that was just such a great conversation to say, you know, we're not all good at everything, you know, want to hide things we can't do. But here, let's have some fun, see if we can work it out. And so did you end up with a lot of good laughs as children tried to help their parents find out that? So that was a kind of icebreaker. And then the next task we would choose is we chose that task. And whether it's sharpening a pencil or

something that none of the children had chosen as their goal to figure out. But we probably we were suspicious that many couldn't do it. So that's why we chose that approach. And I think it has over the course of time, proved to be quite useful in the groups. So you take the passion, oh, gosh, I still can't do something. All the other kids have already left it and I'm still failing at this (PA2).

Some parents understand how important the approach is. It is of great significance to speak with the parents and listen to them how much time they have on a normal family day. This is important to figure out what is possible according to supporting their children in finding strategies.

So I think one of the most important thing with parents is to have sit down and talk with them, get explain to them what the approach is about. . . . , and there are parents who are going to have a difficult time seeing their child struggling, so I think it's very important to explain to them the importance of the struggle and that the only way the child is going to be able to develop his self-efficacy or confidence is by overcoming the stress of school. And even then, it's sometimes it's difficult, . . . and you also have to understand what the parent is able and ready to do (PA1).

By doing a little workshop for the parents to introduce the CO-OP Approach™ the parents get to know each other. Create a nice atmosphere while waiting during the session to allow them to interact and get in touch with each other.

But what I did notice is that when the parents got together, it was really helpful for them to share their experiences because like the children, the parents often feel like they're alone. So when they see that other parents had similar struggles, . . . it made them feel better. Right. And so I think that venting process was very helpful. And . . . in the group two parents actually became friends and their children became friends. And so, because they understood each other's child, some of the parents were saying, you know, the parents of the other children because her child had different ways of interacting. They didn't always understand their child and didn't always have the patience to explain to their children. But with this child, because their children both had struggles, there was kind of mutual understanding (PA1).

#### **Key feature 7: Intervention format**

Due to the time constraints, Key feature 7 could not be discussed further. The following results were obtained from the online group discussion on this Key feature. For the adult: children: ratio, either 2:3 or 1:3 was indicated, as well as the suggestion to make children in the group as two teams together. The group dynamic is very important and needs to have a focus on group building. It was mentioned that more time is needed like about 20 sessions. Therapists need to be more flexible in rules and must make sure that it makes fun.



## 6. Discussion

To synthesise, the results provided information on the further differentiation of the structural and essential elements for the intervention protocol. However, it also showed that the information from the literature did not differ significantly from the practical experience of the experts.

This may also have been since experiential knowledge in the implementation of CO-OP in groups is still quite limited in the international field.

Nevertheless, the research was able to generate some recommendations on the implementation and design of the intervention protocol.

In general, the basic idea and implementation of the CO-OP Approach™ in a group setting remain the same, as Frentzen (unpublished Master thesis, 2020) already describes. However, the experts point out much more that there must be certain flexibility in the implementation of groups. This applies to both the structural and the essential elements. It is not a matter of eliminating individual elements but of adapting their presentation and setting the focus. To put it in the words of one interview participant, "Sometimes it's more Chaos than CO-OP", but that is often what makes the group so valuable for the children.

In the following, the results of the different structural and essential elements for an extension of Frentzen's (unpublished Master thesis, 2020) proposed intervention protocol will be discussed.

Afterwards, the limitation and boundaries that were experienced in the study are being discussed. In addition, an outlook of how the results of this study can be used in the future is given, and further research needs are outlined.

### 6.1 Outcome discussion

To answer the research questions, additional guiding questions were set up on the structural and essential elements. The structural elements included questions about the duration and intensity of the group treatment.

#### Structural elements

As can be seen from the various studies, there are no concrete recommendations on the duration of the individual group sessions. Especially since different forms of treatment such as intensive summer camp (Martini et al., 2020; Zwicker et al., 2014) or weekly therapy are described in the literature. This also affects the information on the total number of sessions. Here, a difference of 6-20 units can be noted.

However, the results of the study showed that a weekly frequency with at least one unit per week is recommended. The duration of each unit is **60-90 minutes**. The total duration, as already described, depends on the setting. Yet, through the discussion with the experts, it became clear that more time is needed for the implementation of group therapy to respond to the needs of the children. Thus, a total duration of **10-20 sessions** could be considered, depending on the group size and group composition. Transferred to the German context, it should be further researched if 20 sessions can be recommended. Here, this corresponds to two prescriptions for the group setting plus preceding individual interventions on goal setting and clarification of group ability. It became clear that special attention should be paid to the group composition. According to the experts, attention should be paid to age as well as to possible co-diagnoses such as ADHD or autism. The focus should be on ensuring that each child has the opportunity to work successfully in the group and that fun can be guaranteed.

Similarly, various statements on the therapist-to-child ratio have been noted in the literature. For example, Martini et al. (2020) recommend four therapists for seven children, whereas Zwicker et al. (2014) recommends two children per therapist. However, the proposed ratio of Martini et al. (2020) can only be implemented with support staff such as students. The results of the expert survey showed a recommended **ratio of 1:2** with a **group size of four to six children**. However, this could also result in a **ratio of 1:3**, but the fact remains that at least two therapists are needed per group. The therapists all must be trained in the CO-OP Approach™. It was also considered important for the group constellation to consider the **group dynamics** and to guarantee the enabling principle "make it fun". The **structural design and rules of the group sessions should be flexible**, as already mentioned, but with consideration of the safety aspects.

Another important aspect of the structural elements of the CO-OP Approach™ is the *involvement of parents or significant other* in the therapy. Here, the literature described that this is important to support transfer. Again, various suggestions for implementation were made, but no consistent choice was noted in the intervention protocol.

As Martini et al. (2020) describe, it is important to develop an understanding of what families can achieve. The therapist should get a picture of the family routine together with the parents and discuss the expectations of both sides. Here, the interviewed experts recommend sitting down together with the parents and making a plan for how they can support their child as much as possible according to their possibilities.

This includes an **extra parental meeting** before beginning the group intervention. This can be conducted as a **workshop**, as suggested by experts of the study. The workshop not only gives the parents an introduction to the principles of CO-OP group therapy but also provides an opportunity for exchange between parents. According to one participant's experience, it also has a positive effect on the parents' well-being and their interaction with the children. It allows them to meet people who have similar experiences and concerns in their daily lives with their children and to exchange ideas. Araújo, Cardoso, and de Castro Magalhães (2017) described a similar situation.

It is also recommended **that parents be present in the sessions as often as possible, like in the last ten minutes of every session**. At least they should be present in the **first and last session**. The first session with parents should be used to **explain the global strategy to children and parents**. To demonstrate to the parents, the difficulties and feelings their children face daily and to support a better understanding, the following recommendation was made. Within the first sessions, the therapist can give the parents a motor task that is difficult for them. The aim is that the child and the parent together find a solution to how the parent can solve this task. This method has proven to be **an icebreaker for the first session** and promotes understanding of the global strategy. Further, the journal for parents suggested by both the participants and Martini and Savard (2021) can be useful for the involvement. This is to keep a written record of the child's strategies and developments.

#### Essential elements

The essential elements ensure that the intervention follows the basic ideas of the CO-OP Approach™. To ensure this, a particular focus was placed on this in conducting this study.

On the one hand, further research should be done on how therapists implement the client-centered goal setting in practice and which assessments they used for this purpose.

In the literature, both the COPM, the PQRS, and the PEGS are used to assess client-centered goals. However, little attention was paid to whether the goals were collected and set before in an individual setting or together in the group. The results of the study showed, however, that the experts recommend **setting goals with the children in an individual setting before the group session**. For this, as also described by Anderson, Wilson, and Carmichael (2018), Thornton et al. (2015), Martini, Mandich, and Green (2014), Zwicker et al. (2014), Dunford (2011), and Chan (2007), they **used the COPM** (Law et al., 2020). Similarly, some experts recommended the **use of the PEGS** (Missiuna, Pollock, Law, Walter, & Cavey, 2006) as Thornton et al., 2015; Zwicker et al., 2014; Dunford, 2011 describe in their studies. Thus, according to the experts interviewed, **both assessments are advisable for assessing client-centred goals before the group intervention**. Frentzen (unpublished Master thesis, 2020) also describes the use of the German "Fotointerview" as an assessment for goal setting. As no German experts participated in the study, no data were collected on this.

As Anderson, Wilson, and Carmichael (2018) describe, it is possible to **combine the PQRS with the COPM in the goal-setting phase** than it observes the child's performance. Thus, although the research question cannot provide a single assessment for goal setting, it can provide a recommendation for its use and combination.

As in Polatajko et al. (2000), the DPA is mainly carried out in an individual setting. There is no evidence for the implementation in the group setting. The results of the present study show that DPA also plays an important role in the group setting.

The experts interviewed stated that DPA is also an integrative process in the group setting. Thus, the results showed that the **PQRS can be combined with the DPA within the group process**. In itself, the DPA does not change, except that the therapist and the child often do it at the same time. It helps

the child but also the parents to understand CO-OP and to identify the problem. In addition, the children experience a change of roles as they often work on the DPA together in the group. According to the experts, a great advantage of the group setting is that the children can switch from the “helpee role” to the “helper role”, with motor problems often unknown to them. Among other things, this has a positive effect on self-confidence and positive self-expectation. This positive effect is also mentioned in the guidelines, as children with DCD often suffer from additional socio-emotional problems (Blank and Vincon, 2019). It also gives the children the opportunity to learn strategies from other children and thus strengthen generalisation and transfer. Compared to the individual setting, it is not possible to strictly document the DPA in the group. As already mentioned, the **DPA is often carried out together with the children and is linked to both the PQRS and the Guided discovery**. This again shows that the DPA is an integral part of the group setting, as reported by the participating experts.

On the question of what adjustments the experts make to use Guided discovery in the group setting, the experts were able to make the following statements: They described that the **DPA and the Guided discovery always interconnect and cannot be assigned to a specific phase** as in the individual setting. In the literature, very few statements are made about this, and if so, only about the individual setting (Polatajko & Mandich, 2004). Moreover, the experts reported more on recommendations for implementation than on adaptations and concrete instructions for action in the group setting.

The results showed that it is helpful to embed **Guided discovery in an overall theme and that a puppet is considered helpful**. Some experts reported that depending on the group, a mascot/puppet may be helpful for the group process. The puppet can pretend not to know something and thus encourage the children to figure out a new strategy.

Here, it is important to note how the group responds to Puppet. Furthermore, the puppet can be used to remind the rules. This can relieve the therapist, as children listen to the Puppet more often than to the therapist, according to the experts.

The use of a puppet and the overall theme also **encourage the enabling principle "Make it fun"** and maximize success. But the further use of the Puppet must be evaluated during the process. As mentioned, the DPA and Guided discovery are intertwined; children in the group can pick up new strategies from other children and thus solve their problems.

To **reinforce these strategies, logbooks/casebooks are recommended for use in the home setting**.

A further intervention study is needed to evaluate the use of the DPA and the Guided discovery as recommended by the experts.

According to answering the question about how experts ensure generalisation and transfer with a focus on structuring homework Capistran and Martini (2016) and Martini, Mandich, and Green (2014) mentioned **the use of a casebook or logbook to document strategies**.

Furthermore, the study by Capistran and Martini (2016) mentions a transfer task like the individual setting. According to the experts, the transfer task is considered to have a high requirement that is not feasible in practice.

To ensure the transfer of the strategies into everyday life, it is recommended by the participants to use casebooks or logbooks. Furthermore, it can support the parents to facilitate the transfer to the home environment. For this, parents should be present in the first complete session to understand the approach and to be able to apply it correctly later. This recommendation is similar to the journal right at the beginning while the involvement of parents was discussed.

The use of an overarching theme, such as a Detective Club as described in Martini, Mandich, and Green, (2014) and Green, Chambers, and Sugden (2008), provides group members with a sense of belonging and, by enabling principal to make it fun, can positively promote strategy formation, as well as generalization and transfer among children.

This can both be used for homework as the children get like one participant mentioned detective task in their casebooks. For example, they have to investigate what types of buckles they have at home and if their strategy works with it as well. Everything they noted can be written down in their casebooks.

Following the question of how a re-evaluation after finishing the group intervention can be done new ideas occur.

During the online group discussion, the experts came up with the idea of **conducting an interview or questionnaire on the topic of everyday transfer with the children and parents 12 weeks after completion of the intervention**. This should be explored in a future study, as there is no relevant data available at this time.

## 6.2 Methodological discussion

This section of the discussion critically reflects on the impact of the chosen method on answering the research questions. In addition, it discusses whether and how the chosen method led to possible biases or limitations in the results of the study.

### 6.2.1 Study design

To answer the research questions, a Delphi study was conducted in which experts in the CO-OP Approach™ were consulted on the implementation of the approach in the group setting.

Two follow-up rounds were planned. Both rounds were to be conducted using an online questionnaire. It was planned that the first questionnaire should have a more quantitative focus, and the second questionnaire should deepen the information gathered in the first round and underpin it with the qualitative results of the second round.

Due to the evaluation of the first round, the results offered more need for discussion regarding practical implementation. Examples and ideas on how to implement them were given. The small number of participants also influenced the need for a change in the implementation of the second round to achieve the goal of the study.

Due to the chosen type 3 of the Delphi method, intending to identify and qualify facts through expert opinions, there was the flexibility to switch to a different data collection method than previously planned. Even though the implementation of the second round had to be changed after the completion and evaluation, the Delphi method still proved to be a suitable method to achieve the goal of the study. The chosen method and type proved to be an excellent one, as it is designed to collect quantitative and qualitative data with the help of experts.

As Häder (2014) describes, no negative effects of a group discussion and the type 3 of a Delphi study can be found. The combination works well especially because a focus group discussion, according to Kühn and Koschel (2018), is also conducted in two rounds. Even though the combination of conducting the two rounds is rather unconventional, it was the most efficient way to collect rich results despite the small number of participants.

### 6.2.2 Data collection method

The data was collected through an online questionnaire created using the online tool "Questback". The advantages of an online survey, as described by (Perkhofer, Stamm, Ritschl, Hirmann, Huber, Unterhumer, et al., 2016), were fully met. The creation of the questionnaire was very user-friendly and had various display options. For example, the insertion of introductory texts ensured a better understanding of the questions. But also, a detailed explanation of data protection issues could be added directly before the questionnaire. Thus, this data collection method proved to be effective and suitable for this project.

It should also be noted that there was a change in the operator of the platform during the creation of the online questionnaire.

This resulted in some functional changes, the application of which the researchers were unable to obtain information on at the time. There was no manual yet. This in turn, led to a forced revision of the questionnaire and a changeover to the new functions with an increased expenditure of time.

The condition of the questionnaire was straightforward. As the snowball system was used, no general pausing of the questionnaire could be set. This was only possible for the participants who received a direct link from the researchers. In the end, this was not necessarily due to the short completion time of 30 minutes.

In addition, the online survey avoided errors in data transmission due to manual data entry.

The researchers had insight at any time into how many people had already accessed and completed the questionnaire. This meant that a reminder could be sent out quickly to re-motivate all the experts who had been approached, as well as those recruited via social media, to participate again.

All results could be viewed by the researchers immediately after the questionnaire was completed. It was also possible to avoid bias by the study management, as the tool already displayed the results in the form of an Excel spreadsheet, and nothing had to be transferred manually.

This allowed the quantitative results to be evaluated in a very time-efficient manner. The use of the ten-point scale based on the COPM also proved to be suitable, as no comprehension problems arose here.

By collecting some qualitative data, it was possible to develop further ideas for the second round and to benefit from the experience of the experts.

The structure of the questionnaire was generally in line with the aim of the survey and was the appropriate method for it.

The use of the tool "Questback" can be classified as suitable. Even though the drop-out function was set, one participant was not prevented from completing the questionnaire despite not meeting the inclusion criteria. However, this could be quickly identified by a manual check of the results.

After reviewing and evaluating the quantitative and qualitative data as well as the response rate, a change of method was necessary to achieve the study goal. At this point, the implementation of the previously established plan was no longer considered reasonable.

This was due to the low number of participants as well as the results already obtained.

There were two other options for conducting the study further, individual interviews or a focus group discussion, according to Kühn and Koschel (2018).

The definition of a focus group can be defined differently by different authors. For simplicity, the researchers decided to use the term online group discussion and will use this term in the further description.

The pros and cons of the two options were weighed up.

On the one hand, an online group discussion offered a challenge due to the international experts and the time difference, but conducting individual interviews is far more time-consuming.

In addition, the online group discussion allowed for a broader consideration of the topics. Especially since the participants triggered and inspired each other. This would not have been the case if individual interviews had been conducted.

Finally, this and the time delay in the research process, due to the extension of the questionnaire's duration and the change of method in the second round, led to the choice of the focus group discussion also named online group discussion in this thesis.

For the online group discussion, participants in the first round of the survey were contacted by email to receive a proposed date from them. One participant wrote to the researchers that s/he had missed the questionnaire schedule but would like to participate in a second round. The researchers created a new privacy statement for the online group discussion because the discussion was video- and audio-recorded.

As a conference on DCD was held on the same day as the online group discussion, many interested participants were unable to attend this group discussion. Participants had to sign and send the privacy statement to the researchers in advance so they could receive the link for the group discussion. Conclusively, two participants attended the group discussion. The discussion was facilitated by a moderator who had received the researcher's guide in advance. After conducting the online group discussion, it can be said that two participants were reasonably sufficient for this situation, as otherwise, the time allotment would have been exceeded even more.

The online group discussion was planned for 60-90 minutes, as one participant announced in advance that s/he would only have 60 minutes. After about 85 minutes, the moderator ended the discussion, having collected all the necessary information. With the help of the purchasable transcription software "Amberscript", the English non-native speaking authors created a transcript for analysis. This was then used to analyse the qualitative data of the online group discussion.

### 6.2.3 Sample

As the results of the socio-demographic survey in the first questionnaire show, all experts are highly educated, and most of them have already researched CO-OP themselves. Furthermore, it could be noted that most participants were female, and all of them already had a lot of experience in CO-OP. This showed that the choice of inclusion criteria provided a good pre-selection. It can therefore be assumed that the information provided by the participants has a high informative value. Participants



from the international area could be recruited, but unfortunately, no one from Germany or the German-speaking countries.

#### 6.2.4 Response rate

At the beginning of the study, international interest in further research of the CO-OP Approach™ in the group setting as an approach under the contemporary paradigm was very high. Due to the high demand for group therapy and the newly published guideline on DCD, the authors expected a high number of participants for their planned Delphi study. In addition, due to the direct cooperation with the ICAN Academy, a very large outreach and the response rate were expected. Already during the recruitment process, it became clear from the feedback that there is a great interest in the research but that there is hardly any experiential knowledge on this topic. Another reason for the low response rate could be that Covid-19 was changing people's lives worldwide at the time of the research. Many people who could have known might have had too much online work to do and therefore could not devote additional time and energy to this research.

Furthermore, around the same time as the online group discussion, a DCD conference was held in the United Kingdom, which many of the participants for the online group discussion attended and thus did not have time to participate. Due to the university's prescribed schedule, overlap with the summer holidays and the conference could not be avoided. These two factors could be another possible reason for the low response rate.

#### 6.2.5 Data analyse

For the data analysis of the two rounds in this Delphi study, Mayring (2015) and the Excel tool were used. The content analysis of the qualitative data was conducted following Mayring (2015). This was the right way for the data, as Mayring (2015) gives a detailed overview of how to conduct a content analysis. Thus, the researchers had an overview of which step to perform one after the other in the content analysis. In the end, the researchers are satisfied with Mayring's (2015) analysis method. The tool Excel was the proper tool for the quantitative results because the statistics could be summarized well, and a graph could be created quickly.

### 6.3 Limitation

The limitation of this study can mainly be found in the area of participants. Due to the low number of participants described above, the required number of participants could not be reached.

The timing of the survey played a decisive role as a further limit. This, in turn, triggered the change of method. It is not clear whether the change of method caused a significant difference in the results. Instead, the researchers assume that it was precisely the change in method that generated even more valuable knowledge. Thus, the change in method is not seen as a limitation by the researchers but rather as an enhancement for this work. Regarding transferability to the German context, unfortunately, no German-speaking experts could be found. For this reason, when transferring the results to the German health system, this fact must be taken into account.

Likewise, due to the pandemic situation, the procurement of literature and the elaboration of the research results were limited. The last point does not influence the results but rather on the research and work process. No physical exchange or discussion could take place, as this is not possible via the online format and the pandemic situation.



#### 6.4 Proposal for an Intervention format for a group setting

To summarise and present the results of the first and second round of this study, the proposal for an intervention format by Frentzen (unpublished Master thesis, 2020) and the intervention format for individual settings by Polatajko and Mandich (2004) were used as a basis. The findings of Frentzen (unpublished Master thesis, 2020) were compared with the new findings and expanded. This resulted in a new intervention format.

Adaptation structural elements for group setting:

<b>Total Duration</b>	At least once a week
<b>Duration per session</b>	60-90 minutes depending on group size
<b>Number of therapists</b>	Two therapists
<b>Number of sessions</b>	10-20 sessions in total
<b>Therapist: Child: Ratio</b>	Ratio 1:2 or 1:3 depending on group size
<b>Group size</b>	Group size 4-6 children

*Figure 20: Adaptation of the structural elements*

Figure 21: Proposal

The CO-OP Approach™ intervention format (individual treatment) By Polatajko and Mandich, 2004)			Proposal for adaptations based on Scoping Review (Frentzen, unpublished Master thesis, 2020) <b>and Delphi Study</b>	
Individual	GOAL: Preparation Phase			
	Prepare to identify the child-chosen GOALS	Prior to first meeting: <ul style="list-style-type: none"> <li>✓ Establish contact with parent</li> <li>✓ Orients parent to CO-OP Approach™</li> <li>✓ Ensure parent commitment and involvement</li> <li>✓ Provide Daily Activity Log</li> <li>✓ Check prerequisites</li> </ul>	Prior to first meeting: <ul style="list-style-type: none"> <li>☞ Group dynamic before group constellation (age, diagnosis)</li> <li>☞ Extra parental meeting/workshop to introduce the CO-OP Approach™               <ul style="list-style-type: none"> <li>☞ make sure what parents are able to do</li> <li>☞ clarify expectations of both parents and therapist</li> </ul> </li> <li>☞ <b>Choice of assessments for goal setting: COPM, PACS, PEGS, or German Photointerview</b> <ul style="list-style-type: none"> <li>☞ Assessment in an individual setting</li> <li>☞ Combine PQRS and COPM</li> </ul> </li> </ul>	Therapist
	Identify child-chosen GOALS	First meeting: <ul style="list-style-type: none"> <li>✓ Review child's completed Daily Activity Log</li> <li>✓ Administer PACS</li> <li>✓ Administer the COPM</li> <li>✓ Baseline child's performance using the PQRS</li> <li>✓ Initiate the DPA process</li> </ul>	First meeting: <ul style="list-style-type: none"> <li>☞ Let the children set four goals (three for intervention, one for transfer-task)</li> <li>☞ <b>Set baseline with the PQRS and COPM satisfaction and performance scores</b></li> <li>☞ <b>Introduce CO-OP Approach™ to child and parents or significant others</b></li> <li>☞ <b>Introduce expectations about homework</b></li> </ul>	Individual and parents present

			<p>Prior to first group session:</p> <ul style="list-style-type: none"> <li>☞ Check on prerequisites for group formation <ul style="list-style-type: none"> <li>- Is a group approach suitable for the child?</li> <li>- Is the group too heterogeneous?</li> </ul> </li> <li>☞ Summarize goals and select overarching goals for group sessions</li> <li>☞ Set focus within overarching goals for each child</li> <li>☞ <b>Select a therapist-chosen goal for the introduction</b></li> <li>☞ <b>Prepare how to use a playful approach (overall theme, puppet use)</b></li> <li>☞ Organize materials</li> <li>☞ Structure/prepare homework sheets globally</li> </ul>	Therapist
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PLAN and DO: Acquisition Phase				
Individual	Initiate Cognitive Strategy Use	Session 1: <ul style="list-style-type: none"> <li>✓ Begin to apply enabling principles</li> <li>✓ Introduce global strategy: GOAL-PLAN-DO- CHECK</li> <li>✓ Have parents or significant others observe</li> </ul>	Session 1: <ul style="list-style-type: none"> <li>👉 <b>Introduce overall theme</b> with logbook/ casebook to child and parents to document new strategies</li> <li>👉 <b>Use a therapist chosen goal</b> to parents and child</li> <li>👉 <b>Keep in mind: the process of group formation</b></li> <li>👉 <b>Set group rules and structure sessions</b></li> <li>👉 icebreaker method (a tough task for parents, find a solution together)</li> <li>👉 Use of a puppet depending on group</li> </ul>	Group & parents present entire session
			Parent meeting (if needed) <ul style="list-style-type: none"> <li>👉 Inform parents about DCD and the CO-OP Approach™</li> </ul>	Parents or support
	Promote Skill Acquisition through Strategy use	Session 2-10: <ul style="list-style-type: none"> <li>✓ Promote the child's use of GOAL-PLAN-DO- CHECK, iteratively, to promote skill acquisition</li> <li>✓ Continue the DPA process iteratively</li> <li>✓ Guide discovery Domain Specific Strategies, iteratively</li> <li>✓ Continue to apply enabling principles</li> <li>✓ Encourage parents/significant others to observe and promote generalization and transfer of strategies and skills</li> </ul>	Session 2-9: (2-19) <ul style="list-style-type: none"> <li>👉 <b>Start with an evaluation of the last session</b></li> <li>👉 <b>Work on overarching goals</b></li> <li>👉 <b>Goals rotating each session</b></li> <li>👉 <b>Children have an individual focus on goals</b></li> <li>👉 <b>Encourage children to work together in pairs or groups;</b> children support each other in finding strategies</li> <li>👉 <b>Encourage children to use DPA at own and other children's performance</b></li> </ul>	Group parents present last 10 minutes

			<ul style="list-style-type: none"> <li>☞ Encourage children to use enabling principles to help others</li> <li>☞ <b>Encourage parents to observe (options: videotape children or use one-way-mirror)</b> have parents in the session for the last 10-15 minutes</li> <li>☞ Set homework and review strategies of children at the end of each session</li> <li>☞ Check: do individual children need additional mini-one-to-one session</li> </ul> <p>Session 2-9: (2-19)</p> <ul style="list-style-type: none"> <li>☞ Check: is special attention for the process of group formation needed? How do children collaborate in the group?</li> <li>☞ <b>combine Guided discovery and DPA- it's interconnected</b></li> </ul>	
Individual			<p>Extra meeting for support person:</p> <ul style="list-style-type: none"> <li>☞ Hold session half-way through the treatment</li> <li>☞ Evaluate and review sessions and strategies</li> <li>☞ <b>Support/encourage parents with the use of global strategy, DPA and enabling principles</b></li> <li>☞ Use video material if suitable</li> <li>☞ <b>Encourage parents to share experiences with each other</b></li> </ul>	

Annotation: adapted from "Implementing the Cognitive Orientation to daily Occupational Performance Approach as a group therapy for children with Developmental Coordination Disorder: A scoping review and implications for clinical practice" from M.-C. Frentzen ,2020, July, "unveröffentlichte" Masterarbeit, p.. Copyright 2020, Carl Remigius Medical School Frankfurt.

## 7. Conclusion

The present study was designed to assess the adaptations of the essential and structural elements of the CO-OP Approach™ in a group setting with the help of expert perspectives. Secondly, it was to answer the research question "What should an intervention protocol look like for the CO-OP Approach™ in groups for children with DCD?" by extending the findings of Frentzen (unpublished Master thesis, 2020) with expert perspectives.

With the help of a two-round Delphi study, this could be investigated. Answers could be found on how individual Key features of the structural and essential elements need to be adapted for use in the group setting.

The results of the study revealed several recommendations and advice for the adaptation of Key features 2,4,5,6, and 7. Within the survey, it became evident that the therapist needs rather high flexibility in conducting group therapy, as the dynamics of the group influence the progression through the different phases. Implementing a group intervention according to the CO-OP Approach™ requires much experience in group work and the application of the CO-OP Approach™. In addition, the therapist must be able to carry out some steps of the CO-OP Approach™ in parallel.

In terms of what an intervention protocol should look like, this should be even more like a guideline. It is presented in a more detached and flexible way than the individual setting. The overview of the results shows that Key features are often intertwined with each other and thus present a more complex challenge for the therapist. An important point about the involvement of others could give insight into the possibilities, but further research should be done to find out what needs parents bring with them and how this can be optimally included in the group.

Furthermore, recommendations for ensuring transfer could be made. However, new ideas emerged that represent a further research interest. The effectiveness of a re-evaluation should be researched using interviews or questionnaires on everyday transfer 12 weeks after the end of the group therapy.

All in all, CO-OP in groups showed that it promotes transfer and generalization as well as learning. Children experience themselves in new valuable roles and learn from and with each other, which is not the case in an individual setting.

These results should now be tested for their feasibility within an intervention study. This will be the last important step in the research chain, and a universal intervention format for the group intervention can be created.

As there was a small number of participants in the study, no general conclusions can be drawn. However, as this was qualitative research examining the experiences of individual people, the study nevertheless provides valuable and meaningful results.

Lastly, this research helps to ensure that children with DCD receive adequate therapy in the future that also addresses their socio-emotional needs.

It also finally provides occupational therapy with a profession-specific and contemporary paradigm-compliant group intervention.

## 8. Corona-Passes

Corona passage for inclusion in the bachelor thesis. The pandemic situation caused by the COVID-19 virus since the beginning of 2020 has also influenced the bachelor thesis of the occupational therapy program in 2021. Access to the university, various care facilities, and different target groups was not possible or only possible with restrictions. It required the respective current guidelines corresponding handling in the organization of the methodical procedure of the present Bachelor thesis as well as their and conversion. This made online data collection the norm (instead of face-to-face contact) because direct contact with clients and professionals was not possible.

Furthermore, access to the libraries was predominantly only possible online. All methodological procedures have been agreed upon with the supervisor of the bachelor thesis and possible clients. In this respect, we would like to point out that the methodological design of this thesis does not always correspond to the optimal conditions due to the current situation.



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## Appendix A: Cover Letter CO-OP Academy

### – Anschreiben an die CO-OP Akademie

Dear CO-OP instructors and ICAN members,  
Delphi-study about the Cognitive Orientation to daily Occupational Performance ("CO-OP") Approach™ in groups with children with Developmental Coordination Disorder ("DCD") with the focus on developing a basis of/for an intervention protocol

we, Lorena Bolte, Sabrina Lakay and Vanessa Pfeiffer are students at the Zuyd University of Applied Sciences in Heerlen (the Netherlands) in the German speaking in the postgraduate program for occupational therapy. For our bachelor thesis we are conducting research on the topic "CO-OP Approach™ in groups for children with DCD". We will elaborate on the master thesis of Frentzen (2020) "Implementing the Cognitive Orientation to daily Occupational Performance Approach as a group therapy for children with Developmental Coordination Disorder: A scoping review and implications for clinical practice". With your help, we would like to research the proposal for an intervention format for CO-OP in groups, based on the results of the scoping review conducted by Frentzen, in a Delphi study with experts in two rounds. In order to obtain information as effectively as possible and to make it comfortable for you as a participant, we will conduct the survey by means of an online questionnaire. In which the results of the scoping review are shown. Within the first round, we try to achieve the greatest possible consensus with regard to the changed elements to the individual setting. With these data, we then try to obtain more information in round two on the elements that have not found consensus. Your benefit by participating in this study will be that you take part in developing a new evidence-based intervention protocol for children with DCD in a group setting. To achieve a higher level of quality, we depend on your knowledge and your expertise with the CO-OP Approach™. The plan is to publish the results of this study internationally to serve as a basis for further research into the practical implementation of a group-based intervention protocol. Children, in general and with DCD, spend a lot of time in motor-based occupations for example in play or at school. These activities are, besides the relevance for doing itself, have an important impact in developing competences and self-efficacy. Avoiding participating in physical and social activities did not only cause a missed opportunity for development and learning. It also might cause social isolation, anxiety and therefore a lower level in quality of life (Zwicker et al. 2018). At least one child in each classroom suffers from DCD, which is comparable to children with attention deficit disorder ("ADD") (Missiuna & Pollock, 2015). The research showed that there are already numerous group therapy options for children with ADD, but no group therapy that respond to the needs of children with DCD. Based on environmental factors researchers think that children with DCD could benefit from a group-based intervention. This shows a great intervention gap for a big client group to us. In order to support these children in their daily lives and counteract psychological and emotional consequences as well as giving them the opportunity to participate in meaningful occupations, an evidence-based and context-based group approach is needed.

By participating in this online survey, you can contribute to developing a group-bases intervention format with the CO-OP Approach™. If you would like to support with your knowledge and fit to **at least one of the following criteria** according to the **CO-OP Approach™ with children (6-12 years) with DCD** applies to you, we would appreciate your participation.

- ... work with or have experience with the CO-OP Approach™ in group setting (three to max. 12 children)
- ... conducted research about the CO-OP Approach™ for groups

We are planning two online survey rounds as part of our Delphi study and will inform you of further timings as soon as possible.

If you want to participate in our study, please complete the questionnaire by May 28<sup>th</sup> 2021.

[https://response.questback.com/zuyd\\_verpleegkunde/teyfugodqe](https://response.questback.com/zuyd_verpleegkunde/teyfugodqe)

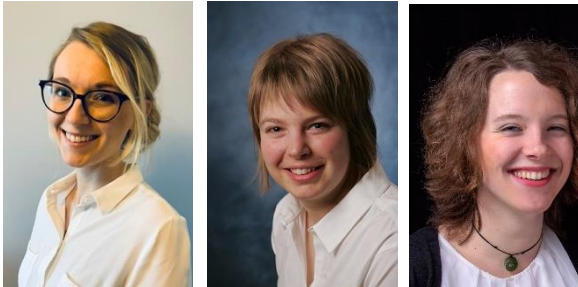
Provisional timetable:

- Mid of May Delphi Study first online based questionnaire (via Questback)
- Mid of June Delphi Study second online based questionnaire

Our teacher-supervisor is Connie Zillhardt (MScOT). This research is conducted in cooperation with Marie Frentzen, occupational therapist (MSc), who has conducted her master thesis on “Implementing the Cognitive Orientation to daily Occupational Performance Approach as a group therapy for children with Developmental Coordination Disorder: A scoping review and implications for clinical practice” and with Rianne Jansens, CO-OP instructor, till January 2021, lecturer-research at Zuyd University of Applied Sciences.

If you have further questions, please feel free to contact us via email: [co.op.groupsdcd@gmail.com](mailto:co.op.groupsdcd@gmail.com)

Sincerely,



Lorena Bolte, Sabrina Lakay, Vanessa Pfeiffer



## Appendix B: Privacy Policy Questionnaire

Information for participation in a study

Questionnaire for Delphi study:

CO-OP Approach™ in group setting for children with DCD

Introduction

Dear Sir or Madam,

This letter is to ask if you would like to participate in our study. Participation is voluntary. If you would like to participate, we need your consent. You give us your consent by clicking on continue and answering the following questions.

Before you decide if you want to take part in this study, we will explain exactly what the study is like and what taking part will mean for you. Read this letter thoroughly and talk to the people responsible for running the study if you have any questions.

### 1. General Information

This study is being conducted by Lorena Bolte, Sabrina Lakay, Vanessa Pfeiffer, occupational therapists studying in the bachelor program Occupational Therapy at Zuyd Hogeschool in Heerlen (NL), as part of their bachelor thesis.

Approximately 15 persons will participate in this study.

### 2. Aim of the study

With your help, we would like to research the proposal for an intervention format for CO-OP in groups for children with developmental coordination disorder (DCD).

### 3. Background of the study

Children, in general and with DCD, spend a lot of time in motor-based occupations for example in play or at school. These activities are, besides the relevance for doing itself, have an important impact in developing competences and self-efficacy. Avoiding participating in physical and social activities did not

only cause a missed opportunity for development and learning. It also might cause social isolation, anxiety and therefore a lower level in quality of life (Zwicker et al. 2018). At least one child in each classroom suffers from DCD, which is comparable to children with attention deficit disorder ("ADD") (Missiuna & Pollock, 2015). The research showed that there are already numerous group therapy options for children with ADD, but no group therapy that respond to the needs of children with DCD. Based on environmental factors researchers think that children with DCD could benefit from a group-based intervention. This shows a great intervention gap for a big client group to us. In order to support these children in their daily lives and counteract psychological and emotional consequences as well as giving them the opportunity to participate in meaningful occupations, an evidence-based and context-based group approach is needed.

#### 4. What does it mean for you if you participate?

By participating in this online survey, you can contribute to developing a group-bases intervention format with the CO-OP Approach™.

We are planning two online survey rounds as part of our Delphi study. This first round will take you about 30 minutes.

After receiving the questionnaire you have ten days to complete it. The questionnaire will be provided through the online tool "Questback".

On the basis of the answers of the first questionnaire the second round of our delphi study will be developed and send out to you after approximately two weeks.

Please inform the persons responsible for conducting the study in good time if

- you no longer wish to participate in the study
- your contact details or your e-mail address change.

#### 5. If you do not wish to participate or wish to end your participation prematurely

You decide whether you want to participate in the study. Participation is voluntary.

If you do not wish to participate, you do not need to take any further action.

If you do participate, you may end your participation in the study at any time without giving a reason. The data collected up to this point will be used for the study unless you explicitly object.

#### 6 Termination of the study

Your participation in the study ends when.

- after the second Delphi round is completed.

- You wish to end your participation.

The study ends when all participants have completed the second round of the Delphi study.

After analyzing the data, we will be happy to inform you about the main results of our study and, if you are interested, we will send you our bachelor thesis. This is expected to be 25th February 2022.

## 7. Use and storage of your data

As part of this study, personal data will be collected from you, used and retained. It is about data such as your name, E-Mail address, age and data about your work. This is necessary to be able to answer the questions asked in this study and to be able to publish the results. We ask for your consent to use your data in the context of this study.

### Confidentiality of your data

To maintain your privacy and to ensure data protection, your data will be given a code. Your name and other data that could identify you will be omitted. Only with the key to this code can the data be traced back to you. The key to this code is stored securely at Zuyd Hogeschool. Also in the bachelor thesis or possible further publications of this study, the data cannot be linked to you and you cannot be identified as a person.

### Access to / inspection of your data for control purposes

Some people can see all your data, even the ones without a code. This is necessary to be able to control whether the study has been carried out well and in a trustworthy manner. Persons who have access to your data for control purposes are the persons responsible for the execution of the bachelor thesis. They will keep your data secret.

### Retention period of research data

The research data must be kept at Zuyd Hogeschool for 10 years.

### Withdraw consent

You can withdraw your consent to the use of your personal data at any time. The data collected up to this point will be used in the study unless you explicitly object to this.

### Further information on your rights regarding the processing of personal data

To obtain general information about your rights regarding the processing of personal data, you can visit the website of the "Autoriteit Persoonsgegevens" Stichting Zuyd Hogeschool, Postfach 550,6400 AN, Heerlen, Handelskammer Nummer 14060995, [functioarisgegevensbescherming@zuyd.nl](mailto:functioarisgegevensbescherming@zuyd.nl)

If you have any questions about your rights, you can contact the persons responsible for conducting the study or the Data Protection Officer of Zuyd Hogeschool.

In case of questions or complaints, we advise you to first contact the persons responsible for conducting the study. For this study, these are:

Lorena Bolte, Sabrina Lakay, Vanessa Pfeiffer via [co.op.groupsdcd@gmail.com](mailto:co.op.groupsdcd@gmail.com)

Connie Zillhardt via [connie.zillhardt@zuyd.nl](mailto:connie.zillhardt@zuyd.nl) BC supervisor.

The data protection officer of the Zuyd Hogeschool.

See <https://www.zuyd.nl/algemeen/footer/privacyverklaring> for contact details.

#### 8. No compensation for participation.

You will not receive any compensation for participating in this study.

#### 9. Do you have any questions?

If you have any questions, you may contact Lorena Bolte , Sabrina Lakay and Vanessa Pfeiffer who are responsible for conducting this study.

If you have a complaint about this study, you can discuss it with the persons responsible for conducting this study. If you would rather not, you can also contact the "Ombudswoman" of Zuyd Hogeschool.

#### 10. Giving the consent form

If you have had sufficient time to think about it, you will be asked to agree to participate in this study. We ask that you confirm this in checking the box underneath . With checking the box that indicates that you understand the information and consent to participate in the study.

Thank you for your attention.

## Appendix C : Sample questions from the Questionnaire

### Occupational Therapy **ZU YD**

Questionnaire for Delphi study round 1: CO-OP Approach™  
in group setting for children with DCD

1) I am...

- ☐ female
- ☐ male
- ☐ divers

Next >>

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*Female-Male-Divers*

### Occupational Therapy **ZU YD**

Questionnaire for Delphi study round 1: CO-OP Approach™  
in group setting for children with DCD

2) Do you work with the CO-OP Approach™ in group setting with children with DCD?

- ☐ yes
- ☐ no

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*CO-OP Approach™ in group setting*

# Occupational Therapy **ZU YD**

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

3) Have you done any research or are you doing research on the CO-OP Approach™ for children with DCD in the group setting?

- ☐ yes  
☐ no

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*Research about CO-OP Approach™*

# Occupational Therapy **ZU YD**

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

4) In which country do you practice?

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*living country of the researcher*

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

5) What is your highest academic degree?

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*Academic degree*

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

6) How old are you?

- ☐ 20-25 years
- ☐ 26-30 years
- ☐ 31-35 years
- ☐ 36-40 years
- ☐ 41-45 years
- ☐ 46-50 years
- ☐ 51-55 years
- ☐ 56-60 years
- ☐ 61-65 years
- ☐ >65 years

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*age of the participant*



# Occupational Therapy **ZU YD**

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

7) How much work experience do you have?

- ☐ 2-6 years
- ☐ 7-11 years
- ☐ 12-15 years
- ☐ 16-20 years
- ☐ >20 years

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*Years of experience of the CO-OP Approach™*

# Occupational Therapy **ZU YD**

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

8) Are you trained in the CO-OP Approach™ ?

- ☐ yes
- ☐ no

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*trained in the CO-OP Approach™*

# Occupational Therapy **ZU YD**

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

9) I am a ... (more than one answer possible)

- ☐ CO-OP Academy Member
- ☐ ICAN associate Instructor
- ☐ ICAN associate certified therapist
- ☐ CO-OP therapist (trained but not certified)

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*Type of trained in the CO-OP Approach™*

# Occupational Therapy **ZU YD**

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

10) Where do you practice? (more than one answer possible)

- ☐ Private practice
- ☐ Rehabilitation clinic
- ☐ School
- ☐ Therapy center
- ☐ University
- ☐ other

11) If you select "other" or if you want to tell us more, please explain in whole sentences.

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*workplace of the experts*

Questionnaire for Delphi study round 1: CO-OP Approach™  
in group setting for children with DCD

12) When did you start with using CO-OP? (more than one answer possible)

- ☐ <5 years
- ☐ 5-10 years
- ☐ 11-15 years
- ☐ >15 years
- ☐ beginner
- ☐ expert
- ☐ other

13) If you select "other" or if you want to tell us more, please explain in whole sentences.

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Work experience of CO-OP

Questionnaire for Delphi study round 1: CO-OP Approach™  
in group setting for children with DCD

Please use the scale to rate your agreement with this form of goal processing (0= incompetent 10= totally competent).

14) How competent do you consider yourself in working with or investigating the CO-OP Approach™?

- ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

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competence of working with CO-OP

Questionnaire for Delphi study round 1: CO-OP Approach™  
in group setting for children with DCD

15) What are your experiences with groups settings?

- ☐ Individual CO-OP
- ☐ experience in group setting with CO-OP
- ☐ training in group setting with another intervention
- ☐ other

16) If you select "other" or if you want to tell us more, please explain in whole sentences.

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*Experience of CO-OP*

Questionnaire for Delphi study round 1: CO-OP Approach™  
in group setting for children with DCD

17) Researches showed that the duration of twelve hours of treatment time seems to be suitable for achieving occupational-based goals. What do you think about it concerning to group setting with children with Developmental Coordination Disorder (DCD)?

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*duration of group setting*

Occupational  
Therapy
ZU  
YD

Questionnaire for Delphi study round 1: CO-OP Approach™  
in group setting for children with DCD

Weber and Petermann (2018) recommend a session of 100 minutes for group treatment for children with behavioral difficulties. The majority use CO-OP in a group setting for at least 60 minutes, as also described in the individual setting.

18) What is the most appropriate length of a group session?

☐ 45 minutes
☐ 60 minutes
☐ 90 minutes
☐ 100 minutes
☐ 120 minutes

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Length of setting

Occupational  
Therapy
ZU  
YD

Questionnaire for Delphi study round 1: CO-OP Approach™  
in group setting for children with DCD

Zwicker et al. (2014) showed that the CO-OP Approach™ can also be applied in groups as an intensive format. It was proven that intensive formats (e.g. summer camps; daily about six hours) could achieve a significant difference and achievement of self-selected goals and satisfaction ratings. However, Anderson et al. (2016) reported positive results based on a weekly treatment.

19) What do you recommend for CO-OP Approach™ for children with DCD in a group setting?

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47 % completed

Type of group setting

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

The current state of evidence showed no consensus about the ideal group size. It is described by Blank et al. (2018) that the size of four to six children might be manageable and effective.

20) Which ideal group size would you recommend?

- ☐ 4 children
- ☐ 5 children
- ☐ 6 children
- ☐ other

21) If you select "other" or if you want to tell us more, please explain in whole sentences.

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50 % completed

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### Group size

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

As the children need individual support to discover the break down points of the occupational performance and finding suitable domain-specific strategies, a second therapist or assistant is needed in a group setting.

22) Which is the ideal therapist-child ratio?

- ☐ 1 therapist : 2 children
- ☐ 1 therapist : 3 children
- ☐ 1 therapist and 1 assistant: 2 children
- ☐ 1 therapist and 1 assistant: 3 children
- ☐ 1 therapist and 1 assistant: 4 children
- ☐ other

23) If you select "other" or if you want to tell us more, please explain in whole sentences.

0/4000

Next >>

53 % completed

### therapist :child :ratio

Questionnaire for Delphi study round 1: CO-OP Approach™  
in group setting for children with DCD

As Polatajko and Mandich (2004) recommended all therapists and assistants should be trained in the CO-OP Approach™.

24) Which level of training should the lead therapist and the assistant have?

	untrained in the CO- OP Approach™	CO-OP trained	certified in CO-OP Approach™	other
lead therapist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
assistant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

25) If you select "other" or if you want to tell us more, please explain in whole sentences.

0/4000

Next >>



therapist/lead therapist

Questionnaire for Delphi study round 1: CO-OP Approach™  
in group setting for children with DCD

One of the most important structural elements is the involvement of significant others to ensure that the child is able to transfer and generalize the strategies. For the involvement of parents, there is no protocol within the CO-OP Approach™. The findings of the scoping review (Frentzen, 2020) showed that educating parents and involving them in the first meeting for introduction and meeting them during goal setting or extra parental meetings are possibilities.

26) What is your opinion about the involvement of significant others in an extra parental meeting?

0/4000

27) How can significant others be involved during certain sessions?

☐ first session and final session

☐ the last 10-15 minutes of each session

☐ one-way mirror

☐ videotaped session

☐ other

28) If you select "other" or if you want to tell us more, please explain in whole sentences.

0/4000

Next >>

58 % completed

Parent involvement



## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

The literature recommends a pre-meeting or a booklet for the parents on how they can apply the key features of the CO-OP Approach™.

29) How do you introduce the CO-OP Approach™ key features to parents of the children of the group setting ?

0/4000

Next >>

61 % completed

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*GPDC strategy to children/ parents*

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

One essential key feature of the CO-OP Approach™ are the child-chosen goals. So far it is not evaluated which assessments are the most suitable ones for group treatment and how they are conducted.

30) How do you do the goal setting?

- ☐ individually
- ☐ group- wise
- ☐ other

31) If you select "other" or if you want to tell us more, please explain in whole sentences.

0/4000

Next >>

64 % completed

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*child-chosen-goal*

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

32) Which assessments do you use to establish child-chosen goals?

0/4000

Next >>

67 % completed

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### Assessments for Key feature 1

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

As the CO-OP Approach™ primary focus on change in occupational performances, the baseline measurement with the PQRS is an important tool (Polatajko & Mandich, 2004). For the group treatment is no standardized method to measure the baseline.

33) Which assessments do you use for measuring the baseline and evaluating this after the treatment?

0/4000

Next >>

69 % completed

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### Assessments for baseline

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

There are various ways in the literature on how children work on their individual goals in groups.

Please use the scale to rate your agreement with this form of goal processing (0= totally disagree 10= totally agree).

34) Children are working on their own goals during the group intervention.

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

35) Children are working on their own goals and on goals of other children.

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

36) Children are working on a common goals with individual focus.

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

Next >>

72 % completed

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### Focus on goals

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

37) How do you form the group?

- ☐ age
- ☐ social interaction in group/ with other children
- ☐ related to diagnosis or test results related to diagnosis
- ☐ aspects related to the CO-OP Approach™
- ☐ experience with CO-OP
- ☐ other

38) If you select "other" or if you want to tell us more, please explain in whole sentences.

0/4000

Next >>

75 % completed

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### group performance

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

In the literature there are some different ways to introduce the Goal-Plan-Do-Check (GPDC) strategy to the children.

39) How do you introduce the global strategy of Goal-Plan-Do-Check to the group?

- ☐ example with a child-chosen goal
- ☐ example from the therapist
- ☐ introducing a common theme
- ☐ other

40) If you select "other" or if you want to tell us more, please explain in whole sentences.

0/4000

Next >>

78 % completed

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### GPDC in group setting

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

The Dynamic Performance Analysis (DPA) for analyzing the occupational performances of a child/children's performance is recommended to identify breakdown points and possible strategies to be addressed (Polatajko & Mandich, 2004).

Please use the scale to rate your agreement with this form of goal processing in using the DPA in a group format. (0= totally disagree 10= totally agree).

41) How important is it to use the DPA in a group format?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ 6
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10

42) How do you use the DPA when working with children with DCD in a group?

0/4000

Next >>

81 % completed

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### DPA in group setting

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

In the literature (Polatajko & Mandich, 2004) they describe the guided discovery as an essential element of the CO-OP Approach™ in an individual setting. There are some challenges to use the guided discovery with groups (Green & Martini, 2017).

43) How do you use the guided discovery in the group setting? How do you cope with challenges of applying DPA in a group?

0/4000

Next >>

83 % completed

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*Guided discovery in group setting*

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

Key feature five, enabling principles, like promoting learning, work towards independence and stimulate generalization and transfer, are important to realize CO-OP Approach™ objectives.

44) How do you ensure the enabling principles working with a group of children?

0/4000

Next >>

86 % completed

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*Key feature 5*

# Occupational Therapy **ZU YD**

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

The use of a puppet or another intermediary for introducing the cognitive strategy and for motivating the children is advisable.

Please use the scale to rate your agreement. (0= totally disagree 10= totally agree).

45) To which extent do you agree in using intermediary in a group?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10

Next >>

89 % completed

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### Key feature 5

# Occupational Therapy **ZU YD**

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

Generalization and transfer are two objectives of the CO-OP Approach™ and therefore important to address (Polatajko & Mandich, 2004).

46) How do you work on generalization and transfer ?

0/4000

Next >>

92 % completed

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### Generalization and transfer

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

In individual format, children choose three intervention goals and an additional one for transfer. In the literature about group treatment, there is no transfer goal mentioned.

47) Tell us your opinion and suggestion how to ensure the evaluation of generalization and the transfer of learned skills?

0/4000

Next >>

94 % completed

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*transfer goal*

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

In the literature, they describe different ways of giving homework and coming back on it.

48) How do you work with the homework?

0/4000

Next >>

97 % completed

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*Homework*

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

Green and Martini (2017) advised that children should receive mini-one-to-one sessions if they are challenged with learning in a group.

49) How do you cope with children challenged in their learning process?

0/4000

Send

100 % completed

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*transfer goal*

## Questionnaire for Delphi study round 1: CO-OP Approach™ in group setting for children with DCD

Thank you for participating in this study on applying the CO-OP Approach™ in a group of children with DCD.

To provide good results for our study we would appreciate if you would take part in our second round of the Delphi study as well.

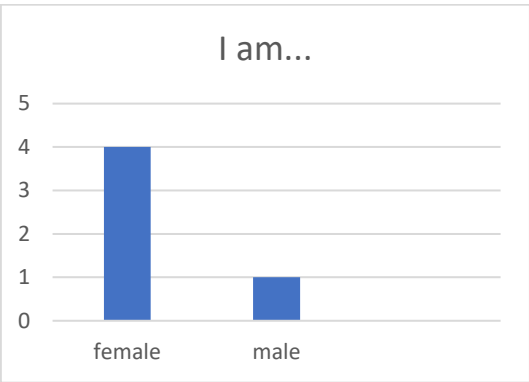
The second round of this Delphi study will be developed based on the data of round 1 and the questionnaire will be sent out to you at the end of June 2021.

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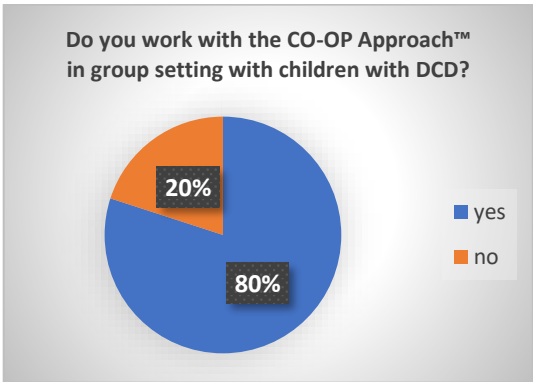
*Last page of the questionnaire*



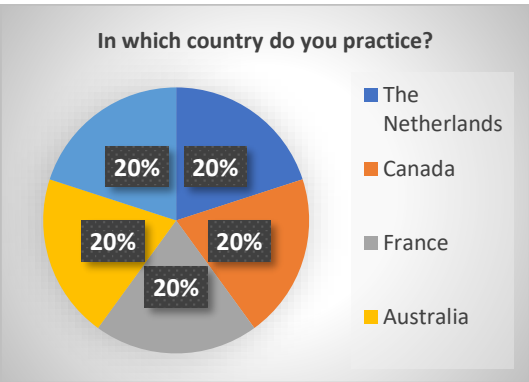
Appendix D: Quantitative Results from the Questionnaire



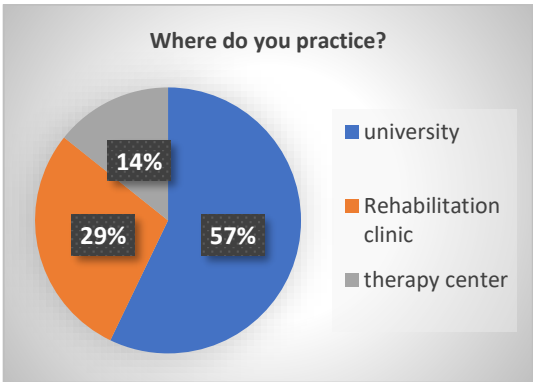
Female : Male Ratio



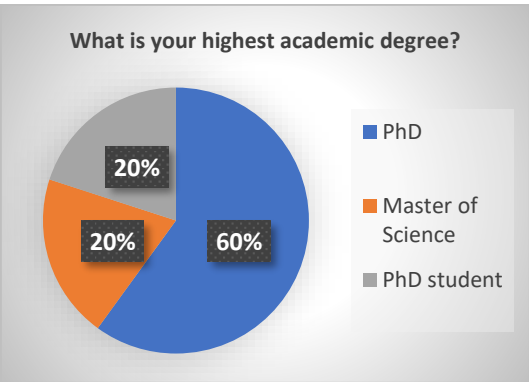
Experts working in group setting



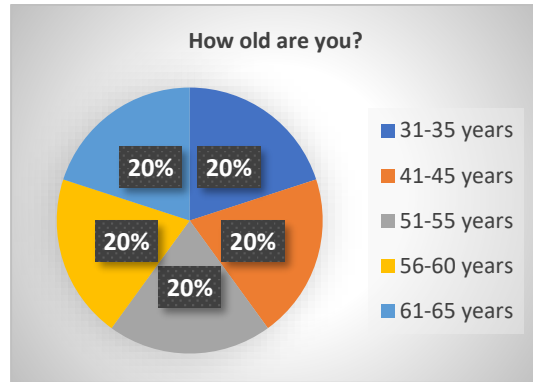
Country of Practice



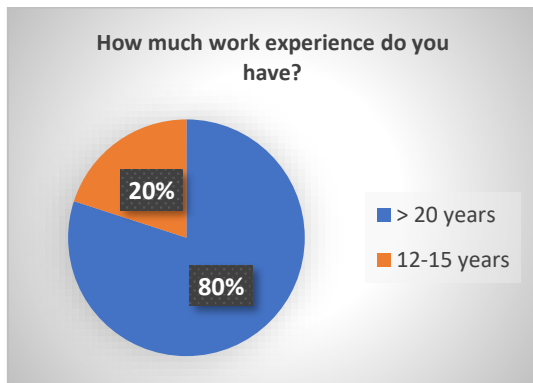
Work context



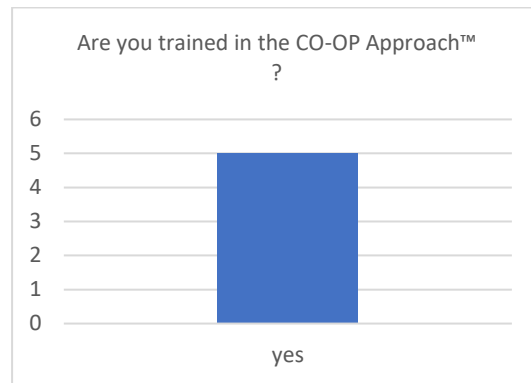
Highest Academic Degree of Experts



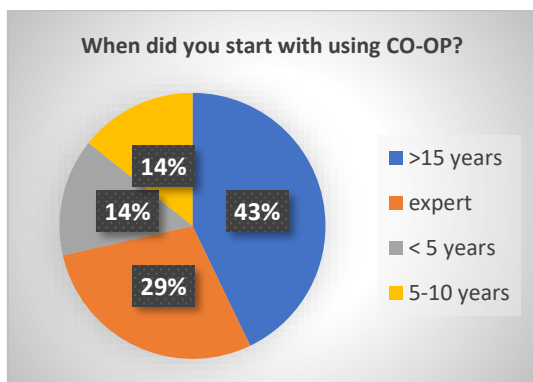
Age range of the experts



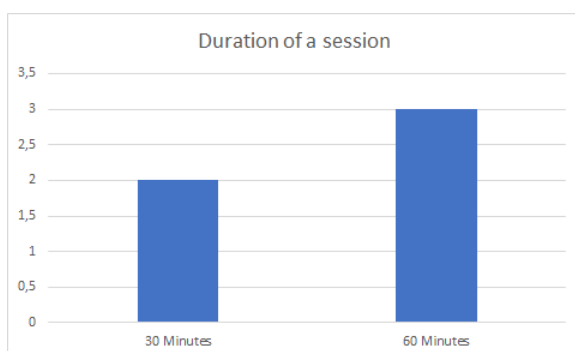
*Work experience*



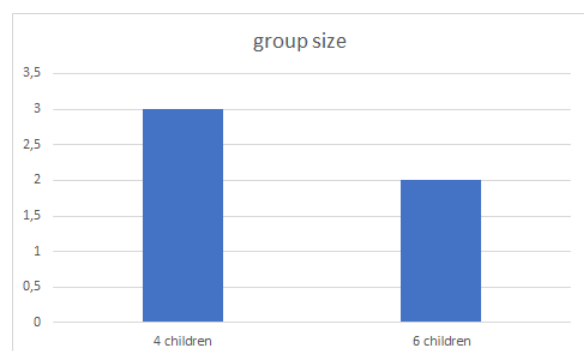
*Experts trained in the CO-OP Approach™*



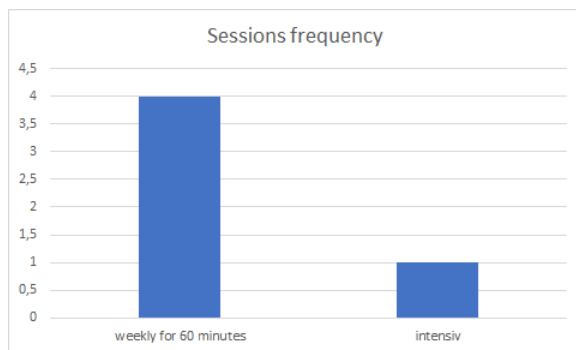
*Years of using CO-OP*



*Duration of a session*



*Group size*



*Session frequency*

## Appendix E: Pre-Test Questionnaire for Evaluation

– **Pre-Test Fragen: (Figure...)**

- Has the headline of the questionnaire been chosen well?

☐ Yes ☐ No

- Are there any mistakes in spelling or wording?

---

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---

- How long did it take do answer the questionnaire?

\_\_\_\_\_ minutes

- Do you do you think the time needed, with regard to the purpose of the study, is reasonable?

☐ Yes ☐ No

- If not, what time should be the maximum?

\_\_\_\_\_ minutes

- Is the layout of the questionnaire responsive?

☐ Yes ☐ No

- Do you think the questionnaire is clearly structured?

☐ Yes ☐ No

- If not please let us know what you recommend.

---

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- Do you think that we missed out any important questions/information?

---

---

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- Are there any other recommendation to optimize the questionnaire?

---

---

---

---

- 
- 
- For which questions would you recommend an additional comment?

- 
- 
- 
- 
- 
- 
- Do you think that the scale is clearly described?

☐ Yes      ☐ No

- Which questions aren't clearly described?

- 
- 
- 
- 
- 
- 
- Would you recommend an additional introduction the questions about the global strategy (GPDC)?

## Appendix F: Informed Consent Online Group Discussion

### **Informed consent¶**

Information about taking part in the online group discussion according to the CO-OP Approach™ in group setting for children with DCD.¶



¶

### **Introduction¶**

Dear Sir or Madam,¶

thank you for participating in the online group discussion.¶

In this introduction we will explain the aim and outline of the study and the data management.¶

¶

### **1. General Information¶**

This study is being conducted by Lorena Bolte, Sabrina Lakay, Vanessa Pfeiffer, occupational therapists studying in the bachelor program Occupational Therapy at Zuyd University of Applied Sciences in Heerlen (NL), as part of their thesis.¶

¶

### **2. Aim of the study¶**

Consulting experts to achieve consensus on the characteristics for the CO-OP Approach™ intervention for groups of children with Developmental Coordination Disorder (DCD). The online group discussion is needed to get more in-depth information on the results of our previous questionnaire in June 2021.¶

### **3. Who can take part in this study?¶**

Participants who:¶

- work with or have experience with the CO-OP Approach™ in group setting (three to max. 12 children) or¶

- conducted research about the CO-OP Approach™ for groups or¶

- CO-OP instructors with at least 10 years' work experience with the CO-OP Approach™¶

¶

### **4. Background of the study¶**

Children, in general and with DCD, spend a lot of time in motor-based occupations for example in play or at school. These activities are, besides the relevance for doing itself, have an important impact in developing competences and self-efficacy.¶

Avoiding participating in physical and social activities did not only cause a missed opportunity for development and learning. It also might cause social isolation, anxiety and therefore a lower level in quality of life (Zwicker et al., 2018). At least one child in each classroom suffers from DCD, which is comparable to children with attention deficit disorder ("ADD") (Missiuna & Pollock, 2015). The research showed that there are already numerous group therapy options for children with ADD, but no group therapy that respond to the needs of children with DCD. Based on environmental factors researchers think that children with DCD could benefit from a group-based intervention. This shows a great intervention gap for a big client group to us. In order to support these children in their daily lives and counteract psychological and emotional consequences as well as giving them the opportunity to participate in meaningful occupations, an evidence-based and context-based group with the CO-OP Approach™ seems to be needed. <sup>ooo</sup>



## 5. What does it mean if you participate? <sup>o</sup>

In participating in this online survey, you can contribute to developing a group-based intervention protocol for children with DCD with the CO-OP Approach™. ¶

### Type of research: ¶

We are planning an online group discussion based on the results of our previous questionnaire. ¶

The results showed that we had not enough participants to form a second Delphi round. Therefore, to achieve more qualitative data there is the need to change the method and get into deeper discussion with CO-OP experts. We will present our results of our questionnaire which were based on the unpublished scoping review of Marie-Frentzen (2020). After analysing the first round of our study, we developed an interview guide with certain elements where more need for discussion emerged. ¶

Participation in the online group discussion will take about 60-90 minutes. ¶

The online group discussion will take place on the 9<sup>th</sup> of July 2021 via Microsoft Teams. The link for the online group discussion will be provided by the researchers as soon as you send back the informed consent. ¶

The participants themselves decide during the online group discussion to what extent they want to disclose their names. The researchers hereby assure that the names will be anonymised during the evaluation. All personal data provided or mentioned (e-mail address and names, if applicable) will be deleted by the researchers after the online group discussion has ended. ¶

### Ethical approval: ¶

For this study there is no ethical approval required from an ethical committee according to the Dutch Legislation. We are committed to inform you well and ask for your informed consent. ¶

## **6. If you do not wish to participate or wish to end your participation prematurely¶**

You decide whether you want to participate in the study. Participation is voluntary.¶

If you do not wish to participate, you do not need to take any further action.¶

If you do participate, you may end your participation in the study at any time without giving a reason. The data collected up to this point will be used for the study unless you explicitly object.¶

¶

## **7. Termination of the study¶**

Your participation in the study ends:¶

- After the online group discussion is finished.¶

- You wish to end your participation.¶

The study ends after finishing the online group discussion.¶

After analysing the data, we will be happy to inform you about the main results of our study and, if you are interested, we will send you our thesis. This is expected to be 25th February 2022.¶

¶

## **8. Information about data management and storage¶**

What type of data will be collected?¶

- → General socio-demographic data about each participant e.g., education, years of experience in which role you work with the CO-OP Approach™¶
- → Each participant will share his/her experiences and professional reasoning answering multiple-choice and open questions.¶
- → The online discussion is recorded with audio as well as with video in order to be able to evaluate the spoken content afterwards. (To assign the spoken word the video recording is necessary. Therefore, it is not necessary to have the camera switched on.)¶

Confidentiality of your data¶

To maintain your anonymity and to ensure data protection, your data will be given a code. Your name and other data that could identify you will be omitted. Only with the key to this code can the data be traced back to you. The key to this code is stored securely at Zuyd University of Applied Sciences. During data analysis and reporting the anonymity of each participant will be assured.¶

Storage of the data¶



The anonymized data will be stored for 10 years according to the regulations of Zuyd University of Applied Sciences regarding research. ¶

The investigators will safely keep all files and data collected in a secured OneDrive Business Cloud Service from Zuyd University of Applied Sciences. ¶

#### Access to / inspection of your data for control purposes ¶

Some people can see all your data, even the ones without a code. This is necessary to be able to control whether the study has been carried out well and in a trustworthy manner. Persons who have access to your data for control purposes are the persons responsible for the execution of the thesis. They will keep your data secret. ¶

#### Retention period of the research data ¶

The research data must be kept at Zuyd University of Applied for 10 years. ¶

#### Your right to withdraw ¶

You can withdraw your consent to the use of your personal data at any time. The data collected up to this point will be used in the study unless you explicitly object to this. ¶

#### Further information on your rights regarding the processing of personal data ¶

To obtain general information about your rights regarding the processing of personal data, you can visit the website of the "Autoriteit Persoonsgegevens", "Stichting Zuyd Hogeschool, Postfach 550, 6400 AN, Heerlen, Handelskamer Nummer 14060995, [functionarisgegevensbescherming@zuyd.nl](mailto:functionarisgegevensbescherming@zuyd.nl) ¶



### **9. No compensation for participation. ¶**

You will not receive any compensation for participating in this study. ¶



### **10. More information ¶**

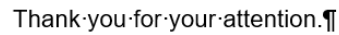
If you have any questions you can contact the persons responsible for conducting the study or the Data Protection Officer of Zuyd University of Applied Sciences. ¶

Investigators: Lorena Bolte, Sabrina Lakay, Vanessa Pfeiffer via [co.op.groupsdc@gmail.com](mailto:co.op.groupsdc@gmail.com) ¶

Supervisor Connie Zillhardt via [connie.zillhardt@zuyd.nl](mailto:connie.zillhardt@zuyd.nl) ¶

The data protection officer at Zuyd University of Applied Sciences via [functionarisgegevensbescherming@zuyd.nl](mailto:functionarisgegevensbescherming@zuyd.nl) ¶

If you have had sufficient time to think about it, you will be asked to agree to participate in this study. You do this by sending back the signed informed consent via [co.opgroupsdcd@gmail.com](mailto:co.opgroupsdcd@gmail.com). ¶



Please send us the signed informed consent till 8<sup>th</sup> of July 2021 via [co.opgroupsdcd@gmail.com](mailto:co.opgroupsdcd@gmail.com). Following this, you will receive an email from us with the link to the online group discussion via Microsoft Teams.¶

१

Lippstadt, 25.06.2021

Darmstadt, 25.06.2021

Bodelshausen, 25.06.2001

Signature → → → → → → → → City, Date ¶

9

## Appendix G: Research for theoretical background

Datenbank DiZ			
Einschränkungen	Zeitraum	Sprache	Publikationsform
		Englisch	
Stichwörter und Operatoren	Einschränkungen		Trefferzahl
Group intervention or group therapy	Full text access		8,540,052 <ul style="list-style-type: none"> <li>Group intervention (Article)</li> </ul>
Group intervention or group therapy AND children	Full text access		2,880,377 <ul style="list-style-type: none"> <li>Cognitive Orientation to daily occupational performance (CO-OP) as group therapy for Children living with motor coordination difficulties: An integrated literature review (Article)</li> </ul>
Group intervention or group therapy AND children AND dcd or developmental coordination disorder	Full text access		56,687 <ul style="list-style-type: none"> <li>Implementing the Cognitive Orientation to daily occupational Performance (CO-OP) approach in a group format with children living with motor coordination difficulties (Article)</li> </ul>
Group intervention or group therapy AND children AND dcd or developmental coordination disorder AND CO-OP or cognitive orientation to daily occupational performance	Full text access		3,948 <ul style="list-style-type: none"> <li>Effecacy of the cognitive orientation to daily occupational performance (CO-OP) approach with and without parental coaching on activity and participation for children with</li> </ul>

		developmental coordination disorder: A randomized clinical trial
Group intervention or group therapy AND children AND dcd or developmental coordination disorder AND CO-OP or cognitive orientation to daily occupational performance AND goal setting	Full text access	24,794 <ul style="list-style-type: none"> <li>• Early intervention for children with/a risk of developmental coordination disorder: a scoping review</li> <li>• Intervention in children with Developmental coordination disorder, the role of parents and teachers</li> </ul>
Group intervention or group therapy AND children AND dcd or developmental coordination disorder AND occupational therapy or occupational therapist or ot	Full text access	16,600 <ul style="list-style-type: none"> <li>• Identifying children with Developmental coordination disorder via parental questionnaires, Spanish reference norms for the DCDDaily-Q-ES and Correlation with the DCDQ-ES</li> <li>• CO-OP for Children with DCD: Goals Addressed and Strategies Used</li> </ul>
Developmental coordination disorder AND associated movement AND locomotion or movement or mobility AND synkinesia	Full text access Academic Journal English 2010 - 2020	33 <ul style="list-style-type: none"> <li>• Associated movement reduction training for children with developmental coordination disorder: A pilot trial</li> </ul>
Gruppentherapie AND Pädiatrie	Full text access Deutsch All Results 2007 – 2020	31 <ul style="list-style-type: none"> <li>• Gruppentherapie in der Pädiatrie - ein Erfahrungsbericht (Ergotherapie und Rehabilitation 2010)</li> </ul>
Gruppentherapie AND Marburger Konzentrations Training AND lernen	Full Text Access Deutsch 2005 – 2020 All results	10 <ul style="list-style-type: none"> <li>• Wie Kinder positiv und produktiv voneinander lernen können</li> </ul>

		(Ergotherapie und Rehabilitation 2016)
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Gezielt in der Ergopraxis nach Artikeln mit CO-OP gesucht	Full Text Access 2008 – 2020 Ergopraxis	41 <ul style="list-style-type: none"> <li>• Verbesserte Koordination durch Kognitive Strategien</li> <li>• Spielen nicht nur als Mittel nutzen sondern auch als Ziel formulieren</li> <li>• Zum Schreiben motivieren - Fotointerview</li> </ul>
Gezielt im Canadian Journal of Occupational Therapy nach Artikeln mit CO-OP gesucht	2004 – 2020 Full text access All results Canadian Journal of Occupational Therapy	72 <ul style="list-style-type: none"> <li>• The Cognitive Orientation to daily Occupational Performance (CO-OP): A scoping review</li> <li>• Parents' Experience with the CO-OP Approach: A Consolidation of Three Qualitative Investigations</li> <li>•</li> </ul>
Group intervention AND Children NOT adults AND occupational therapy or occupational therapist or ot	Full text access, 2000-2021, deutsch	137 <ul style="list-style-type: none"> <li>• Ergotherapie bei Kindern und Jugendlichen mit umschriebener Entwicklungsstörung motorischer Funktionen in Österreich- eine Umfrage</li> <li>• Ergotherapie bei Kindern und Jugendlichen: Literaturübersicht zu Indikationsbereichen</li> <li>• Ergotherapie bei Kindern und Jugendlichen: Empfehlungen aus</li> </ul>

		internationalen Guidelines
Group intervention AND Children NOT adults AND occupational therapy or occupational therapist or ot	Full text access, 2000-2021, englisch, academci journals	54,916 <ul style="list-style-type: none"> <li>• Developmental coordination disorder and Self-Esteem, do occupational therapy groups have a postive</li> </ul>
CO-OP or cognitve Orientation to daily Occupational perfomance AND Children AND development coordination disorder or dcd or dyspraxia	Full text access, 2000 – 2021 English, academic journal, magazines	4,672 <ul style="list-style-type: none"> <li>• Efficacy of the cognitive orientation to daily occupational performance with Brazilian children with developmental coordination disorder</li> <li>• Cognitive Orientation to (daily) Occupational Performance: Changes in Strategy and Session Time Use Over the Course of Intervention</li> <li>• The Application of Cognitive Orientation to daily Occupational Performance (CO-OP) with Children 5-7 years with Developmental Coordination Disorder</li> <li>• CO-OP intervention for young children with developmental coordination disorder</li> <li>• Implementing the Cognitive Orientation to daily Occupational Performance (CO-OP) approach in a group format with children living with motor coordination difficulties (Artikel war bereits in unserer Sammlung enthalten)</li> </ul>

Group intervention or group therapy AND children AND occupational therapy or occupational therapist or ot AND paediatric	Full text access, 2000-2021, englisch, academic journals	72,361 <ul style="list-style-type: none"> <li>• Occupational therapy group programming for adolescents with developmental and learning disabilities, a retrospective documentation review</li> <li>• A randomized controlled trial of a group-based gaze training intervention for children with developmental coordination disorder</li> <li>• Examining the evidence for interventions with children with developmental coordination disorder</li> </ul>
Group intervention or group therapy AND occupational therapy or occupational therapist or ot AND paediatric or pediatric or children	Full text access, 2000-2021, englisch, academic journals	205,272 <ul style="list-style-type: none"> <li>• Diagnosing developmental coordination disorder</li> <li>• Estimation of physical abilities of children with developmental coordination disorder</li> <li>• Using shared goal setting to improve access and equity, a mixed methods study of the goals intervention in children's occupational therapy</li> <li>• Cognitive Assessments used in occupational therapy practice, a global perspective</li> <li>• Group intervention, a way to improve working teams' positive psychological capital</li> </ul>

Group intervention or group therapy AND paediatric or pediatric or children AND occupational therapy or occupational therapist or ot AND adhs	Full text access, english, 2000-2021, academic journals	1,113 <ul style="list-style-type: none"> <li>The efficacy of cognitive Training Programs in Children and Adolescents</li> </ul>
Group intervention or group therapy AND paediatric or pediatric or children AND occupational therapy or occupational therapist or ot AND adhs AND marburger Konzentrationstraining	Full text access, deutsch, 2000-2021, academic journal	1 <ul style="list-style-type: none"> <li>ADHS im Kindes- und Jugendalter. Update 2020</li> </ul>
Group intervention or group therapy AND paedric or pediatric or children AND occupational therapy or occupational therapist or ot AND Attention Deficit Hyperactivity Disorder or adhd AND cognition	Full text access, english, 2000-2021, academic journals	7,875 <ul style="list-style-type: none"> <li>Efficacy of cognitive-functional (Cog-Fun) Occupational therapy intervention among children with adhd: an RCT</li> <li>Play-based occupational therapy intervention on social skills in children with autism spectrum disorder and attention deficit hyperactivity disorder: a case series</li> <li>The effectiveness of an interpersonal cognitive problem-solving strategy on behavior and emotional problems in children with attention deficit hyperactivity</li> <li>Children with developmental coordination disorder show altered functional connectivity compared to peers</li> <li>Treatment of attention-deficit hyperactivity disorder</li> </ul>
Group intervention or group therapy AND occupational	Full text access, 2000-2021, english, academic journals	193,898



<p>therapy or occupational therapist or ot AND children</p>		<ul style="list-style-type: none"> <li>• Effectiveness of a cognitive- functional group intervention among preschoolers with attention deficit hyperactivity disorder, a pilot study</li> <li>• Autism, empoyment, and the role of occupational therapy</li> <li>• Comparison of accommondations and interventions for youth with ADHD, a randomized controlled trial</li> <li>• Pilot study of let's get organized, a group intervention for improving time management</li> <li>• Contextual intervention adapted for autism spectrum disorder, an RCT of a parenting program with parents of children diagnosed with austism spectrum disorder (ASD)</li> <li>• Are referrals to occupational therapy for developmental coordination disorder appropriate</li> <li>• Fundamental motor skill interventions in children with austism spectrum disorder, a systematic review of the literature including a methodological quality assessment</li> <li>• Occupational therapy for children, the perception of a private practitioner</li> </ul>
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		<ul style="list-style-type: none"> <li>Implementing a modified cognitive orientation to daily occupational performance approach for use in a group format</li> </ul>
Group approach AND occupational therapy AND children	Full text access, 2000-2021, english, academic journal	113,235 <ul style="list-style-type: none"> <li>Occupational therapy practice guidelines for children and youth 5-21 years</li> </ul>
Occupational therapy AND children or kids or youth or child AND treatment approaches	Full text access, 2000-2021, english, academic journal	100,858 <ul style="list-style-type: none"> <li>Effects of a cognitive-functional intervention method on improving executive Function and self-directed learning in school-aged children with attention deficit hyperactivity disorder, a single-subject design study</li> <li>Special education service use by children with autism spectrum disorder</li> <li>The application of client-centred occupational therapy for korean children with developmental disabilities</li> <li>Effectiveness of paediatric occupational therapy for children with disabilities, a systematic review</li> <li>Enabling children with Developmental coordination disorder to self-regulate through the use of dynamic performance analysis, evidence</li> </ul>

		<p>from the CO-OP approach</p> <ul style="list-style-type: none"> <li>• Cognitive strategy generation in children with developmental coordination disorder</li> <li>•</li> </ul>
Group therapy or group counseling or group intervention AND paediatric AND germany AND occupational therapy	Full text access, 2000-2021, german, academic journal	<p>60</p> <ul style="list-style-type: none"> <li>- Let's work together-Gemeinwesenorientierte (Primär) präventive Ergotherapie mit pädiatrischer Klientel in Deutschland</li> </ul>
Konzentrationsstraining in der Gruppe AND Ergotherapie	2010-2017, academic journal	<p>11</p> <ul style="list-style-type: none"> <li>- Konzentriert wie geschmiert</li> </ul>
Group intervention or group therapy AND paediatric AND occupational therapy or occupational therapist or OT NOT adults	2000-2021, english, academic journals, full access	<p>25,655</p> <ul style="list-style-type: none"> <li>- The raeden early development group for preschool children with motor difficulties</li> </ul>
Group intervention AND occupational therapy AND paediatric AND adhd or attention deficit hyperactivity disorder	2000-2021, full text access, academic journals	<p>9,214</p> <ul style="list-style-type: none"> <li>- Prevalence estimations of comorbid attention deficit hyperactivity disorder and developmental coordination disorder in children aged 8-9 in KwaZulu-Natal, south Africa</li> <li>- Occupational therapy for children with attention deficit hyperactivity disorder, a survey on the level of involvement and training needs of therapists</li> </ul>
American journal of occupational therapy AND group therapy or group counselling or group treatment AND children AND effectiveness NOT adults	2000-2021, academic journals, full text access	<p>9,010</p> <ul style="list-style-type: none"> <li>- Intervention response among pre-schoolers with ADHD, the role of emotion understanding</li> </ul>

American journal of occupational therapy AND group therapy or group counselling or group treatment AND children AND effectiveness NOT adults NOT autism or asd or autism spectrum disorder	2000-2021, academic journals, full text access	8,126 <ul style="list-style-type: none"> <li>- Effectiveness of social skills interventions incorporating peer interaction for children with attention hyperactivity disorder, a systematic review</li> <li>- Effectiveness of cognitive-functional (Cog-Fun) occupational therapy intervention for young children with attention deficit hyperactivity disorder, a controlled study</li> </ul>
American journal of occupational therapy AND group therapy or group counselling or group treatment AND children AND effectiveness NOT adults NOT autism or asd or autism spectrum disorder AND motor coordination NOT down syndrome NOT cerebral palsy	2000-2021, academic journals, full text access	345 <ul style="list-style-type: none"> <li>- Occupational therapy for children with developmental coordination disorder, a study of the effectiveness of a combined sensory integration and perceptual-motor intervention</li> <li>- The effect of educational therapy on self-esteem and problem behaviors in children with specific learning disability</li> <li>- Bewegungskoordination und Schulerfolg?</li> </ul>
Training mit aufmerksamkeitsgestörten Kindern von Lauth & Schlottke	Full text access, 2000-2021	9 <ul style="list-style-type: none"> <li>- Das Wunstorfer Konzept bei einem Schulkind mit umschriebener Entwicklungsstörung motorischer Funktionen (UEMF)- eine Fallstudie</li> </ul>
Marburger Konzentrationstraining	2001-2021	49 <ul style="list-style-type: none"> <li>- Diagnostik und Therapie von</li> </ul>

		Aufmerksamkeitsstörungen
COPM	2000-2021 Full text	5.151 - How children and their parents value using the Canadian Occupational Performance Measure (COPM) with children themselves -

- Google: occupational therapy paediatric group intervention, wissenschaftliche Artikel
  - Effectiveness of paediatric occupational therapy for children with disabilities: A systematic review (Australian occupational therapy journal 2019)
  - Evidence-based Practice in occupational therapy (Hong Kong Journal of occupational therapy 2002)
- Google: occupational therapy paediatric group therapy versus individual therapy
  - Occupational therapy student's experiences in learning occupation-centred approaches to working with children -> in der DiZ eingegeben und Zugriff auf den Artikel bekommen
  - The effectiveness of occupational therapy for children with developmental coordination disorder: a review of the qualitative literature -> in der DiZ eingegeben und hatte Zugriff auf den Artikel
  - Case-Smith's Occupational therapy for children and Adolescents (Google Book)-> [https://books.google.de/books?hl=de&lr=&id=XNWxDwAAQBAJ&oi=fnd&pg=PA1&dq=occupational+therapy+paediatric+group+therapy+versus+individual+therapy&ots=aoyl6H7B6K&sig=8DysSq\\_GSttx6DjTEd--Xl9QqOA#v=onepage&q=occupational%20therapy%20paediatric%20group%20therapy%20versus%20individual%20therapy&f=false](https://books.google.de/books?hl=de&lr=&id=XNWxDwAAQBAJ&oi=fnd&pg=PA1&dq=occupational+therapy+paediatric+group+therapy+versus+individual+therapy&ots=aoyl6H7B6K&sig=8DysSq_GSttx6DjTEd--Xl9QqOA#v=onepage&q=occupational%20therapy%20paediatric%20group%20therapy%20versus%20individual%20therapy&f=false)
- Google Scholar: group approaches occupational therapy in paediatric
  - Occupational therapist prefer combining multiple intervention approaches for children with learning difficulties
- Google scholar: marburger Konzentrationstraining ergotherapie
  - Das Marburger Konzentrationstraining
- Google scholar: occupational therapy group treatment australia for children
  - Motor skills in Australian children with attention deficit hyperactivity disorder
- Google scholar: occupational therapy group treatment australia for children with coordination disorder
  - Current approaches to intervention in children with developmental coordination disorder

Appendix H: Transcript and coding

00:23:25

Participant 2: Yeah. I just wanted to pick up on that point that, uh, that PA 1 had raised because the actual starting I think the first DPAs you do are the critical ones to get the buy in with the understanding of the process of co-op identifying the problem and guiding discovery of that and guiding discovery of the solution. But I think what we did in our groups, because I was conscious that some children might already be able to achieve the goal that another child really values, and that would be that could be really pressurised and difficult or challenging when you've got the group dynamics, your form, if you're in that storming phase very quickly with kids is the hierarchy is who's best, who's the oldest, who's what, you know, and these kids are no different from any other children. So to take the pressure of that, I had usually in the first session I had the parents in with us so that for the whole session. So they got an understanding of the co-op approach and we had the children work to get their parents to do something difficult. And we chose a very difficult task of putting a little hoop around your ankle and you had to jump around a ball that you hop and skip over.

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Dieses Transkript wurde erstellt mit [www.amberscript.com](http://www.amberscript.com)

Transcript

Time	Key feature	paraphrase	Quote
Key feature 6			
00:23:25	6- parents involvement ¶ ¶ 2- DPA Motivation	Have the parents within the group for the whole session to get an understanding of what CO-OP is and working together with their kids when the parents have something difficult to do	¶
00:23:25	¶	It is a good idea to have the parents in the first group set to put down the pressure on the children. The parents understand also how the CO-OP Approach works and what is important to do at home	¶
00:23:25	Key-Feature 6 (Parent / significant other involvement) Key-Feature 2 (DPA) ¶	Parents should be present during the first session to take the pressure of. Include the parents in the process of explaining the approach and choose something difficult for the parents to do	So to take the pressure of that, I had usually in the first session I had the parents in with us so that for the whole session. So they got an understanding of the co-op approach and we had the children work to get their parents to do something difficult. And we chose a very difficult task of putting a little hoop around your ankle and you had to jump around a ball that you hop and skip over

Coding

## Appendix I: Einverständniserklärung HBO Kennisbank/ Declaration of consent HBO Kennisbank



### **Publication Consent Form for the inclusion and publication of a graduation project<sup>1</sup> in the HBO knowledge database**

Zuyd University is linked to a knowledge database which makes graduation projects digitally available to third parties.

This enables the student to bring his or her graduation project to a wider audience. This in turn promotes the creation, acquisition and sharing of knowledge within and among academic institutions, and the exchange of knowledge with society as a whole (the business community and public sector).

By completing and signing this form, the student grants Zuyd University permission to include and publish the graduation project in the digital knowledge database.

### **Rights and obligations of the student <sup>2</sup>**

The student hereby grants Zuyd University permission to include his or her graduation project free of charge in the digital knowledge database, and to make it available to users within and outside Zuyd University.

The student hereby declares that the placement-awarding organisation and/or client do not object to the inclusion and publication of the graduation project in the digital database.

The student retains the copyright to the graduation projects. He or she can at any time request that the Library of Zuyd University withdraw or restrict publication.

The student reserves the right to publish the graduation project elsewhere, and thus grants Zuyd University a non-exclusive right to publish the graduation project.

### **Rights and obligations of Zuyd University [1]**

The department sets the criteria which the graduation projects must meet to qualify for publication, and releases the files for publication.

The student's consent grants Zuyd University the right to make the graduation project available to users within and outside the University, to edit and make copies of the project, with due observance of copyright protection.

The student grants Zuyd University permission to publish the project for study, academic and research purposes. In order to publish the graduation project for commercial purposes, the University must seek the student's consent first.

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<sup>1</sup> Or comparable graduation project such as a graduation dissertation, (bachelor) thesis or profession-specific product.

<sup>2</sup> More information on copyright can be found at <http://www.surffoundation.nl/DiRECT>

The student grants the University the right to change or restrict access to the graduation project. Zuyd University is obliged at all times to change or restrict access to the graduation project at the author's request.

### Consent

I hereby declare that this graduation project represents my own work.  
As the copyright owner of my graduation project, I hereby grant Zuyd University the non-exclusive right to keep an unaltered copy of my graduation project in a digital database, and to publish this project subject to the aforementioned terms and conditions.

Signature



### Details for publication of the graduation project

Graduation Date	<02.09.2021>
Title of graduation project	<Adaptation for the Cognitive Orientation to daily Performance Approach in group setting for children with Developmental Coordination Disorder>
Key words (separated by a comma)	<Cognitive Orientation to daily Performance Approach , CO-OP, DCD, group intervention, Germany, international, children, UEMF, occupational therapy >
Name of Student	<Sabrina Lakay> <Lorena Bolte> <Vanessa Pfeiffer>
Name of lecturer	<Cornelie Zillhardt>
Organisation/company where the project was undertaken	<Zuyd University of Applied Science Heerlen>

### Publishing the graduation project

Zuyd University will initially publish the graduation project on [www.hbo-kennisbank.nl](http://www.hbo-kennisbank.nl) .



## Appendix J: Declaration on our honour / Ehrenwörtliche Erklärung

### Ehrenwörtliche Erklärung

Hiermit versichern wir, Lorena Bolte, Sabrina Lakay und Vanessa Pfeiffer, dass wir die vorliegende Bachelorarbeit ohne fremde Hilfe und ohne Benutzung anderer als der angegebenen Quellen und Hilfsmittel angefertigt haben.

Insbesondere versichern wir, dass wir alle wörtlichen und sinngemäßen Übernahmen aus anderen Werken als solche kenntlich gemacht haben. Diese Arbeit hat in gleicher oder ähnlicher Form noch keiner Prüfungsbehörde vorgelegen.

### Declaration on our honour

We, Lorena Bolte, Sabrina Lakay and Vanessa Pfeiffer, hereby declare that we have written this bachelor thesis without the help of others and without the use of other than the stated sources and aids. In particular, we assure that we have marked all verbatim and analogous copies from other works. This thesis has not yet been submitted to any examination authority in the same or a similar form.

Lippstadt, den 25.08.2021

Ort, Datum

  
Lorena Bolte

Bodelshausen, den 25.08.2021

Ort, Datum

  
Sabrina Lakay

Durmshausen, den 25.08.2021

Ort, Datum

  
Vanessa Pfeiffer