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# A behavioural description of meaningful moments of interaction between people with profound intellectual disabilities and support staff

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## Abstract

**Background:** It can be challenging for support staff to develop meaningful moments of interaction with people with profound intellectual disabilities. Gathering information on observable behaviour characterising such meaningful moments is expected to be beneficial.

**Method:** Three staff-client dyadic interactions were videotaped for 30 min. During reviewing the recording, staff members indicated which moments of interaction they experienced as meaningful. Per dyad, one meaningful moment was microanalytically coded via a developed coding system, and behaviourally described.

**Results:** The coding system reliably coded behaviour at the micro level. Exploratory results indicated that looking, movement and touching were most shown, and that staff displayed this behaviour more frequently than their clients. Both exhibited behaviours substantially more often during meaningful moments than at their onset.

**Discussion:** People with profound intellectual disabilities are more engaged during meaningful moments of interaction compared to at their onset. In daily practice, cultivating circumstances increasing their involvement is important.

KEYWORDS
coding system, interactive behaviour, meaningful moments of interaction, microanalysis, PIMD, profound intellectual disabilities

## 1 | INTRODUCTION

Meaningful relationships contribute to a person's emotional wellbeing, insofar as they are associated with feeling secure and loved by significant others (Ainsworth, 1989). In the case of people with profound intellectual disabilities,[1] developing meaningful relationships with other people can prove to be challenging. These people are highly dependent on professional care, and hence, the quality of their relationships with support staff has an impact on their quality of life (Nieuwenhuijse et al., 2022). However, both for support staff and people with profound intellectual disabilities themselves, the development of a meaningful relationship is complicated by the idiosyncratic and context-bound nature of the communication of people with

[1]For the sake of readability, we have opted to refer to 'people with profound intellectual disabilities and people with profound intellectual and multiple disabilities' as 'people with profound intellectual disabilities'.

profound intellectual disabilities (Kruithof et al., 2020). In order to notice and understand the communicative signals of people with profound intellectual disabilities well, caregivers must really (get to) know them (Nieuwenhuijse et al., 2022). This experiential knowledge, which is also called 'tacit knowledge' (Reinders, 2010), is often difficult for staff to explicate in words, which, in turn, makes it challenging to transfer to others how they 'read' the person with profound intellectual disabilities and how this shapes their interactions with them (Kruithof et al., 2020). Consequently, meaningful moments of interaction—that is, the building blocks of a meaningful relationship (Ainsworth, 1989)—are not developed easily or automatically. In order to help staff to develop meaningful moments of interaction with people with profound intellectual disabilities, it would therefore be helpful to gather more information on the observable behaviour that characterises such moments of interaction.

When exploring the interactions between people with profound intellectual disabilities and their caregivers (support staff and/or parents) one of the commonly used frameworks is based on parent-infant research, because of the comparability between the developmental age of people with profound intellectual disabilities (below 24 months) and infants (Hostyn, Neerinckx, & Maes, 2011). When describing the interactions between parents and infants in qualitative research or clinical practice, the interactive behaviour of both of these interactional partners is often valued in terms of global or holistic constructs, such as 'sensitivity', 'responsiveness', 'emotional support' or 'emotional availability' using rating scales or instruments like Ainsworth et al.'s Sensitivity Scales (Ainsworth et al., 1978) or Emotional Availability Scales (Biringen et al., 2000). A score is based on the integration of, for example, the behaviour that is performed (Biringen et al., 2000). Although such procedures provide a reliable means through which to describe the quality of interactions (Lotzin et al., 2015), and have been reliably used in previous research with people with profound intellectual disabilities (Hostyn, Petry, et al., 2011), they do not provide detailed information about the specific interactive behaviours of both of the interactional partners. An alternative way to explore these interactions in closer detail is to code and analyze the behaviour of both interactional partners microanalytically (e.g., Beebe, 1982; Cohn & Tronick, 1987). By conducting a microanalytic analysis of behaviour, both the way in which behaviour is performed during an interaction and the direction of that behaviour can be explored meticulously (e.g., Beebe & Gerstman, 1980).

As with parent-infant research, previous research exploring the quality of the interaction between people with profound intellectual disabilities and their caregivers did so in terms of behaviour (e.g., Van keer et al., 2019). For example, Neerinckx et al. (2014) coded behaviour via the use of a self-developed coding scheme in order to explore the joint attentional behaviour of people with profound intellectual multiple disabilities and support staff, while Van keer et al. (2019) explored the behaviour of children with developmental delay and a parent sequentially by using an adjusted coding scheme. The timeframes in which the behaviour in these explorations was scored and analyzed, varied. For example, Van keer et al. (2019) coded the behaviour of the child and parent continuously and attributed scores to one-second timeframes afterwards, whilst Neerinckx et al. (2014) used 10 seconds partial interval coding. In both of these studies, the fragments that were explored and coded were chosen by the researchers, based upon the purpose of their study. It was suggested though that the explorations of the quality of the interactions between people with profound intellectual disabilities and support staff would be enriched if the experiences of staff would be incorporated into the research (Hostyn & Maes, 2013). Penninga et al. (2022) have already investigated what makes moments of interaction meaningful for support staff, by conducting interviews with them. Combining these interview findings with a behavioural characterisation of such meaningful moments would serve to make these moments more tangible and the information more transferable. However, to put a behavioural characterisation of meaningful moments into perspective, one not only has to describe the meaningful moment behaviourally, but also the time immediately preceding that moment, that is, its onset.

The present explorative study sought to meticulously describe the behaviour that characterises moments of interaction that are experienced as meaningful by support staff (Penninga et al., 2022), to explore the subtle, communicative signals of people with profound intellectual disabilities, and gain in-depth insight into the intuitive, tacit knowledge of staff. Therefore, the present study sought to answer the following research question: "What behaviours characterise moments of interaction that are valued as meaningful by staff, and what behaviours characterise their onset?"

## 2 | METHOD

### 2.1 | Participants

Three dyads (i.e., comprising three support staff [female, range: 30–59 years] and three people with profound intellectual disabilities [two female, one male; range: 8–15 years]) participated in the present study. The inclusion criteria for support staff to participate were as follows: (1) support staff needed to work at a care facility with children and/or youngsters with profound intellectual disabilities, (2) support staff needed to have worked in this care facility for at least a 6-month period and for at least 12 h a week (Penninga et al., 2022), and (3) support staff needed to have worked with the participating person with profound intellectual disabilities for at least a 6-month period. The participating support staff all met the inclusion criteria. Their experience in working with people with profound intellectual disabilities ranged from 10 to 22 years and 20–32 h a week, while they had been working with the participating person with profound intellectual disabilities for between 5 and 11 years. To be included, people with profound intellectual disabilities had to have a developmental age below 24 months and/or a pre- or proto-symbolic level of communication, which was confirmed by the behavioural scientists involved. All of the included people with profound intellectual disabilities had additional problems and disabilities. For example, all of them

had neurological problems (e.g., epilepsy) and severe visual disabilities. Whilst one of them could walk with support, the other two had severe motor disabilities.

## 2.2 | Procedure

An extensive research protocol was followed for recruiting participants and collecting data, which was approved by the Ethical Review Board of Tilburg University (RP-407). Dyads were recruited by means of purposive sampling at two service providers for people with intellectual disabilities that are members of the Academic Collaborative Centre Living with an intellectual disability at Tilburg University. The contact persons within these two service providers were asked to approach support staff who matched the inclusion criteria. After giving their informed consent, the participating support staff chose the person with profound intellectual disabilities to participate with in this study. Subsequently, the parents of the person with profound intellectual disabilities were informed about the nature of the study and asked for their consent.

Each dyad was filmed in a daily situation for 30 min continuously, based on the fact that a pilot study showed that half an hour of video footage would include sufficient moments of interaction that support staff would value as meaningful. The 30-min timeframe filmed was chosen by support staff in agreement with the researcher and was the timeframe in which the staff member expected meaningful moments of interaction to occur. Filming was carried out by a colleague working in the same care facility, who was instructed on how to record the interaction. After the recording, the staff member who was filmed was asked whether meaningful moments of interaction had taken place during the recorded period. One staff member indicated that no meaningful moments had taken place during the period of filming, and, hence, as per the research protocol, a second 32-min film shoot was scheduled with this staff member. In the other two cases, support staff reported that meaningful moments had been captured on film after the first recording session.

Subsequently, during an online meeting, the researcher watched the recorded video along with the staff member in order to both identify the moments of interaction that the staff member deemed to be meaningful and explore why she pinpointed these particular moments. The protocol that was followed during these meetings was used in prior research to find out what draws a person's attention in a video (of themselves) and to examine their underlying perceptions and thoughts: the Burford Review Protocol (Burford, 1993; Burford & Jahoda, 2012). As per that protocol, at the start the researcher took the time to create an informal atmosphere. Next, the researcher informed the staff member that they were going to play the film at normal speed and asked them to say 'yes' each time they valued a moment of interaction as meaningful. These meaningful moments were noted by the researcher. After viewing the entire recording, these meaningful moments of interaction were played for a second time. The staff member was asked to elaborate on what exactly made this interactional moment meaningful for them and to point out the exact moment that the meaningful moment ended. The staff member had the option to decide to eliminate previously indicated moments, or to adjust the exact time that the meaningful moment took place. In the event that a meaningful moment overlapped with one or more subsequent meaningful moments, these were clustered together into one meaningful moment with a longer duration. Ultimately, this procedure resulted in one final list per dyad (thus three lists in total), with 18 to 37 ($M = 28$) meaningful moments of interaction of varying durations (1–220 s; $M = 23.7$ s). For each meaningful moment on this final list, the staff member was asked to give a score on a scale of 1–10, ranging from 1 'a little meaningful' to 10 'very meaningful'.

After having watched all the videos along with the participating staff members, one fragment was coded for each dyad, in order to meticulously explore the behaviour during the meaningful moment of interaction and at its onset. These fragments were selected for two reasons. The first reason was that the staff member valued them highest on the 1–10 scale. As the 'highest score' varied per staff member (range: 7–10), no absolute 'high score' was used, but for each staff member a fragment with the highest rating was selected. The second reason was that both the staff member and the person with profound intellectual disabilities were optimally visible (the head, face and/or torso of both of them were (partly) visible for at least 80% of the time). Each fragment was coded (using The Observer XT 15, Noldus, 2010) from the moment the participant indicated the meaningful moment had started up until the moment the participant indicated the meaningful moment ended. To put the behavioural characterisation of a meaningful moment into perspective, not only was the meaningful moment coded, but also the time immediately preceding that moment (its onset). To ensure that both the staff member and person with profound intellectual disabilities had enough time to display their behaviour, it was assumed that coding 30 s prior to the beginning of the meaningful moment would be sufficient. When making this assumption, the delayed response time of people with profound intellectual disabilities of 3 to 5 s was also taken into account (Van keer et al., 2019).

## 2.3 | Instruments

The included fragments were coded using a coding system (see Table 1) which was based on the scheme by Van keer et al. (2019). The adjustment of the coding scheme of Van keer et al. (2019) to fit the specific purpose of this study (meticulously exploring what behaviour characterises meaningful moments of interaction and their onset) took an extensive process. The coding scheme that was developed and tested by coding video footage in the pilot, turned out not to suffice completely to reliably code behaviour this detailed when coding video footage of the study—as it left too much room for interpretation of the coders for some of the included categories/dimensions. Therefore, several experts with (clinical) expertise related to people with profound intellectual disabilities and/or research in this field were consulted, and the coding system was tested and refined by (re)coding fragments from the pilot and the study. In the process of development

**TABLE 1** Coding system.

| Behavioural category | Specification 1: Object | Specification 2: Visible direction | Specification 3: Specification mood | Specification 4: Specification tension |
|---|---|---|---|---|
| *Options*<br>No ⟨behaviour⟩<br>⟨Behaviour⟩ scorable<br>⟨Behaviour⟩ context<br>⟨Behaviour⟩ non-scorable | *Options*<br>With an object<br>Without an object | *Options*<br>Towards the other person<br>Towards an object<br>Not towards the other person or an object | *Options*<br>Positively charged<br>Neutral<br>Negatively charged | *Options*<br>Relaxed<br>Some tension<br>Tense |
| *Simple behavioural categories* | | | | |
| Looking | | ✓[a] | | |
| Facial expression | | ✓ | | |
| Movement of the head | ✓ | ✓ | | |
| Movement of the torso | ✓ | ✓ | | |
| Movement of the left arm | ✓ | ✓ | | |
| Movement of the right arm | ✓ | ✓ | | |
| Touch with the head | ✓ | ✓ | | |
| Touch with the torso | ✓ | ✓ | | |
| Touch with the left arm | ✓ | ✓ | | |
| Touch with the right arm | ✓ | ✓ | | |
| Sound | | ✓ | | |
| Vocalisation | | ✓ | | |
| *Complex behavioural categories* | | | | |
| Physical guidance/support with the torso | | ✓ | | |
| Physical guidance/support with the left arm | | ✓ | | |
| Physical guidance/support with the right arm | | ✓ | | |
| Gestures | | ✓ | | |
| Active playing behaviour | ✓ | ✓ | | |
| Mood[b] | | | ✓ | |
| Tension[c] | | | | ✓ |

[a]For the visible direction of Looking four options were scored: 'towards the other person—towards face', 'towards the other person—not towards face', 'towards an object', 'not towards the other person or an object'.
[b]For Mood two options were scored: 'scorable' and 'non-scorable'.
[c]For Tension two options were scored: 'scorable' and 'non-scorable'.

and refinement of the developed coding system, all in all 8 of the 84 fragments were (double) coded. In the end, five major adjustments were made to Van keer et al.'s (2019) coding scheme: (1) coding each timeframe instead of continuous coding, (2) addition of the modifier 'direction' to the relevant behavioural categories, (3) specification of body parts when scoring 'movement', 'touch' and 'physical guidance/support', (4) addition of the modifier 'with or without an object' to the relevant behavioural categories, (5) addition of the categories 'mood' and 'tension'. These adjustments resulted in a coding system comprising 19 behavioural categories (see Table 1). Ten categories (the 'simple behavioural categories') were related to singular behaviours, such as 'looking' or 'touching with left arm' and 'movement of the head,' whilst nine categories (the 'complex behavioural categories') were composed of several behaviours, for example, 'gestures' and 'active playing behaviour'. Behaviour could be scored in both a simple and complex behavioural category, as these were not mutually exclusive. More specifically, a scored complex behavioural category provided extra information on a previously scored simple behavioural category. For example, a score on 'gesture' could imply to a sequence of hand movements, which could not be distinguished when these movements of the hands were scored per 0.04 s timeframe. In the complex behavioural categories, 'physical guidance/support' was scored as being present when a person supported the other to maintain or change a position of the body (part), and when a person directed the position of a body (part) of the other person (e.g. pushing away). Therefore, 'physical guidance/support' always overlapped with 'touch' with the relevant body part, and additionally could overlap with 'movement' of the relevant body part. 'Active playing behaviour' had to have a playful character, and could consist of various combinations of behavioural categories, such as 'movement' and 'vocalisation'

**TABLE 2** Average percentages of agreement.

| | Behavioural categories | Visible direction | With/without an object | Mood and tension |
|---|---|---|---|---|
| Staff members | 93.9% | 60.9% | 93.0% | 66.7% |
| Persons with profound intellectual disabilities | 88.2% | 73.8% | 100% | 41.9% |

(e.g., peekaboo), or 'touch' and 'movement' (e.g., tickling). At last, 'gestures' always involved sequential 'movements with the hand(s), head or body' combining into movement with a conventional meaning (such as 'waving', 'pointing' or 'nodding').

All categories were scored both for the staff member and the person with profound intellectual disabilities. During coding, for each category per 0.04 s timeframe it was determined whether the relevant body part(s) was/were visible and/or whether the technical quality of the video (visual and/or audio) was sufficient to score the relevant behaviour. If the relevant behaviour could be scored, then three scoring options were available: '⟨behaviour⟩ scorable'—used when the relevant behaviour was present; 'no ⟨behaviour⟩'—when the relevant behaviour was not present; and '⟨behaviour⟩-context.' '⟨Behaviour⟩-context' was used when the relevant behaviour was not actually visible in the video, but the context indicated that the behaviour was present; for example, when someone's hand moved out of sight of the camera for a short period of time during stroking the other's back. If the relevant behaviour could not be scored, then the option '⟨behaviour⟩ non-scorable' was used. To determine whether behaviour was present or not for each 0.04 s timeframe, the simple behavioural categories—except 'sound' and 'vocalisations'—were scored timeframe by timeframe. As audio information could not be heard in the brief timeframes, the categories 'sound' and 'vocalisations' were scored whilst the video played at half-speed, as was also the case for the complex behavioural categories.

For all categories, with the exception of 'mood' and 'tension,' additional information was gathered about the direction of the behaviour and/or whether the behaviour took place with or without an object (see Table 1). Regarding the direction, a modifier was scored indicating whether the behaviour was directed 'towards the other person,' 'towards an object' or 'not towards the other person or an object.' With respect to 'looking', a further differentiation was made for 'towards the other person', namely 'towards the other person—towards the face' and 'towards the other person – not towards the face'. The modifiers 'with an object' and 'without an object' were used to score whether the behaviour took place with or without an object. 'Mood' and 'tension' were coded while the video played at half-speed. 'Mood' was scored in terms of whether the mood of the person was 'positively charged', 'neutral' or 'negatively charged', whilst 'tension' was scored as 'relaxed', 'some tension' or 'tense'.

## 2.4 | Inter-rater-reliability

Coding was conducted by the first author, who had over 15 years of clinical expertise in working with people with profound intellectual disabilities. Both second coders had experience in conducting research concerning people with (profound) intellectual disabilities, one of them also had clinical expertise in working with people with (profound) intellectual disabilities, whilst the other second coder did have no clinical expertise in working with this target group. This provided optimal conditions to test the coding system. As aforementioned, a second coder was involved in the process of composing the coding system. Subsequently, another second coder was trained in using the coding system by the first author. Based on these training experiences, the coding system was thus finalised. Then, three fragments (one for each dyad, which was randomly selected) were double coded until an average of 80% agreement was reached between the coders on the behavioural categories. Thereafter, 20% of the selected fragments were double coded. To optimally test the coding system, these 20% were equally spread across the three selected fragments (one for each dyad). For each timeframe in which a category could be scored (e.g., for 'looking' when the head was visible on the video), a comparison was done to see whether the two coders scored the behaviour as present or not present. Over these three double-coded fragments, the average percentages of exact agreement regarding the 'behavioural categories', 'direction', 'with or without an object', and 'mood and tension' were then calculated (see Table 2).

The average percentage of exact agreement for staff behaviour was 93.9% (78.4%–100%), whilst the average percentage of exact agreement between the coders with regards to the behaviour of people with profound intellectual disabilities was 88.2% (51.6%–100%). Furthermore, the average Kappa for the behavioural categories was also calculated. For several of the categories (six for staff; nine for people with profound intellectual disabilities) with high percentages of agreement (95.8%–100%), it was not possible to calculate Kappa, mostly because (one of) the coders scored a constant. Therefore, these categories were not included in the calculation of the average Kappa. The average Kappa for the remaining behavioural categories was found to be moderate, both for staff (0.56) and people with profound intellectual disabilities (0.47), according to the standards of Landis and Koch (1977).

## 2.5 | Analysis

The three fragments ('fragment 1', 'fragment 2', 'fragment 3'; one for each dyad), were microanalytically coded in order to explore which behaviour characterised meaningful moments of interaction as well as their onset. The units of analysis were the presence of behaviour per 0.04 s timeframe, and therefore, subsequently, the extensive number of measurements resulting from coding this detailed, was

quantitatively analyzed (e.g., Beebe & Gerstman, 1980). The length of the meaningful moments varied (for 'fragment 1' it had a duration of 50 s, in 'fragment 2' it lasted for 6 s, while for 'fragment 3' it was 27 s). Moreover, the duration of the meaningful moments also differed with respect to the duration of the onset, which was 30 s in all cases. Therefore, the percentage of time that the behaviour was scored 'present' was calculated for each behavioural category of the coding system for all of the dyads, both for staff members and people with profound intellectual disabilities, as well as for both the meaningful moment and its onset. Because 'mood' and 'tension' were always scored present, these were left out of the calculation. Subsequently, the average percentages of time for 'looking', 'movement', 'touching', 'sounds', 'vocalisations', 'physical guidance/support', 'gestures' and 'active playing behaviour' that were scored 'present' were determined over the fragments: for the scores of staff members and people with profound intellectual disabilities together, for staff members and people with profound intellectual disabilities separately, and for staff members and people with profound intellectual disabilities separately for both the meaningful moment and its onset. Finally, the spreading of the use of behaviour over time was visualised for the simple behavioural categories that, over the three fragments, were, on average, present for more than 20% of the time: for each dyad, for both staff members and people with profound intellectual disabilities separately. Therefore, 'looking', 'movement' (scored 'present' when 'movement with head', 'movement with torso', 'movement with right arm' and/or 'movement with left arm' were present), 'touching' (scored 'present' when 'touching with head', 'touching with torso', 'touching with right arm' and/or 'touching with left arm' were present), and 'vocalisations' were visualised in horizontal bars: 10 bars for each dyad – two bars per category, with the upper one presenting the behaviour of staff (S1, S2 and S3) and the lower one presenting the behaviour of the person with profound intellectual disabilities (P1, P2 and P3).

## 3 | RESULTS

The findings for "What behaviours characterise moments of interaction that are valued as meaningful by staff, and what behaviours characterise their onset?" are presented below.

### 3.1 | Percentual behavioural characterisation of a meaningful moment of interaction and its onset

For each of the three fragments, the percentage of time for each behavioural category from the coding system was calculated, both during the onset and during the meaningful moment of interaction, for the staff members and people with profound intellectual disabilities individually (see Table 3).

To explore these percentages, the average percentages for 'looking', 'facial expression', 'movement', 'touching', 'sounds', 'vocalisations', 'physical guidance/support', 'gestures' and 'active playing behaviour' were determined, with respect to the three fragments for the staff members and people with profound intellectual disabilities combined. Subsequently, these average percentages were determined for staff members and people with profound intellectual disabilities separately. Finally, for staff members and people with profound intellectual disabilities, the average percentages of time that each of these behaviours was present for were calculated, both for the meaningful moment and for its onset (see Table 4).

First, the exploration of the presence of the behavioural categories over the three coded fragments showed that, generally speaking, the average percentages of time for 'looking', 'movement' and 'touching' were the highest (12%–69%), the average percentages of time for 'facial expression', 'gestures' and 'active playing behaviour' were the lowest (0%–7%), whilst all the behavioural categories could be scored for at least 90% of the time on average, with the exception of 'facial expression' which could be scored, on average, for around 65% of the time. With respect to 'movement', the percentages of time for 'head movement', 'movement with left arm' and 'movement with right arm' were highest (74.1%, 66.1% and 68.3%, respectively), whilst in relation to 'touching' the percentage of time for 'touching with the left arm' and 'touching with the right arm', were highest (63.4% and 63.6%, respectively). Second, when comparing the average percentages of staff members and the people with profound intellectual disabilities, the average percentages of staff were all higher (0%–83% of the time) than those of the people with profound intellectual disabilities (0%–67% of the time). Third, when comparing the average percentages for the meaningful moments and their onset across the fragments, for staff members and the people with profound intellectual disabilities separately, the average percentage of time staff members engaged in 'looking', 'movement', 'touching', 'vocalisations', 'physical guidance/support' and 'active playing behaviour' was higher during the meaningful moments of interaction than at their onset, whilst the average percentages for 'facial expression' and 'sounds' were lower. For the people with profound intellectual disabilities, the average percentages of time behaviour were (a little) higher during the meaningful moments than during the onset for 16 of the 19 behavioural categories: the percentage of time they 'looked' was lower during the meaningful moment compared to the onset, whilst they did not display any 'gestures' or 'active playing behaviour' at all. Finally, when comparing the percentages of time that the behavioural categories were present within each dyad, it was found that the percentages of time behaviours were exhibited by staff members and/or people with profound intellectual disabilities differed across the dyads. For example, the person with profound intellectual disabilities from dyad 1 'looked' over 90% of the time during both the onset and the meaningful moment itself, whilst the person with profound intellectual disabilities from dyad 3 'looked' 22% of the time during the onset and 6.4% of the time during the meaningful moment. Similarly, the staff member from dyad 1 'vocalised' over 60% of the time during both the onset and the meaningful moment itself, whilst the staff member from dyad 2 'vocalised' for 13.2% of the time during the onset and for 2.7% of the time during the meaningful moment.

**TABLE 3** Percentage of time behaviour 'present'.

| | Dyad 1 | | | | Dyad 2 | | | | Dyad 3 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Staff member | | Person with profound intellectual disabilities | | Staff member | | Person with profound intellectual disabilities | | Staff member | | Person with profound intellectual disabilities | |
| | *Onset* | *During meaningful moment* | *Onset* | *During meaningful moment* | *Onset* | *During meaningful moment* | *Onset* | *During meaningful moment* | *Onset* | *During meaningful moment* | *Onset* | *During meaningful moment* |
| Look | 60.7 | 59.3 | 97.3 | 90.2 | 83.1 | 100 | 70.3 | 57.3 | 92 | 94.1 | 22.0 | 6.4 |
| Facial expression | 0 | 6.3 | 3.7 | 3.2 | 17.9 | 0 | 0 | 0 | 6.1 | 1.2 | 11.3 | 30.5 |
| Movement with | | | | | | | | | | | | |
| Head | 82.8 | 72.9 | 96.4 | 76.6 | 59.2 | 97.3 | 77.2 | 76.7 | 92.3 | 92.7 | 21.7 | 42.4 |
| Torso | 55.7 | 39.5 | 62.4 | 58.6 | 36.1 | 94 | 56.4 | 92 | 90.4 | 66.7 | 0 | 21.9 |
| Left arm | 67.2 | 39.4 | 72.9 | 55.1 | 34.5 | 98 | 46.1 | 47.3 | 86.1 | 93.9 | 63.2 | 89.8 |
| Right arm | 77.6 | 48.6 | 79.2 | 74.2 | 50.8 | 83.3 | 57.1 | 98.7 | 97.7 | 62.2 | 13.9 | 76.4 |
| Touch with | | | | | | | | | | | | |
| Head | 70.8 | 62.2 | 0.8 | 3.1 | 0 | 6.7 | 0 | 0 | 0 | 0 | 0 | 0 |
| Torso | 97.7 | 61.6 | 98.4 | 61.6 | 0 | 7.3 | 3.5 | 100 | 0 | 0 | 0 | 0 |
| Left arm | 98.3 | 100 | 27.7 | 80.4 | 10 | 100 | 0.9 | 100 | 30.8 | 100 | 12.5 | 100 |
| Right arm | 89.5 | 100 | 85.7 | 68.6 | 22.4 | 100 | 4.3 | 100 | 52.0 | 82.8 | 0 | 57.9 |
| Sounds | 0 | 0 | 4.0 | 30.3 | 0 | 0 | 0 | 0 | 9.9 | 0 | 6.0 | 0 |
| Vocalisations | 67.3 | 61.4 | 4.9 | 13.0 | 13.2 | 2.7 | 12.3 | 0 | 30.7 | 66.2 | 2.5 | 9.8 |
| Physical guidance/ support with | | | | | | | | | | | | |
| Torso | 97.7 | 61.5 | 0 | 6.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Left arm | 92.8 | 100 | 0 | 0 | 3.6 | 100 | 0 | 0 | 18.9 | 5.8 | 0 | 0 |
| Right arm | 52.8 | 59 | 2.0 | 0.3 | 3.6 | 100 | 0 | 0 | 41.5 | 0 | 0 | 0 |
| Gestures | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Active playing behaviour | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35.6 | 0 | 0 |

**TABLE 4** Average percentage of time behaviour 'present'.

| | Over all fragments | | | | | | |
|---|---|---|---|---|---|---|---|
| | In general | Staff | Person with profound intellectual disabilities | Staff | | Person with profound intellectual disabilities | |
| | | | | *Onset* | *During meaningful moment* | *Onset* | *During meaningful moment* |
| Look | 69 | 82 | 57 | 79 | 85 | 63 | 51 |
| Facial expression | 7 | 5 | 8 | 8 | 3 | 5 | 11 |
| Movement | 56–74 | 64–83 | 49–67 | 61–78 | 65–88 | 40–65 | 58–83 |
| Touch | 12–64 | 23–75 | 1–54 | 24–55 | 23–100 | 0–34 | 1–94 |
| Sounds | 4 | 2 | 7 | 3 | 0 | 3 | 10 |
| Vocalisations | 24 | 40 | 7 | 37 | 43 | 7 | 8 |
| Physical guidance/ support | 14–27 | 27–54 | 0–1 | 33–38 | 21–69 | 0–1 | 0–2 |
| Gestures | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Active playing behaviour | 3 | 6 | 0 | 0 | 12 | 0 | 0 |

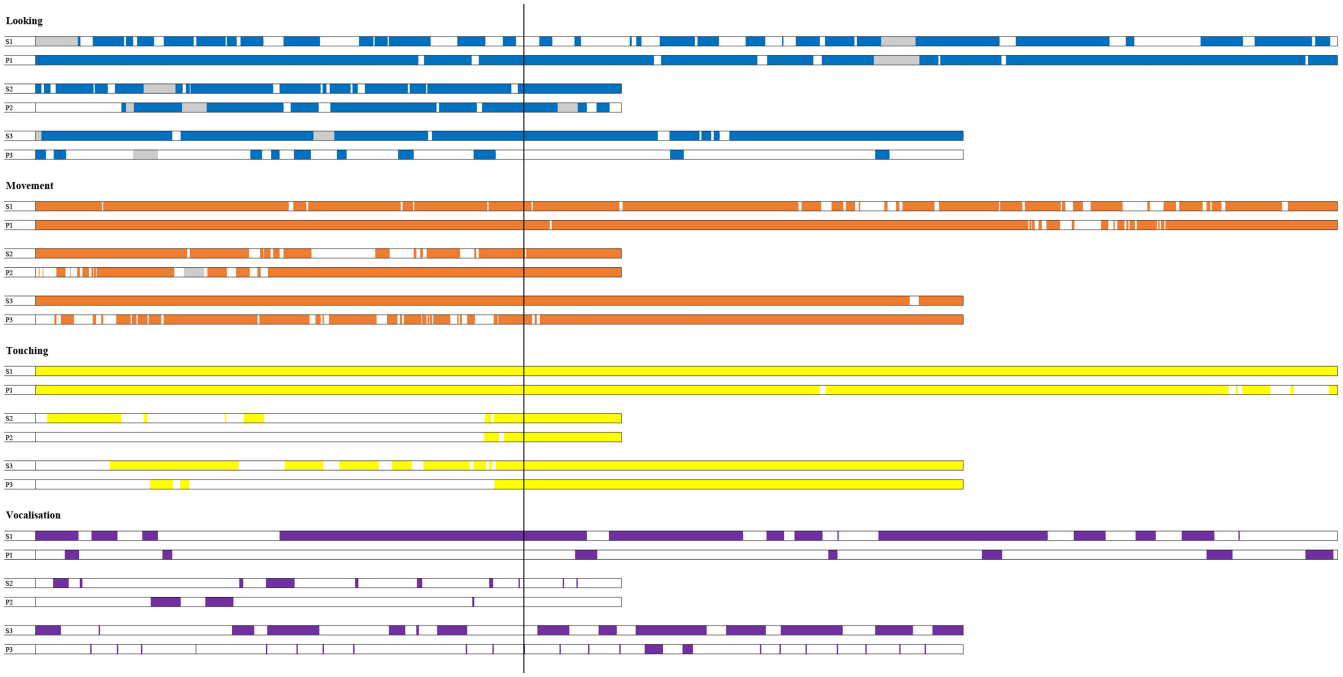


**FIGURE 1** Visualisation of behaviour during a meaningful moment and its onset.

## 3.2 | Visualisation of behaviour during meaningful moments and their onset

To demonstrate how the behavioural categories were divided over time, Figure 1 shows when staff members (upper bar; S1, S2 or S3) or people with profound intellectual disabilities (lower bar; P1, P2 or P3) displayed the relevant behaviour ('looking' – blue, 'movement' – orange, 'touching' – yellow, 'vocalisation' – purple). It also depicts when they did not exhibit the relevant behaviour (white parts) or when the relevant behaviour could not be scored (grey parts). The black vertical line was added to show the starting point of the meaningful moment of interaction as indicated by the staff members themselves. On the left-hand side of the vertical line, the coloured parts show during which timeframes the relevant behaviour took place in the thirty-second period prior to the meaningful moment of interaction (*its onset*), whilst the right-hand side of the vertical line visualises what actual behaviour took place *during* the meaningful moment of interaction.

Figure 1 shows the level of variation concerning 'looking', 'movement', 'touching' and 'vocalisation' between the staff members and

people with profound intellectual disabilities during both the meaningful moment and its onset, which is also presented in numbers/percentages in Table 3. Furthermore, it highlights the division of the use of the relevant behaviour over time, alongside the duration of each of the times that the behaviour was displayed. For example, P1 and P2 vocalised less frequently than P3, whilst their vocalisations were also of a longer duration.

## 4 | CONCLUSION AND DISCUSSION

In this exploratory study, three dyads comprising support staff and people with profound intellectual disabilities were filmed whilst interacting in order to explore the behaviour that characterises meaningful moments of interaction and their onset. The conscientious development of a coding scheme subsequently led to a coding system that was suitable for meticulously describing the behaviour of support staff and people with profound intellectual disabilities during meaningful moments of interaction. Based on video fragments, overall, 'looking', 'movement' and 'touching' were the most exhibited behaviours, and support staff generally showed more behaviours in comparison to people with profound intellectual disabilities, although differences between the dyads were found.

The coding system that was developed was used to score the behaviour of support staff and people with profound intellectual disabilities during three meaningful moments and their onset, and it is our contention that the extensive guidelines and training made it possible to code their behaviour reliably. The strength of the coding system derives from its strict focus when scoring the simple behavioural categories. First, the focus was realised by the coder having to decide for each 0.04 s timeframe whether the behaviour was present or not, by scoring the behaviour timeframe by timeframe as opposed to continuously coding, a process which involves the coder playing the video and being attentive to registering the onset or cessation of the behaviour (e.g., Van keer et al., 2019). Second, the focus was realised by coding the behaviour of one person at a time, irrespective of the behaviour of other person(s) and/or the context, as opposed to describing a person's behaviour in relation to the behaviour of another person (or multiple people) and/or the context using thick descriptions (e.g., Dhondt et al., 2021). Third, the focus was enhanced by coding 'movement,' 'touching' and 'physical guidance/support' separately for different body parts (head, torso, left arm and right arm). During coding, the coders experienced that the strict focus was necessary for coding the beginning and cessation of simple behavioural categories as precisely as possible. Nonetheless, they experienced that coding in this way still posed challenges, due to, for example, the subtlety of a behavioural change or because the coder had to integrate information. Because of these challenges, 'direction' turned out to be hard to score reliably for the support staff, whilst 'mood' and 'tension' turned out to be hard to score reliably for people with profound intellectual disabilities. One explanation for the latter might be the necessity of knowing a person with profound intellectual disabilities well, in order to recognise their mood or if they are experiencing tension, as pointed out by parents and support staff in previous research (Kruithof et al., 2020; Nieuwenhuijse et al., 2022). One additional explanation for the relatively low percentages of agreement between coders for 'mood' and 'tension' might be that 'mood' and 'tension' seldomly varied during the coded fragments, which means that a difference in score between coders resulted in systematic disagreement.

The results of the present study demonstrate that during meaningful moments and their onset, 'looking,' 'movement' and 'touching' were, generally speaking, the most frequently observed behaviours. 'Facial expression', 'gestures' and 'active playing behaviour' were found to be the least observed, whilst the other behavioural categories, such as, for example, 'vocalisations' scored somewhere in between. The high scores for 'looking', 'movement' and 'touching' found in the current study are in line with the behavioural modalities parents and infants engage in as part of their interactions during infants' initial phase of life (Feldman, 2007). In contrast, the (relatively) low scores for 'facial expression' and 'vocalisations' observed in this study are not in accordance with the relatively prominent use of these modalities by infants and/or parents during the first year of an infant's life (Feldman, 2007). Additionally, the low percentage for 'facial expression' found in this study differs from previous findings that showed higher percentages of use of 'facial expression' of both support staff and people with profound intellectual disabilities during interactions (e.g., Forster & Iacono, 2014). Firstly, the difference in findings might be explained by the difference in methods used to explore the display of behaviour during interactions between people with profound intellectual disabilities and support staff. For example, Forster and Iacono (2014) explored, among others, the occurrence of behavioural modes during moments of affect attunement between support staff and people with profound intellectual disabilities. For this exploration, they first selected and then coded potential moments of affect attunement. In their article, the criteria for selecting these potential moments of affect attunement are not specified. If this selection process was influenced by the facial expressions of support staff and/or people with profound intellectual disabilities, this, as such, might have affected the prevalence of facial expression they found during the potential moments of affect attunement. In the current study, not just the meaningful moments were coded, but also their onset. The findings of the current exploration suggest that other behavioural modalities are more predominant than facial expression in the interaction between support staff and people with profound intellectual disabilities. Second, the difference in the findings might be explained by the high percentage of time that it was not possible to score 'facial expression' within the present study. The low scores for 'gestures' and 'active playing behaviour' observed in this study are in line with the findings of Van keer et al. (2019), who suggest that the limited use of those behavioural categories by the parents in their study might be related to the developmental age of the participating children with profound learning disabilities.

When comparing the percentage of time that staff members and people with profound intellectual disabilities displayed certain behaviour, the results indicate that, generally speaking, compared to people with profound intellectual disabilities, regarding the simple

behavioural categories staff members exhibited more 'looking', 'movement', 'touching' and 'vocalisations'. Conversely, during the coded fragments, people with profound intellectual disabilities exhibited a little more 'facial expressions' and 'sounds' compared to the support staff. One potential explanation for the more frequent use of behaviour by staff members might be that staff have more (motor) abilities than people with profound intellectual disabilities (Dhondt et al., 2021). Support staff might also persevere more in terms of taking the initiative to invite the person with profound intellectual disabilities to respond. This explanation would be in accordance with the results of Forster and Iacono (2008), who found that support staff need to show initiative on multiple occasions to trigger a response from people with profound intellectual disabilities. Although caregivers use various behavioural modalities in their interactions with people with profound intellectual disabilities, previous findings indicate the predominant use of vocalisations (Forster & Iacono, 2014; Van keer et al., 2019). Therefore, the percentage of time that staff used vocalisations in the present study was truly remarkable. The relatively limited use of vocalisations by the support staff in the coded fragments, combined with their frequent use of touching and movement, has been explored previously (e.g., Bos & Abma, 2022) and might be valued as a positive aspect of their practice. More specifically, Bos and Abma (2022) suggest that opening up to using non-verbal modalities might lead to richer and deeper connective interactions between people with profound intellectual disabilities and others. Regarding the complex behavioural categories, support staff displayed more 'physical guidance/support' and 'active playing behaviour' in comparison to people with profound intellectual disabilities, which is in line with the findings of Van keer et al. (2019).

When comparing the presence of behaviour during the onset and the meaningful moment, both support staff and people with profound intellectual disabilities displayed 'movement' and 'touching' more frequently during meaningful moments than during their onset. The differences in the percentages were higher for people with profound intellectual disabilities than for staff. Moreover, for support staff this higher percentage of 'touching' overlapped with an increase when 'physical guidance/support' was used, which was not the case for people with profound intellectual disabilities. Consequently, the higher scores for 'movement' and 'touching' during the meaningful moments of interaction for people with profound intellectual disabilities might be interpreted as people with profound intellectual disabilities being more engaged in the interaction during the meaningful moment than during its onset. This is in line with the finding of Penninga et al. (2022), that for support staff experiencing a moment of interaction as meaningful is related to experiencing a connection with a person with profound intellectual disabilities. Martin (2020) previously suggested the connection between support staff and people with profound intellectual disabilities requires the attentiveness of both interaction partners and mutual involvement. The findings of the current study, might indicate that attentiveness and involvement of the person with profound intellectual disabilities during meaningful moments of interaction are visible in enhanced engagement, for example in (tiny) responses or behavioural changes. Moreover, the enhanced engagement of people with profound intellectual disabilities during meaningful moments of interaction might be explained in line with the previous finding of Penninga et al. (2022) that a behavioural response or initiative of a person with profound intellectual disabilities as such, can be experienced as meaningful by support staff, as the responses and initiatives of people with profound intellectual disabilities can be scarce. As such, support staff in the current study might have valued moments of interaction as meaningful due to the response people with profound intellectual disabilities gave. If that was indeed the reason they selected these moments, the finding that people with profound intellectual disabilities showed relatively more behaviour during a meaningful moment compared to during its onset is not surprising. An in-depth exploration of the motives of support staff for valuing specific moments of interaction as meaningful is needed to validate.

When comparing the present behaviour of the three staff members with each other as well as that of the three people with profound intellectual disabilities with each other, differences were found with respect to both the presence of certain behavioural categories and their division over time. One potential reason for the differences between staff members might be that they attune their behaviour to the specific needs and characteristics of the person with profound intellectual disabilities they are working with. After all, staff members develop the most adequate and mutually rewarding way to interact with each specific person with profound intellectual disabilities (Forster & Iacono, 2008). Moreover, both the personal characteristics and style of the individual staff member might influence their interactional behaviour (Bos & Abma, 2022). The differences in behaviour observed among people with profound intellectual disabilities can be related to their characteristics and specific abilities (Martin, 2020). Finally, the context in which the coded fragment occurred may also have impacted upon the behaviour that was exhibited. For example, in dyad 1, the person with profound intellectual disabilities and the staff member sat together on the bed, with the staff member sitting behind the person with profound intellectual disabilities, which might have impacted upon the percentage of time the person with profound intellectual disabilities touched the staff member with her head. In future research, it would be valuable to explore the extent to which behaviour is person-bound and/or dyad-bound, which, in turn, would require coding and analyzing more fragments in a wider variety of situations. The duration of the onset (30 seconds) appeared to be sufficiently long for the person with profound intellectual disabilities to exhibit behaviour several times, as evidenced by the fact that most of the behavioural categories were present during the onset. Further research would make it possible to gain additional insight into the number of responses needed to characterise the onset of a meaningful moment, which, in turn, would allow for the determination of a more evidence-based duration of the onset.

### 4.1 | Limitations

Microanalytic coding led to more than 4300 measurements per interaction partner (i.e., staff member and person with profound intellectual disabilities) regarding the presence of behaviour for each of the 19 behavioural categories. This considerable amount of data was quantitively analyzed to make the qualitative experience of meaningful moments of interaction concrete and tangible. Additionally, as data were collected in three dyads (one moment of interaction in each dyad), this study must be considered exploratory. The findings provide an overview how many times three experienced, female support staff and young people with profound intellectual disabilities engaged in predetermined behaviour during a meaningful moment of interaction and its onset. To validate the findings for support staff and people with profound intellectual disabilities, more video fragments from various dyads and situations would need to be coded and analyzed. Furthermore, the inclusion of parents in future research would be valuable. The differences in role, bond and experiential knowledge between parents and support staff of people with profound intellectual disabilities would deepen the exploration of the relation between experienced meaningfulness and observable behaviour during moments of interaction.

While the focus on describing interactions within real-life situations by filming in daily situations can be considered a strength of this study, filming in daily situations also negatively affected the quality of the recordings. As daily situations are characterised by varying positions of the interactional partners (e.g., towards each other) and spatial movement (e.g., from one room to another), body parts were not visible in parts of the recordings, even with the camera operator adapting to these varying positions and movements to the best of their ability. This resulted in behavioural categories that could not be coded, such as, for example, the percentage of time for 'facial expression', which may have impacted upon the study's outcomes. Furthermore, the perspective the camera operator adopted when recording a situation may have also affected the coding, as the angle of filming affects the perception of the position of body parts (e.g., on the recording it might look like two body parts were touching each other, whilst in reality there was space in between). Future research should seek to optimise the circumstances for coding when an interaction is recorded via a hand-held camera (for example, because the participants are expected to move through space during recording) by writing a 'film-script' beforehand. In this script, the expected transfers in setting during filming could be described (e.g., moving from one place to another, or changing body position), which, in turn, would make it easier for the camera operator to adapt and optimise their position whilst filming.

## 5 | IMPLICATIONS

The findings of this study indicate that people with profound intellectual disabilities are more actively involved in interacting during meaningful moments than during their onset, due to relatively showing more touching and movement. Therefore, in order to enhance the chances of meaningful moments of interaction taking place in their daily practice, support staff should strive to create circumstances in which people with profound intellectual disabilities can optimally move and touch them. Resultantly, the person with profound intellectual disabilities might become more involved and enhance the influence on their life, thereby contributing to a greater quality of life (Kuld et al., 2023; Nieuwenhuijse et al., 2022). Alongside this, for support staff, the experience of being able to create circumstances that are conducive to people with profound intellectual disabilities becoming more involved in the interaction will positively contribute to their job satisfaction. After all, meaningful moments of interaction are one of the reasons that they chose this line of work in the first place (Penninga et al., 2022). Analyzing interview data from staff members describing what makes specific moments of interaction with people with profound intellectual disabilities meaningful and combining this information with the behaviour exhibited during a meaningful moment of interaction, would provide further guidance to (unexperienced) support staff about what to focus on in order to experience meaningful moments of interaction with people with profound intellectual disabilities.

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### CONFLICT OF INTEREST STATEMENT

The authors declare that they have no conflicts of interest.

### DATA AVAILABILITY STATEMENT

Research data are not shared.

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