

RESEARCH

Exploring Co-Production in Residences with Special Services for Children and Adolescents with Intellectual Disability in Sweden

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In Sweden, children and adolescents with intellectual disability in special residences often have complex support needs. In this study, co-production refers to when and how staff in special residences and children and adolescents living there interact to promote support that enhances their participation in everyday life according to their desires and needs. The study explores staff experiences of the conditions for co-producing individual support at special residences for children and adolescents with intellectual disability. Qualitative content analysis was used to analyze focus group interviews with residential staff. The analysis identified three generic categories: establishment of a structured context, continuous individual support development, and influencing factors for co-production. A key finding derived from the generic categories was that the conditions for co-produced support are impeded by communication barriers between staff and children/adolescents. Practical implications and future research are discussed.

Keywords: Co-production; support; children and adolescents with intellectual disability; staff; LSS

Introduction

Disabled people are entitled to high-quality support enabling them to design their life and to participate in everyday life. Although the rights of children with intellectual disabilities have been recognized in international conventions (United Nations 1989, 2006), they can experience participation restrictions in everyday life (Adolfsson et al. 2011). To increase participation for children with intellectual disability, more knowledge and change are needed (Franklin & Sloper 2009). In Sweden, children and adolescents with intellectual disability receiving special residential services often have complex support needs. In co-production research, all services are understood as co-produced (Batalden et al. 2015). Co-production implies that quality and efficiency in welfare services can be enhanced by giving patients and users an active role. As such, co-production is about organizing services and rearranging relationships between users and providers and concerns accountability and power relations (Harrison & Waite 2015; McMullin & Needham 2018). However, co-production is not an unambiguous concept, and it is important that there is a clear understanding of the meaning in relation to the context it concerns (Social Care Institute for Excellence 2013). In this study, co-production refers to when and how staff in special residences and children and adolescents living there interact to promote support that enhances their participation in everyday life according to their desires and needs. This specific focus can provide deeper understanding of the factors and contexts that shape, enable, and impede the collaboration between staff and children/adolescents with intellectual disability in the design and implementation of individual support.

Background

Social welfare services were decentralized from the state to the municipalities in Sweden during the 1990s. In connection with this change, disability-rights legislation was strengthened through the passing of the Support and Service for Persons with Certain Functional Impairments Act (LSS) (SFS 1993: 387; Tøssebro 2015). The purpose was to give disabled people a stronger position in the welfare system, reduce local differences in support, and give the service user the opportunity to exert real influence over how the services are provided (Björne 2020; Lewin 2008).

LSS should guarantee that people with severe disabilities have good living conditions and an opportunity to live like others. Support and services according to LSS include residence with special services for children and adolescents. The

purpose is to give children and adolescents who, due to their disability, cannot live in their parents' home an especially adapted accommodation that can satisfy their individual needs. Placement is preceded by the child's parents applying for the position with the municipality. A social worker then assesses the child's needs, writes a formal report, and notifies the decision to the applicant (Hultman 2019). If the application is approved, the municipality is responsible for finding a suitable contractor who carries out the assignment.

A precondition for placing children/adolescents in an LSS residence is that they have a diagnosis within the autism spectrum or an intellectual disability.

Difficulties in social interaction and communication, flexibility, and restricted interests are common among persons living with a diagnosis within the autism spectrum (American Psychiatric Association 2013). Intellectual disability implies that a person has reduced intellectual ability combined with problems in adaptive behavior resulting in difficulty in autonomously dealing with everyday life (Schalock et al. 2010).

The focus for staff in LSS residences is to cover all the children's/adolescents' care and needs, including strengthening their confidence in their abilities. Thereby, they are given the opportunity to participate and develop self-determination and independence (National Board of Health and Welfare 2012). The starting point for realizing these endeavors is documented in an individual implementation plan (IP). In the international literature, the IP is also referred to as an individual support plan. An IP should include details of how the staff organize support to meet the child's/adolescent's goals and needs and how he or she has participated in the planning.

Participation and support

The World Health Organization (WHO 2008) definition of participation in the International Classification of Functioning, Disability and Health (ICF) is the starting point for LSS services (National Board of Health and Welfare 2017b). The ICF describes disability as discrepancies between personal capacity and environmental demands (Wehmeyer et al. 2008), specifically, attributing reduction in functioning to anatomic impairments that result in activity limitations leading to participation restrictions. The dimensions activity and participation together constitute life areas and are important for understanding a person's everyday functioning (Adolfsson et al. 2011). Participation is defined by the ICF as 'engagement in a life situation' (WHO 2008). Environmental factors (e.g., physical, attitudes, technical) and personal factors (e.g., age and interests) prevent or influence participation in life areas. When environmental factors limit participation, individual functioning can be stimulated by targeting activity limitations or by reducing environmental demands (Dean et al. 2016). It is suggested that interventions to improve participation must be consistent with the person's self-determination, interests, and preferences (Guillén et al. 2015). Participation also contains a self-realizing and self-determination dimension, which in the field of disability, is expressed in the individual's right to influence, choice, and control (Hammel et al. 2008).

Overall, staff support is important to promote participation for individuals with intellectual disability (Ramsten & Blomberg 2019; Verdonschot et al. 2009), but there is a lack of knowledge on how staff support encourage participation in LSS residence for children and adolescents.

Exploring co-production in LSS residences for children and adolescents

The central idea of co-production is to assign users an active role in the design and production of services to improve efficiency and quality in service outcomes (Dunston et al. 2009). This implies that user involvement is a prerequisite for that service to correspond to individual needs, strengths, goals, and satisfaction (Clark 2015; Essén, Värlander, & Liljedal 2016). The co-production paradigm marks a shift in relation to the historical expert approach and acknowledges that the user of services has abilities and assets and can contribute, take responsibility, and shape the results they want from organizations (Kjellström et al. 2019). In the Swedish welfare context, Vamstad (2012) argues that the conditions for co-production are low, because there is a strong tradition of staff-driven professionalism, which creates thresholds for user involvement. In contrast, the disability movement has been oriented to fashion user influence and the user's experience of quality (Markström 2007). The balance between staff's professionalism and users' influence concerns risks with co-production in terms of unclear division of roles and responsibilities. As Steen, Brandsen, and Verschuere (2018) point out: who is accountable if a co-produced service fails? In disability services for children and adolescents, the starting point must be that promotion of co-production does not mean that staff are absolved of responsibility regarding basic protection and rights, stipulated in the Child convention (United Nations 1989) and Convention of rights for persons with disabilities (United Nations 2006).

It is argued that co-production needs to take place at the point of delivery to utilize users' experiences and competencies (Jenhaug & Askheim 2018; Osborne, Strokosch & Radnor 2018), highlighting that involvement should be integrated in all steps in the service process (Boyle & Harris 2009). In this study, co-production concerns when and how children and adolescents living in LSS residences are actively engaged in the design and implementation of the individual support provided to them. Exploring co-produced implemented support in LSS residences, then, includes how staff and children/adolescents interact to enhance everyday functioning in relation to the child's capacity and environmental demands. Furthermore, because the user's experience is strongly influenced by the interactions with frontline staff, LSS staff need to be extra responsive to avoid violating the children's/adolescents' will and integrity when implementing support (Needham 2008).

Design of individual co-produced support is closely connected to person-centered planning (PCP) and recognizing children/adolescents as competent active actors (Lansdown 2010). Thus, PCP emphasizes the person's right to be at

the center of the support delivery process so that the support helps the person to shape and control his or her own life (Collings, Dew & Dowse 2016; Glicksman et al. 2017; Herps et al. 2016). In the context of LSS residences for children/adolescents, PCP stipulates that individual desires and resources guide the support that the staff offer and how the care is planned. Children and adolescents living in LSS residences have difficulties expressing their needs and wishes; therefore, it is essential to explore how staff can support them.

The purpose of this study is to explore the staff's experiences of the conditions for co-producing individual support at LSS residences for children and adolescents.

Method

An explorative qualitative design with staff focus groups was applied.

Study settings and recruitment

To identify and select participants knowledgeable about co-producing support, three non-profit organizations providing LSS residences for children and adolescents served as the recruitment base. The organizations shared specific organizational and contextual characteristics: private non-profit organizations; the LSS residence services were in a village community together with an elementary or high school. The recruitment process was initiated by the first author contacting the manager of the residence about participating in the organization in the study. After manager approval, staff were invited to participate in the study. The invitation included an information sheet explaining the purpose and design of the study. Initially, all organizations were agreed to participate, but one organization dropped out. Consequently, four residential staff groups from the remaining two organizations took part in the study. None of the authors had any previous relationship with the organizations or participating staff.

Focus groups and participants

The recruitment process and the formation of the focus groups were based on purposeful sampling (Creswell & Poth 2017). In accordance with Krueger and Casey's (2014) recommendations regarding group composition, the staff groups from each residence were homogeneous focus groups, because they shared common experiences in relation to the research topic. Meaningful interaction was supported because the participants already knew each other through their work context and thus were supposedly used to discussing, exchanging views, and being comfortable enough to challenge each other's statements (Gill et al. 2008). Each staff group consisted of six to nine staff members; therefore, everyone who agreed to participate was included. A total of 36 staff participated in 4 focus group interviews. Some basic characteristics of the participants at the focus group level are shown in **Table 1**.

All staff groups worked on a rolling schedule, including weekends, evenings, and nights. Staff groups A and B worked with children (7–16 years), and staff groups C and D worked with adolescents (16–20 years). All children and adolescents had varied but substantial support needs within the domains of communication and cognition. All children/adolescents were diagnosed with intellectual disability and most of them also had a diagnosis within the autism spectrum. In addition, some children/adolescents had other conditions, such as epilepsy, attention deficit hyperactivity disorder, and physical disabilities.

Data collection

A semi-structured interview guide (**Table 2**) was designed for the focus group interviews. In accordance with Suutari (2021), the word 'co-production' was considered unclear, both semantically and as a previously unfamiliar concept in the Swedish context. To translate the concept of co-production into meaningful and operationalizable terms for the staff, the more commonly used concept of 'collaboration' was used in the interviews. With the purpose of capturing

Table 1: Participant characteristics at the focus group level.

LSS residence	Male/Female	Average professional years	Formal vocational education, yes/no
A	5/4	11	5/4
B	3/5	7	4/4
C	3/3	16	2/4
D	2/4	16	3/3

Table 2: The main themes of the interview guide.

Meaning of collaboration with children and adolescents
Cooperation based on children's and adolescents' needs and wishes
Examples of collaboration in everyday life
Collaboration to increase the children's and adolescents' participation in everyday situations

the staff's experiences and views, the interview sessions were directed as a conversation. This meant that the moderator (first author) guided participants to openly reflect on the research topic and the ongoing dialog (Morgan 2012). To promote a relaxed and natural interview situation, the focus group interviews were conducted in conjunction with staff meetings at their workplace.

The focus group interviews took place between September and November 2019, lasted for approximately 70 to 90 minutes, and were audio recorded. The first two interviews were transcribed verbatim by the first author and the subsequent two interviews by a professional audio typist. The self-transcribed interviews served as an opportunity to evaluate and improve the interview technique during the data collection process. All data were uploaded and stored securely on a password-protected server.

Analysis

Inductive qualitative content analysis was performed through a collaboration between the first and the last author in accordance with the procedure described by Elo and Kyngäs (2008):

1. The authors read through the transcript several times in its entirety to acquire a sense of the whole.
2. Open coding was performed by marking words and passages with notes and headings to differentiate the content. Each code received an id-designation, enabling return to the text during the analysis if necessary.
3. Headings were transformed to a code sheet.
4. The number of headings was reduced and grouped by merging those that were similar or dissimilar into broader higher order categories.

The categorization process entailed descriptions to increase understanding of the phenomenon and to generate knowledge (Cavanagh 1997; Elo & Kyngäs 2008).

Ethics

All studies were approved by the manager of the participating organizations. The informants were told that participation was voluntary and that they could withdraw their consent at any time. They were also informed about the purpose of the study, the study design, and confidentiality both verbally and in writing prior to participation. Confidentiality in reporting the findings was ensured by use of a coding procedure. As data from participants were included in the results analysis, the quotes were reported at group level to prevent personal identification. The focus group interviews were given coded descriptions based on the order in which the transcripts were analyzed (groups 1–4 are designated as G1–G4). Individual quotes refer to these code designations to ensure confidentiality. The research have been performed in accordance with the Declaration of Helsinki. Before data collection, the study was reviewed and approved by the University of Health and Welfare, Jönköping University, Research Ethics Committee (Dnr 2019/19.13).

Results

The staff's experiences of the conditions for co-producing individual support in LSS child residences can be divided into three generic categories: establishment of a structured context, continuous individual support development, and influencing factors for co-production. The results are summarized in **Table 3**.

Establishment of a structured context

This category comprises the following subcategories: a supportive day process and staff restrictions. Overall, it appears that staff experience is central to provide a calm, safe, and predictable residential environment for the children/adolescents, facilitating everyday functioning.

The conditions for co-producing support can be understood as a sequential process, starting with the children/adolescents moving into the residence. This phase is characterized by insecurity, anxiety, and frustration, and consequently, the priority is to place the children in a safe and supportive environment. This is achieved by creating a predictable daily process whereby, for example, joint meals, certain hygiene activities, and going to bed take place at fixed times. The structure contributes to an understandable and manageable living environment, described by one respondent as

G2: Structure over the day so that the children understand... their day, their world in some way.

One staff group used the word 'rhythm' to describe the supportive daily process. Rhythm is considered a crucial aspect for the well-being of children/adolescents through the 'recognition' and 'return' that comes with regularity, allowing them to relax and recognize what is going to happen during the day. Facilitating the rhythm includes creating an information-rich environment by, for example, using pictures to clarify when staff work or schedules displaying when activities take place.

To develop a structural context, it is also important to help the children/adolescents adopt healthy habits and behaviors. This is achieved by maintaining rules for behavior in social situations or limiting behaviors that staff believe

Table 3: Generic categories, subcategories, and codes.

Generic categories	Subcategories	Codes
Establishment of a structured context	A supportive daily process	Adapted environment Rhythm
	Staff restrictions	Upbringing Children/adolescents do not know their best
Continuous individual support development	Individual adaptations	Individualized support Test and evaluate Identify adaptations
	Organization for support development	Prepare and plan Work management Staff meetings Collaborations
	Equipping for the future	Training Community participation Promoting meaningful activities
Influencing factors for co-production	Enable influence	Communication tools Opportunity to choose Children/adolescents show the way
	Establish reciprocity	Relation building Respect and empathy Sincere interest in the children/adolescents
	Adjust support at the time of implementation	Staff expectations Sensitive to signals Sensitive to contextual influencers Flexibility

endanger well-being. So that the children/adolescents do not experience these restrictions as negative, staff strive to identify pedagogical approaches. One staff member recounts a situation when toys were restricted to facilitate bedtime:

G3: In order for the adolescent to get a reasonable night's sleep, we must adjust the supply of plastic toys during the evening.

By gradually removing the toys, a natural transition was created from activity to bedtime; when the staff removed the last toy, the adolescent understood that it was bedtime. This example illustrates how staff link restrictive measures with the need to promote healthy rhythms (in this case, a sleep rhythm). The establishment of a structured context through a supportive day process and staff restrictions is described by one group member as initially beyond the children's and adolescents' influence and co-production:

G3: In the very structure of the rhythm, there is not so much collaboration...but then, around it, and how to get there.

'How to get there' is related to the fact that acclimation of the children/adolescents to the staff's structured daily rhythm is not self-evident. They can experience the context as forced and demanding. Individual adaptations are therefore needed.

Continuous individual support development

This category comprises the following subcategories: individual adaptations, organization for support development, and equipping for the future. In summary, the children's and adolescents' communicative limitations constitute barriers for the staff to engage them in co-producing individual support. Therefore, the staff jointly observe and interpret the children's behavior as a basis for individual adaptations, independence training, and the development of meaningful activities. The platform for understanding, planning, and organizing support takes place at staff work meetings, where many questions are raised:

G1: What does the child need? How does the child communicate? Can the child eat by himself? Can the child dress himself? What can we help with?

Understanding of the children's/adolescents' support needs forms the basis for individual adaptations. In one focus group, showering and toothbrushing are given as example tasks. To create motivation, staff can carry out the task by linking it to an incentive or by adapting the execution of the activity:

G4: If someone does not like brushing their teeth, you may notice that it is easier if you do it in a certain way.

Another aspect of individualization is based on the desire to equip the children/adolescents for the future by training them to participate in community life, develop independence, and take part in meaningful activities. Many find it difficult to formulate their wishes in these areas; therefore, the staff's development work starts from the expressions of interest shown by the children/adolescents. Initially, the staff may have noticed that a child likes to dance. This can then form the basis for helping them to develop a hobby:

G1: Something they like... we start from that and build on it.

If the child/adolescent is able and feels good about engaging in an activity outside the residential environment, there are also opportunities for community training. For example, to carry out leisure activities, there may be opportunities to take a ride on the bus and stay in new places with unknown people. In some cases, training to cope with all the elements is needed. A habituation period can consist of staff guiding the child/adolescent to perform the various steps.

Performing activities in unfamiliar environments can be stressful for some children/adolescents. To give them opportunities for recreation outside the everyday routine, the staff can construct entertainment experiences at home. An example is the creation of a cinema situation with a projector and popcorn or arranging a disco at the residence. These types of adaptations can also serve as preparation to encourage the children/adolescents to test activities outside the safe enclosure of the residence.

Identifying individual leisure activities, goals, and support based on dialog with the children/adolescents is often difficult because of communication barriers between staff and children/adolescents. This limits the opportunities to give them an influence in the individual IPs. The content and goals in the IP are often a product of the staff's assessment of support needs and the parents' expectations of independence development, rather than of the children's/adolescents' expressions of will. Therefore, staff must rely on other means to provide individual adapted support. A consistent way of working is to try out, jointly learn from, and share the experiences in the staff group.

G3: We change our way of working all the time based on what we experience. So, you test, you introduce a new routine, and then you see if it works....

Regular staff meetings serve as a forum for sharing knowledge and planning and evaluating the work. Obstacles to individual community participation are identified at the meetings. A staff group describes this process by giving an example of a child who liked to go to the swimming pool but had developed a worrying behavior in connection with the activity. This raises questions among the staff:

G2: What is the problem? Is it the locker room? Undressing, dressing?

The example shows how the staff build learning by breaking down the activity into parts as a basis for trying to understand what causes the child's anxiety. The result of such mapping gives the staff guidance in developing the support/routine so that the child has better conditions to participate in the activity in a harmonious and safe way.

Another staff experience is that the children/adolescents can be sensitive to differences in how the support is delivered. Establishment of common guidelines for support implementation is therefore important. Furthermore, a routine can be designed with the aim to promote independence through a conscious reduction of staff support. If some of the staff deviate from this and 'support too much', thresholds are created for the child's/adolescent's independence development. For example, if the staff makes the bed even though it has been decided that this is a training area for the child.

Influencing factors for co-production

This category comprises the following subcategories: enable influence, establish reciprocity, adjust support at the time of implementation. In summary, co-producing factors are promoted by developing communication aids so that children/adolescents can make themselves understood and can convey their will. However, their ability to communicate how and to what extent they need support is limited. Relational knowledge facilitates staff to read and act on personal and contextual factors in support implementation.

Children's/adolescents' ability to channel their will is considered important by the staff. Many have difficulty verbalizing their wishes; therefore, developing Augmentative and Alternative Communication (AAC) constitutes a priority, partly through signs supporting communication but above all through pictures:

G2: Find keys to how they should be able to communicate ... make themselves understood... There are different pictures that they can choose.

The main part of picture-based communication is focused on giving the children/adolescents conditions for their own choices and takes place through digital aids, such as iPads and picture-based tools. The development of picture-based communication tools requires commitment and perseverance. One of the challenges is that the introduction of pictures does not automatically lead to communication development. For example, it can be difficult to persuade children/adolescents who communicate by pointing at objects to abandon this and instead point to a picture. Staff therefore need to identify situations where the child is enthusiastic about using the communication aid. Such situations are often linked to meals or leisure activities where pictures can be used to make different choices visible. A limiting factor is that it is the staff who make the pictures available. The choices are therefore linked to the staff's picture production reflecting the children's premises and interests:

G3: What if this person is thinking of an activity or dish that is not represented by a picture?

There is a risk that the staff become involuntary gatekeepers over the children's choices and influence by a too limited range of pictures. Staff recounted a successful interaction where a large number of pictures were used to find desired activities for an adolescent.

G4: We sat down with pictures ... lots of activities so the adolescent had to list what was number one and what was number two...

The interaction resulted in the adolescent being given the opportunity to express interest in a rich range of elective activities and at the same time prioritizing the activities that differed from staff pre-understanding. The example shows that a degree of person-centeredness regarding the design of leisure activities was made possible compared with offering only a limited standard range of pictures the staff usually provided.

Overall, it appears that AAC is important for developing and directing staff support according to the children's/adolescents' wishes. However, the opportunities for co-production via AAC are often limited to single elements or activities. Thus, staff need other channels to co-produce:

G3: You have to know the adolescent to understand the context ... it is difficult to just use AAC.

Sensing the child/adolescent appears to be an important staff characteristic in order to provide appropriate support and developed relationships. The staff stated that, just as in all social contexts, relationship building between people is affected by personal chemistry. In the context of LSS residences, however, the staff are responsible for creating a relationship that facilitates co-production. It is crucial that staff gain trust through sincere interest, consideration, and respect, which develops 'trust' from the child/adolescent and 'sensitivity' from the staff. This establishes a reciprocity that is necessary for the child/adolescent to place their trust in the staff to support and give guidance based on a balance between staff expectations and support.

Staff expectations is a recurring word that the staff primarily derive from elements that are considered as developing but at the same challenging for the children/adolescents. Examples of staff expectations are self-training elements, such as dressing oneself, eating with a knife and fork, or community participation. Reciprocity involves the staff adjusting the level of expectations based on the child's signals. In this context, attention to signals means being able to read the children's body language, mood, and behaviors and adjusting the support according to the prevailing situation, either by giving the child more time and space or by helping more than the routine prescribes. It can also mean renouncing expectations when the moment demands it:

G2: It is a demanding situation ... environment, a hall, lots of noise; it can be such things that make it take too much energy.

Responding to signals requires that the staff develop a sensitivity for adjusting support and expectations based on environmental factors. This is crucial in the effort to create a pleasant living environment where children have the opportunity to participate according to their individual conditions. Staff inability to interpret signals can lead to physical discomfort and suffering for the child/adolescent. As an example, staff recalled when an adolescent, seemingly for no reason, developed aggressive behavior during an activity:

G4: The adolescent got terribly angry... it turned out he had an ink pen in his shoe.

Overall, adjusting support at the time of implementation is about staff being creative in the daily support with the children based on the children's/adolescent's daily form and contextual factors. This includes taking expressions of dissatisfaction seriously and identifying causes of discomfort.

Discussion

This study explores staff experiences of the conditions for co-producing individual support with children and adolescents living in LSS residences. A common staff experience is that the children/adolescents need a structured

and predictable context supporting their everyday functioning and healthy behaviors. Establishment of a structured context can be regarded as an institutional support in the sense that it is staff-designed, maintained by recurring routines and rules, and implemented regardless of whether the children/adolescents requested it or not. This is motivated partly by the fact that the children/adolescents have difficulty creating a well-functioning everyday life on their own, and partly by their difficulties in expressing how and when they want to be supported. Research concerning LSS residences for adults has shown that staff, in an effort to create an orderly and predictable work situation, risk exercising an excessively controlling living environment with a rigid structure (Berlin Hallrup 2012; Nikku 2011). In contrast to adult care, staff at LSS residences for children and adolescents have responsibility for upbringing. Staff need to balance aspects of self-determination and participation with the need for guidance and limitations to ensure that the children live and develop in safe conditions (van Bijleveld, Dedding & Bunders-Aelen 2015). According to the National Board of Health and Welfare (2017a), the children overall seemed content at their LSS residence, indicating that staff manage to balance these tensions. At the same time, national supervision has noted compulsory and restrictive staff measures in certain residences (IVO 2018). In the current study, there was no evidence to confirm that establishment of a staff-controlled structure is a goal. The structural context is the basis for adjustments toward support at individual level. According to Swedish guidelines, children/adolescents should participate in the design of their IP (National Board of Health and Welfare 2014). The dominant factor complicating this task appears to be communication barriers. Similar findings are reflected by Egard et al. (2016), highlighting that LSS staff sometimes lack sufficient information about the user's way of communication. This restricts staff ability to carry out individual support and to establish the IP. Western studies confirm the general challenges of planning and implementing support for individuals with intellectual disability (Bigby et al. 2014; Dowse et al. 2016; Herps et al. 2016; Ratti et al. 2016). Robertson et al. (2007) identifies barriers such as facilitator problems, lack of understanding of PCP, communication barriers, and shortcomings in planning and arranging meetings in a PCP intervention program. Communication barriers mean that the IP often is a result of collaboration between staff and parents. This collaboration can be valuable in identifying overall areas for development but insufficient to guide individual adapted support.

The design of individual support adaptations largely takes place at regular staff meetings. A key contribution consists of the staff's experiences and feedback on how the children react to the daily support. The experiences are shared in the staff group as a basis for support improvements or by agreeing on a standard procedure for how the support is to be provided. This process is valuable because it aims to enhance everyday functioning, community participation, and leisure activities based on individual needs. However, it can be considered not co-production because the children/adolescents are not actively engaged in arranging their support (Whaley, Domenico & Alltimes 2019).

Furthermore, staff seem to strive for standardization so that the support is implemented as consistently as possible. This approach makes the children/adolescents passive recipients and is insensitive to personal and situational circumstances. Assessment of the effectiveness of the support risks becoming a matter of staff compliance with routines instead of the quality of the support. Yet, the staff's view of standardization contrasts with what they consider to be important in implementation. In accordance with other Swedish studies (Egard et al. 2016; Hultman et al. 2019), staff expressed that support must be flexible to meet individual preferences. This resonates with co-production in the sense that if staff adapt their treatment to what works for the child/adolescent, they have had an impact on the support (Björne, Borgström & Kressander 2015).

Learning, and ultimately improved, co-production is promoted by the recognition of interactions in existing practice (Baim-Lance et al. 2019; Fenwick 2012). A starting point for in-depth learning in LSS residences for children and adolescents is that the degree of existing co-production is highly dependent on the staff. As the children's/adolescents' possibilities to express themselves are limited, the staff's ability to respond to non-articulated signals, muscle tone, and facial expression is a prerequisite for successful interaction (Kamstra, van der Putten & Vlaskamp 2017; Munde & Vlaskamp 2015; Stefánsdóttir, Björnsdóttir & Stefánsdóttir 2018). Wilder and Granlund (2003) highlight that these signals can be difficult to interpret and can easily go unnoticed. In the present study, staff stated that responsiveness to signals is facilitated by developing relationships that contribute to sensitivity regarding the children/adolescents' behaviors and expressions. Research has shown that the social climate in a relationship is decisive for whether an act with the intention of being supportive is also perceived as supportive (Langford et al. 1997). Social climate is supported by interest in the individuality of the person, care and attention, and respect for integrity (Andersson & Gustafsson 2016). These attitudes align with what staff consider fostering reciprocity as a foundation for co-production. In addition, staff state that support implementation needs to consider potentially disturbing contextual factors, such as noise level, staff changes, discomfort, and so forth, especially in situations that can be perceived as demanding for the children/adolescents (such as independence training and community participation). Taken together, successful support implementation is underpinned by staff who are competent to instinctively interpret a wide range of relational and contextual information.

Overall, the findings demonstrate that the children/adolescents' communication difficulties entail an inherent power symmetry whereby the staff have full control over the support arrangements. In accordance with research (Clarke et al. 2011; Johnston, Reichle & Evans 2004; Light & McNaughton 2014), interviewed staff consider ACC beneficial to meet communicative needs. AAC consists of methods that help individuals with severe communication disorders to compensate

for activity limitations and enhances participation in different communicative interactions (Mukhopadhyay & Nwaogu 2009). Based on the staff interviews, enhancing capacity to express will and choice by picture-based communication is an important area. Brill (2011) claims that individuals with autism and intellectual disability often have higher capacity in visual skills than verbal skills, suggesting that picture-based tools have merit to enhance communicative capacity and co-production opportunities. Available picture options enable the child/adolescent to direct staff support efforts toward one preferred activity or object over another. However, communicative interaction opportunities appear to be limited to single situations and do not give substantial expressional power to the children/adolescents to influence their everyday context and support. This relates to the term 'a restricted menu of choices', recognized in Hollomotz's (2014) study regarding choices for adults with learning disabilities. The term is used to describe how individuals were offered limited options based on predetermined lists prepared by the staff. In that way the staff control appropriate options or choice available and minimize the inconvenience that may arise in 'wrong choices'. In the current study, the reason for offering restricted options seem to depend on difficulties in matching picture support and the scope of pictures to the children/adolescents' communication styles.

This is perhaps not surprising because research has identified challenges associated with AAC. AAC consists of a variety of aids (i.e., includes a device or equipment), such as speech-generating devices and picture-based systems, or unaided AAC (i.e., manual signs) (Gevarter et al. 2013). Selecting the most suitable AAC support for persons with diverse degrees of communication difficulties is not straightforward (Sreekumar, Kunnath & Philip 2018). In addition, the evidence that different AAC systems are more efficient than others for persons with intellectual disability is not clear (Gevarter et al. 2013). Webb et al. (2019) point out that children with similar conditions may have very different needs and skills that have an impact on their ability to use AAC support. Introducing and selecting the right communication support requires consideration of the person's abilities and preferences (Gevarter et al. 2013). To succeed in identifying individual AAC support, the recommendation is to follow an assessment process informed by AAC professionals (Webb et al. 2019). However, the example of an LSS staff member using multiple pictures to have a conversation about the child's hobbies as a basis for co-planning demonstrates that AAC development is possible without consulting experts. AAC development can be achieved in part by staff creativity.

Strengths and limitations

The scope of the study is limited to the experiences of four staff groups. However, the findings do provide contextual understanding about the conditions for co-producing individual support with children and adolescents living in LSS residences. The results and the subsequent discussion provide rich descriptions in relation to the research topic allowing stakeholders to judge the transfer value (Creswell & Poth 2017). According to Wibeck (2010), the validity of interview results depends on the participants being comfortable speaking what they think. It was difficult to assess whether the focus group discussions were limited due to peer pressure or social group norms. However, the impression was that the group dynamics were generally characterized by an open conversational climate where everyone felt comfortable expressing their views. The demonstration of how codes and categories build up to the main categories (**Table 3**) enhance the trustworthiness (Elo et al. 2014) Furthermore, the first author's long experience of working in an organization that provides LSS residential services to children and adolescents provides credibility because the culture and social context are understood. This also entails issues of trustworthiness. To sustain credibility, the data analysis has been undertaken with collaboration of all co-authors to uncover bias from the first author.

Finally, this study involved staff groups providing support to children and adolescents with substantial intellectual and multiple disabilities. However, children and adolescents living in LSS residences do not constitute a homogeneous group. The findings do not necessarily reflect conditions for co-produced support in residential settings where children/adolescents have higher capacity for communication and cognition. Furthermore, there are variations in the operation of LSS residences in relation to organizational structures, staff conditions, and management. Future research should identify barriers and enablers in relation to co-produced support design and implementation in different LSS residential settings.

Conclusions

The context of an LSS residence creates both opportunities and obstacles for co-productive support. Opportunities for co-productive support stem from staff having organizational support (meeting time and focus as well as vocational obligation to develop the children's/adolescents' participation and influence). Obstacles for co-production are mainly communication barriers. When communicative means of expression are lacking, the children's/adolescents' opportunity to interact depends on the staff's competence to interpret and act on relational and contextual information. The unequal power relationship creates an inherent risk that the voices of the children/adolescents are not heard. To increase conditions for co-production, staff should develop AAC capacity and inclusive ways of working, placing children/adolescents at the heart of their support arrangements.

Competing Interests

The authors have no competing interests to declare.

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