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Supporting Intentional Communication Skills for Children with Profound and Intellectual Multiple Disabilities

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Abstract: This study analyzes pedagogical conditions for the intervention of intentional communication (IC) for children with profound intellectual and multiple disabilities (PIMD). Results indicate that the engagement of reference persons is a central component in the intervention of IC.

Keywords: Intentional Communication; Intervention; Profound Intellectual and Multiple Disabilities

Knowledge Focus: Research/Theory Focus

Topic Area: Inclusion

Introduction

In the USA, there are approximately 2 million people who are unable to express their needs via verbal speech due to severe communication impairments (Brady et al., 2016). In a social interaction, exclusion arises under conditions which children with complex communication needs are not met. Such excluding communication situations pose problems for an increasing number of children with pre-symbolic communication skills (Brady, Snell, & McLean, 2016). In the development of pre-symbolic communication, the concept of communicative intentionality has become a central component (Camaioni, 2017). Due to intentional communication (IC) skills such as requesting a desired object or expressing personal preferences, the child identifies a relationship between its communicative acts and the communicative reaction of its social environment in its daily interactions (Burgoon, Guerrero, & Floyd, 2016). In consequence of insufficient development conditions, some children with pre-symbolic communication skills and profound intellectual and multiple disabilities (PIMD) experience difficulties in establishing a relationship with their social environment (Bernasconi & Böing, 2017).

We speak of the following definitions *describing when a person is communicating intentionally*. Depending on the definition, the acquisition of (communicative) intentionality is associated with a further field of development. To categorize the different definitions, IC and its relevance in language development will be presented under three perspectives:

1. *Neuropsychological theories* describe a person as intentionally communicating if he is capable of influencing the cognitive structures and concepts of his interlocutor (Baron-Cohen, 2000). To express their needs intentionally, the person uses constructed mental structures, 'intentional states' (Golinkoff, 2000). The intentional states will be constructed in interactive situations with communication partners. These states are a central component in language acquisition since they give rise to further development steps (Bloom, Tinker, & Scholnick, 2001).
2. *Neuroscientific research* concerning mirror neurons suggests that the development of IC is related to the development of social cognition (Aitken & Trevarthen, n.d.; Tomasello, 2014). According to Tomasello (2014), a person experiences intentional forms of communication through an intersubjective reflection of emotions. This reflection leads the person from an individual intersubjectivity to forms of social cognition, 'shared intentionality' (Tomasello & Carpenter, 2007). Recent neuroscientific studies stress that the development of IC is related to the development of a theory of mind (Tomasello, 2014).
3. *Linguistic pragmatics* describes intentionality as an intrinsic purpose or goal that is pursued in a communication situation (Levinson, 2006). The realization of this purpose or goal is based on intentional attributes and interactions in a person's social environment (Uithol, van Rooij, Bekkering, & Haselager, 2011).

A thorough investigation of IC *interventions* is an important first step to support children with PIMD. In daily life, the realization of these interventions requires favorable conditions of intervention and support (e.g. participation of the parents) (Endres, 2018). Interventions of IC are based on theoretical models from neuropsychology, neuroscience, psycholinguistic or pragmatic (Coupe-O'Kane & Goldbart, 2016). Deriving from these theoretical backgrounds, the interventions name several conditions of the development of IC such as the involvement of peers, the atmosphere of the intervention and the use of augmentative and alternative communication (AAC) (Batorowicz & Shepherd 2011; Calculator & Jorgensen, 2009; Kaiser-Mantel, 2012). Concerning children with PIMD, interventions describe the facilitation of self-determination and self-advocacy as primary goals (Avant, 2013). As concrete goals of an IC intervention, the acquisition of 'communicative functions' or 'communicative intents' is mentioned in several manuals (Snell et al., 2010). To achieve these goals, studies stress that the intervention should take place in the social environment of the child (Smith, Warren, Yoder, & Feurer, 2004). The conditions named do not necessarily refer to pedagogical conditions of the intervention of IC (Endres, 2018). To support children with PIMD in pedagogical contexts, these conditions must be processed under pedagogical criteria (Kracht 2000; Welling & Kracht, 2002). These criteria reflect the educational needs of children with PIMD within their development of IC (Papke, 2016).

This paper discusses an exemplary case study. This case study introduces pedagogical conditions for the development of IC for children with PIMD. With this paper I aim to achieve two goals:

1. I shall propose a *methodological* (section 2) and *methodic approach* (section 3) to analyze conditions of the intervention of IC for children with PIMD within a *case study* (section 4).
2. I shall present the *results of the case study* (section 5) and *discuss these results in a topographic model* (section 6).

To conclude, I shall name the limitations and consequences of this case study with regard to the ongoing case studies (section 7).

Methodology

The overall purpose of the study is to explore conditions of the development of IC for children with PIMD in pedagogical situations (e.g., classroom). To explore these conditions, I chose a *Reflexive Grounded Theory Methodology* (RGTM) framework (Breuer, Muckel, & Dieris, 2018). This framework provides a systematic set of procedures that can yield reliable and valid findings. Within this inductive approach, I conducted three iterative survey and evaluation cycles, each with a specific survey instrument:

1. Interview case studies and participatory observation (cycle 1), a systematic review of manual interventions (cycle 2), and an observational study (cycle 3). In cycle 1, I asked approximately 21 practitioners in the field of IC (e.g., psychotherapists, speech therapists, occupational therapists, AAC supporters), how an ideal pedagogical IC intervention for children with PIMD should be designed.
2. In cycle 2, I reviewed communication intervention manuals frequently used by the 21 practitioners interviewed. I did this because these manuals contain a wide range of conditions for the support of children with communication needs. Therefore, they can be seen as a bridge between practical and theoretical intervention.
3. In addition to cycle 1, we observed the practitioners during communication interventions with children (cycle 3), in order to determine which conditions mentioned during the interview were implemented in intervention situations (a) and also whether additional conditions were created (b).

Research Methods

In the overall study, I collected data via interviews and participatory observation (cycle 1), a systematic review of manual interventions (cycle 2) and an observational study (cycle 3). The case study presented in this paper is part of cycle 1. Thus, I focus the description of the research methods on the participatory observation in the interview study of cycle 1.

In the *interview study*, I asked the participant how an ideal pedagogical IC intervention for children with PIMD should be designed. For this, I chose a general interview guide approach (Breuer et al., 2018). On the basis of the initial literature study and the first case studies, I created interview guidelines with predetermined questions. I started the interview with an open question concerning the experiences in the intervention of children with PIMD. To demonstrate the question, I showed an intervention scenario (video sequence) between a practitioner and a child with PIMD. This scenario allowed the participant to talk about experiences and procedures of the intervention on a more abstract level. Afterward, I asked more detailed questions about communicative functions, communicative competences, joint attention, behavior regulation, diagnostic, intervention, working with reference persons, AAC, materials, contextual factors and transfer to daily life. 'Reference persons' is a general description for the persons closest to a child who bring up and care for it (e.g., parents, grandparents, legal guardians). This person holds responsibility for the education and the development of the child. During the interview, I did not strictly follow the questions of the interview guidelines. Rather, I adapted the order of the questions on the guidelines to the flow of words of the participant. Thus, I tried to collect information in different thematic areas of the guidelines more than forcing answers to the predetermined questions. This open interview approach allowed me to focus more on the participant and the conversation than on fixed response answering.

The *participatory observation* occurs before and after the interview with a participant. It serves as a tool to reflect implicit assumptions and ideas of the researcher evoked by the participant. To reflect these implicit ideas, I created a reflection sheet that I filled out before and after every interview. The sheet contained two categories of reflective questions that accompanied the process of data collection (Breuer et al., 2018). Reflective questions regarding presuppositions before the interview (topics: contacting, assumptions concerning the presence and research activities of the researcher field of research and participant) and reflective questions regarding experiences right after the interview (topics: experience during the research interaction, diversity of interpretations and perspectives, initial ideas for coding). Data collected in the participatory observations enriches and reflects data collected in the interview study. Both data sources will be processed following the RGTM framework (Breuer et al., 2018).

Sampling

Due to the principles of the RGTM framework, sampling decisions arose from the literature and these data. Following Breuer et al., (2018) I first constructed theoretical considerations based on an iterative literature review at the beginning of the overall study. These considerations lead to two results: (1) the formulation of three criteria for the sampling and (2) the drafting of an advance survey. *Firstly,* potential participants have to meet the following three criteria to be included in the study: (a) they have long-time practical experience in supporting children with PIMD and complex communication needs in inclusive settings, (b) in their interventions they address at least one area of IC, and (c) they take a pedagogical attitude in their work, e.g. in the way they establish a relationship with the child. By following these criteria, I

aimed to achieve better traceability of my sampling decisions. *Secondly*, I created an advance survey to collect first data on the potential participants. The survey contained questions regarding the education, (work) experiences and knowledge of the potential participants in relation to the support and development of IC of children with PIMD.

This approach was consistently used in the case study presented in this paper. For example, I addressed the potential participant personally at an AAC training. After our conversation at the training, I e-mailed her the advance survey, an information sheet concerning the overall study and a data protection declaration. Based on my sampling criteria and the information of the advance survey, I included her in the sample. Due to her expertise and a variety of training, she seemed to be an interesting participant with a special perspective on the intervention of IC. She agreed to participate at the interview study with great enthusiasm for the topic of the interview via mail.

Case Study

Participant

The participant was a 56-year-old German physiotherapist working with children with PIMD in physiotherapeutic practices in early intervention centers and inclusive kindergartens since 1987. In addition to her training as a physiotherapist, she has completed a variety of complementary training courses and has acquired skills in areas such as sensory integration, the neurological rehabilitation approach ‘Bobath concept,’ kinesthetic perception and augmented and alternative communication (AAC). During e-mail communications, before the interview study, she emphasized that the combination of her training and skills allowed her to combine different approaches within the intervention of IC for children with PIMD. Currently, she creates communicative interventions for children with PIMD aged 0-3 years and their reference persons for 1-2 hours per day. She runs a physiotherapeutic practice that plans and coordinates additional interventions and supports her four employees. She also trains physiotherapeutic students, allowing her to pass expertise concerning support of young children with PIMD aged 0-3 years.

Data Collection

The interview took place in a physiotherapeutic practice office room of the participant. I chose this setting because I wanted to create a pleasant atmosphere and a setting that is well-known and familiar to the participant. In addition, the room contained all items and manuals that the participant normally uses during IC interventions. If necessary, this setting allowed the participant to fetch several items or look further information up during the interview. The interview took 62 minutes and was recorded by a dictation device standing on the table placed between the interlocutors. Thus, the participant was able to follow the recording of the interview at any time.

Before and after the interview, I noted and reflected my impressions and observations concerning the participant, the course of the interview and the interview setting in a reflection sheet (participatory observation). This continuous reflection allowed me to stay open-minded and not to jump to conclusions during the data collection, but also during the data processing.

Data Processing

I analyzed data from the observation study and the interview study with the qualitative and mixed methods research software 'MAXQDA'. I transcribed data from the interview study according to the transcription guidelines of Breuer et al. (2018) and used the transcription software 'f4transkript.' Thus, I followed three sequential series of stages of coding (Breuer et al., 2018) to analyze these data: *Open Coding, axial coding and selective coding* (Breuer et al., 2018; Strauss, 1991; Strauss & Corbin, 1996).

Firstly, I brought these data from the survey and the interview study in a combined project in MAXQDA and I started the *open coding* process (Strauss, 1991; Strauss & Corbin, 1996). In this stage, I looked for interesting phenomena and 'labeled' them line-by-line with codes (coding). To enhance a 'theoretical sensitivity' (Breuer et al., 2018) towards the text, I questioned the text by analyzing words, phrases or sentences using analysis techniques through comparisons such as 'flip-flop-techniques'—comparison of extremes on one dimension (e.g. committed reference persons versus passive reference persons concerning the intervention of their child) (Corbin & Strauss, 2015; Strauss & Corbin, 1996). Codes that relate to the same phenomenon were clustered and combined to a concept (e.g., "Creating a meaningful relationship between the mother and her child") or sub-category (e.g., "Relationship between the mother and her child"). During this process of coding, I tried to be open-minded to ideas and concepts mentioned by the participant. In order to do this, I compared different passages coded with the same category. This 'constant comparison' allowed me to get a further insight into the variation of the category (e.g. different situations or persons) and to evaluate its properties (e.g. concept: "contact to reference persons," dimensions: "never, occasionally, frequently, invariably, very frequently"). To complete the open coding process, I collated the entirety of these data and structured it into a hierarchic schematic of categories, sub-categories and concepts. This schematic sets out the relationships between the categories, the sub-aspects, and their properties and shows the way to the formulation of a theory. At this point in the analysis, the complete set of data has been coded.

Secondly, I analyzed the connection between the concepts, sub-categories, and categories in the *axial coding* (Breuer et al., 2018). These concepts and categories contain certain properties and dimensions that should be transferred into the subsequent topographic model, the "conditions-/ consequences-matrix" (Corbin & Strauss 2008, 2015; Strauss & Corbin, 1996). The model describes the social and organizational elements of interactional phenomena on different levels (Breuer et al., 2018). These levels will be displayed graphically as concentric circles or helices. Thanks to research questions and the context of my study, this model allowed me to

display conditions and consequences of the development of IC on a micro-, meso- and macroscopic level (Breuer et al., 2018).

Thirdly, the results from the open and axial coding process form the basis for the third stage, the *selective coding* (Breuer et al., 2018). In the selective coding process, I picked essential and particular categories—core categories—of all cases for building a theory of a pedagogical framework. Since this paper focuses on a case study, it describes the results from the open and axial coding process. During these two stages, the writing of memos was a key part of the analysis. Through the writing of memos, I saved and reflected thoughts and conceptual ideas that emerged during data analysis. Additionally, my perspective on these data was influenced by an iterative literature review following Breuer et al. (2018) and Strauss and Corbin (1996). The literature review allowed me to be sensitive to phenomena in these data and to evolve new categories without forcing myself in a certain theoretical direction.

Results

Experiences in Supporting the Development of IC Children with PIMD

The participant describes two negative experiences that she gained through her professional experience. Firstly, she criticizes reference persons and practitioners who talk about the child's competences and weaknesses in front of the child itself. Reference persons and practitioners would underestimate the communicative competences and the understanding of the child. They would assume that the child has no communicative requirements and hence 'nothing to say' whereas the participant believes that the child is aware of these conversations and notices when reference persons doubt its capacities. Secondly, the participant highlights that the child is not given sufficient opportunity to explore and apply its communicative skills. Opportunities are missed in the concrete communicative situation, for example, to the frustration of reference persons concerning misunderstandings or failing to enquire when the child is humming or babbling. Due to frequent experiences with misunderstandings, the child would establish his own strategies to control the behavior of reference persons. The participant concludes that she aims to give the child "a voice" so that it can "stand up for its needs." She tries to search for the child's intentions and its communicative skills to improve her interventions.

Intervention of IC - Focus

In the intervention of IC, the participant focuses on (1) the support of the mother, (2) the relationship between the mother and her child, (3) and the child's family.

First, the participant assumes that she has to *care about the mother herself* first before supporting the child. She describes this way of supporting as 'mothering' and the primary reference person as the child's mother. She constitutes that mothers of children with PIMD experience various unexpected pre-, peri- and post-natal situations. During these life-threatening situations, the mothers are confronted with long-term hospital stays, therapeutic and medical

decisions and continuous phases of separation from their newborn child. Therefore, the early development of the mother-child relationship and communication suffers from existential conditions. In addition to these challenges, these mothers would report being pressurized to provide the support possible and further to read their child's signals. The participant assumes that these mothers would not be prepared by any institution for possible challenges that may arise after birth. She acknowledges that she has no strategy for preparing the mothers before birth. After birth, some of the mothers would show signs of post-natal depression. They report that they are not ready to take on the mother role. The participant concludes that she has to put the mother “back on the right course again” so that the child can get “back on the right course again.” Since she is no professional psychotherapist, she would recommend the mother search for psychological assistance to cope with the challenging situation. In this context, the participant considers it her role to support the mother with child-related and intervention related tasks (e.g., applying for new AAC).

Secondly, the participant aims to improve the *relationship between the mother and her child*. To achieve a better relationship and communication between the mother and the child, the participant includes the mother in the diagnostic process. The participant considers the mother to be an expert for the needs of her child and its communicative behavior. Therefore, the participant requests information concerning the child’s communicative behaviors, needs, interests and relationships to other people. On the basis of this information, she imparts indicators so that the mother can differentiate between an intentional need, and an unintentional need (e.g., baby colic). These indicators enable the mother to reflect the causes for the child’s crying and to give attention and calm the child, including:

- Read the signs of baby’s stress: marbling of the skin, growth of pre-speech sounds, breathing rate and pulse;
- Differentiate between a stress-induced overextension and a spasticity;
- Find a more comfortable position for the child, try different positions.

Thirdly, the participant focuses on the *care of the child’s family*. Over the years of working together, the participant gets to know the child’s reference persons such as siblings, grandparents and friends. Besides, some reference persons request her support in various tasks related to the child such as appointments in the kindergarten, doctors or other therapists. During these appointments, she takes over the role as therapist and a family friend, mediating between the family, her own ideas and the ideas of the health worker (e.g., doctor). Partially, this mediation puts her in a difficult position in existential conversations. After these appointments, she also supports the reference persons in assessing the given information and in evaluating the reference person’s hopes concerning the progress of the child’s disease. The participant describes this approach as a “personal (family) coaching” (in-vivo-code).

Communicative and Stereotypical Behavior

In the interaction with a child with PIMD, the participant observes various forms of *communicative expressions* such as eye contact, knocking, pre-speech sounds, smiling, laughing and stereotypical behavior. She remarks that the expressions and development of these communicative competences depend to a large degree on the possibilities created by the practitioners and the reference persons.

The participant remarks that the differentiation between *communicative and stereotypical behavior* is a central component in her diagnostic approach, but also in the intervention of IC. She differentiates stereotypical behavior from communicative behavior through the (1) observation of a 'feed-forward' and (2) a dialogue structure. Firstly, she describes a feed-forward communicative form of behavior that may contain expectations concerning persons, objects or actions in a known situation (e.g., the child laughs because it gets tickled). To differentiate between stereotypical and communicative behaviors, she searches for behaviors that announce actions or the expectation of an upcoming action. Secondly, the child's communicative expressions should be put into the context of the dialogue structure between the child and the practitioner. In doing so, the child shows a communicative expression after a question or comment. In her opinion, stereotypical behavior does not occur as an answer to a comment or question of another person. The assessment of stereotypical behavior can vary among different observers and situations. The participant remarks that the child can use stereotypical behaviors if no other communicative expressions are possible. In this case, the differentiation between stereotypical and communicative behaviors is fluid.

Diagnostic of IC

In the diagnostic of IC, the participant emphasizes two areas: the diagnostic of behavior coordination of people-directed actions (BC) and the diagnostic of joint attention (JA). If the child coordinates BC and JA with a second person, it communicates intentionally, according to her experience. During the interview, the participant explains two strategies to observe BC and JA. Firstly, she described the general set up of the diagnostic situation. This set up consists of five steps:

1. Create a daily life situation for the intervention.
2. Record the intervention via video.
3. Formulate an open task for observation and reflection of the video sequence.
4. Reflect and discuss the video sequence with colleagues.
5. Include reference persons as experts for the communicative forms of the child.

The participant highlights the inclusion of reference persons in the diagnostic process. Depending on the commitment of the reference persons, the participant collects diagnostic information concerning the communicative skills of the child and the interaction between the reference person and its child. Therefore, she talks about the family situation, the child's sleeping

habits, unusual events, the child's interests, the use of AAC and the needs of the family. The participant sometimes invites reference persons to join in with the intervention so that she can observe the conversation between the reference person and the child. The information thus collected helps the participant to formulate a therapeutic goal, to improve the diagnostic procedure and to search for new ways and forms of intervention.

Second, the participant illustrates the process of the diagnostic situation in five steps:

1. Initial question/comment that provokes a reaction from the child.
2. Offer a selection of options for the child to choose an answer.
3. Wait for the child's reaction. The child searches the practitioner's gaze and holds it for a couple of seconds.
4. Follow the child's gaze to the object and then look at the child again.
5. Verbalize (e.g. comment) the interaction with the object.

The participant notices that the main difference between BC and JA lies in the establishing of visual contact with the child and the object (step 4). During steps 1-3 the child seeks the practitioner's gaze and holds it, whereas in step 4 the child directs its gaze to the object and then looks at the practitioner again. For the intervention of JA, the practitioner should follow the child's gaze to the object and then look at the child again. The participant assumes that this second look at the child seems to constitute a form of security and confirmation for the child and its communicative forms.

Intervention of IC – General Aspects

In the intervention of IC, the participant formulates general aspects of the intervention of IC. Since she described IC using BC and JA, the following aspects can be applied during interventions in both areas:

- Search for optimal positioning during the intervention
- Create meaningful interactions for the child
- Verbalize the child's actions
- Name the chronological sequence of action during the interaction
- Offer selection option from daily life
- Offer symbols to concrete the child's choice
- Attribute intentions to the child's actions
- Respect the child's communication, especially rejections and refusals

Intervention of IC - Materials and Tools

The participant mainly uses materials and tools from the daily life of the child such as everyday objects and toys. Primarily, the materials and tools should arouse the child's interest and provide a direct response to the child's actions (e.g., making sounds). To pick the

appropriate materials and tools, she consults the reference persons and other practitioners working with the child. Additionally, she uses AAC such as talker, signing and small speech output devices. In general, the chosen materials and tools should address different development sectors and allow further learning processes. They should therefore be adapted to the child's communicative, motoric and cognitive skills.

Intervention of IC - Contextual Factors

The participant named three categories of contextual factors: structural, personal and financial context factors. Concerning structural context factors, the participant mentions a continuous spatial situation, rituals and an undisturbed working atmosphere. In her opinion, the child's physical and mental condition and the participation of the reference persons are however the key factors in the implementation of an intervention (personal factors). The participant changes the implementation of IC concerning the child's actual situation so that it can participate in the interaction. In case of illnesses or pain, attaining the therapeutic goal is no longer of priority. Thus, close cooperation with the reference person is indispensable to the participant for the planning and scheduling of the diagnostic and intervention. Depending on the time and commitment of the reference persons, the participant invites them to join the diagnostic process and the intervention. She also prepares communicative offers and forms of AAC that the reference persons could apply at home.

These personal factors seem to the participant more important than the financial situation of the family. She tries to find alternative financial resources for AAC if needed. For this, she communicates with auxiliary suppliers and other practitioners working with the child.

Discussion

The results (section 5) allow me to monitor conditions and consequences of the intervention of IC for children with PIMD. To relate the conditions and consequences mentioned by the participant, I choose a topographic model, the "conditions-/ consequences-matrix" (section 3) (Corbin & Strauss, 2008, 2015; Strauss & Corbin 1996) (see figure 1):

Figure 1. Intervention of IC as a Personal (Family) Coaching

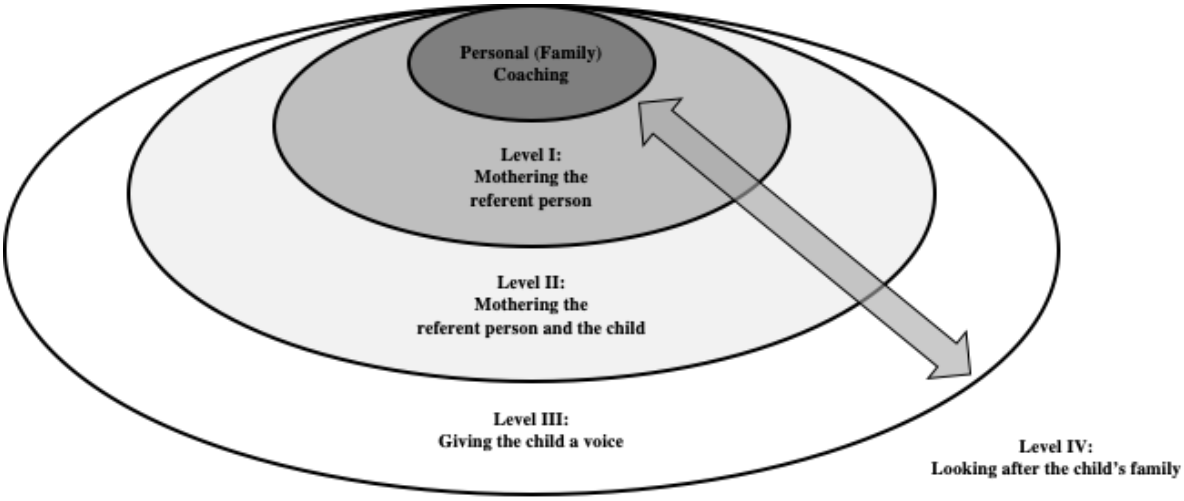

Image Description: Figure 1. Intervention of IC as a Personal (Family) Coaching is a circular pyramid of four levels Intervention of IC as a personal (family coaching. The levels in the image correspond to the four levels of the intervention of IC. The middle section is named after the central phenomenon "Personal (Family) Coaching." The first level is named "mothering the reference person," the second level "mothering the reference person and the child" and the third level "giving the child a voice." An arrow crosses these three levels. Right outside of the pyramid, the fourth and last level reads "Looking after the child's family."

Personal (Family) Coaching

As the central phenomenon intervention of IC, the participant describes her approach as a "Personal (Family) Coaching." I chose this phenomenon because it appeared in different contexts (e.g., diagnostic, contextual factors) and connected different categories. Thus, the participant underlines that her intervention stands out because of her personal life coaching approach. During the interview, the participant mentions the child's mother as the central reference person. Since the reference person may vary among different cases, I chose the term "reference person" over the term "mother" in my topographic model.

In this model, the development of IC is embedded in the child's social context. In particular, at the beginning of an intervention with younger children with PIMD, a practitioner supports central reference persons. Therefore, an IC intervention is not limited to the therapeutic situation but covers the daily life of the child's family. The practitioner aims to transfer several methods and strategies into the child's environment. In doing so, the practitioner achieves more qualitative learning steps with the child in receiving more learning opportunities in daily life.

Level I: “Mothering” the Reference Person

The support of the reference person is the main condition, especially if the person has not yet processed challenging situations, such as life-threatening hospital stays. In this case, the reference person should first take care of their own mental health. This seems to be important for the establishment of an intensive relationship to the child and the development of early communication. Depending on the mental situation of the reference person, the practitioner may recommend seeking additional support from a psychologist. Nevertheless, the practitioner may also support the reference person with child-related and intervention related tasks to improve early communication with the child.

Level II: “Mothering” the Reference Person and the Child

The relationship between the reference person and the child is a central component in the intervention of IC. As an expert on the child’s communication, the reference person is involved in the diagnostic process and the intervention. Concerning the diagnostic progress, the reference person provides information about the child’s well-being, communication and interests. This information is indispensable for the planning and further development of the IC-intervention. Furthermore, indicators for differentiating between intentional and unintentional communication may be offered to the reference persons if needed. Using these indicators, the reference person may differentiate between the child’s intentional need and unintentional utterances, such as baby colic.

Level III: Giving the Child a Voice

After supporting the reference person and their relationship with the child, attention is focused on the intervention of IC. By means of the IC-intervention, the practitioner aims to give the child a voice. Giving a voice is not tantamount to supporting the child to learn the verbal language. On the contrary, the mission is to support the child in developing its ability to participate self-determinately in its social environment. To achieve this goal, various learning opportunities are provided, based on the child’s needs and communicative skills, to promote the acquisition of IC. Via different diagnostic strategies, observations can be made as to the stage at which the child's communicative skills have developed. During these diagnostic situations, various forms of *communicative expressions* such as eye contact, knocking, pre-speech sounds, smiling, laughing and stereotypic behavior can be observed. These communicative expressions may be covered by stereotypical behavior. To differentiate communicative from stereotypical behaviors, a feed-forward and a dialogue structure may function as indicators. For this purpose, the participant has invented a five-step general diagnostic set up and a five-step diagnostic process. To improve and optimize the diagnostic approach, the reference person should be involved, to collect more diagnostic information about the child such as current interests or communication forms.

General aspects of BC and JA can be applied to the intervention of IC, (e.g., by creating meaningful interaction, verbalizing the child's actions). These aspects may be transferred to the child's daily life with the support of reference persons. In doing so, no special materials or tools are needed. Materials and tools should rather arouse the child's interest and provide a direct response to the child's action. To choose the right material or tool, the involvement of reference persons is here helpful, too.

Level IV: Looking After the Child's Family

The child's social environment provides important conditions for the realization of an IC intervention. It is said to be the main contextual factor besides the child's mental and physical condition. A reference person may join the intervention and transfer communicative learning offers to the daily life of the child. Therefore, the practitioner gets to know the child's family, their way of communicating and their social rules. This information is helpful to understand the child's reactions and expectations in communicative situations. Sometimes, additional events relating to the child's intervention may arise (e.g., appointments in the kindergarten). The involvement of the reference person cannot be forecast or scheduled. It depends on the commitment, available time and actual situation of the reference persons. These personal factors seem to be more important than the financial situation or the structure of the family. In both areas, alternative options may be created if needed.

Conclusion

This case study aimed to explore the conditions of the intervention of IC. The results show that the participant emphasizes a personal family coaching approach. This approach concentrates on the communication between the reference person(s) and the child rather and on intervention in a therapeutic situation. Concerning the 'mothering of the reference person,' intensive psychologist support applies only if needed. Therefore, the strategies of the 'mothering of the reference person' must be adjusted to the individual situation of the reference person and the child.

Due to the following case studies, data collected led me to two conclusions: Firstly, these data allow me to highlight four intervention areas:

- role of self-care of the practitioners,
- relationship between postnatal depression of a reference person and the early, communication with the child,
- opportunities and limits of the involvement of the child's family during the intervention,
- importance of non-familial contextual factors for the development of IC.

Secondly, further sampling may include practitioners with experience in the intervention areas named. Interview partners such as reference persons, teachers and social workers may provide interesting propositions for the intervention of IC for children with PIMD.

Authors

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