Applying the Intervention Model for Fostering Affective Involvement with Persons Who Are Congenitally Deafblind: An Effect Study

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Structured abstract: *Introduction:* In this study, we applied the Intervention Model for Affective Involvement (IMAI) to four participants who are congenitally deafblind and their 16 communication partners in 3 different settings (school, a daytime activities center, and a group home). We examined whether the intervention increased affective involvement between the participants and their communication partners and whether it increased positive emotions and reduced negative emotions in the participants. *Methods:* We used video observations in a multiple-baseline design across subjects to assess the effects of the 20-week intervention on the communication partners' interactions with the participants. *Results:* After onset of the intervention, affective involvement increased for three participants, while all four participants showed an increase in positive emotions and a decrease in negative emotions. During follow-up, the positive effect on the participants' behaviors decreased in most cases, but remained visible as compared to the baseline level. *Discussion:* The findings demonstrate that the IMAI can be successfully applied to persons who are congenitally deafblind. Given the small number of participants, replication of the intervention is recommended. *Implications for practitioners:* Affective involvement can be increased by training, but it is difficult to maintain this effect over time. Coaching of communication partners on a more permanent basis is recommended to maintain the sharing of emotions between persons who are congenitally deafblind and their communication partners.

Affective involvement, or the mutual sharing of emotions, is vital to regulate emotions and develop secure attachment relationships (for a review, see Diamond & Aspinwall, 2003). Given the importance of affective involvement in human relationships, it is regrettable that it rarely occurs between persons who are congenitally deafblind and their communication partners. This low occurrence is due to communication constraints caused by congenital deafblindness (Rødbroe & Souriau, 1999), but it has been shown that affective involvement can be fostered by training the communication partners (Chen, Klein, & Haney, 2007; Janssen, Riksen-Walraven, & Van Dijk, 2003; Martens, Janssen, Ruijssenaars, Huisman, & Riksen-Walraven, 2014b).

In a previous paper we introduced the Intervention Model for Affective Involvement (IMAI) to improve affective involvement during interaction and communication between persons who are congenitally deafblind and their communication partners (Martens, Janssen, Ruijssenaars, Huisman, & Riksen-Walraven, 2014a). An intervention based on this model was evaluated in a single-case study (Martens et al., 2014b). After onset of the intervention, affective involvement between the participant and his communication partners increased, as did the participant's positive emotions, while his negative emotions decreased.

The aim of the present study was to apply the IMAI to four participants who are congenitally deafblind (henceforth referred to as "clients") and their 16 communication partners in different settings and interactional situations, and to examine the effectiveness of the intervention. We examined: (1) whether the intervention increased affective involvement and positive emotions and reduced negative emotions across clients, and (2) whether the intervention was effective across communication partners (teachers, teacher assistants, caregivers, caregiver assistants), interactional situations, and settings (schools, group homes, daytime activities centers).

Method

Participants and settings

The study followed the tenets of the World Medical Association Declaration of Helsinki on Ethical Principles for Medical Research Involving Human Subjects and was approved by the Institutional Review Board of Royal Dutch Kentalis. Informed consent was obtained from the clients' parents, legal representatives, and communication partners.

Four clients (Clarice, Bryan, Dewy, and Nick, see Table 1; all names are pseudonyms) and 16 female communication partners (see Table 2) participated. The clients were selected for participation based on three criteria: (a) a dual sensory impairment from birth on, (b) showing difficult emotional behaviors, and (c) a request for coaching by the communication partners. The communication partners were selected based on the following criteria: (a) working frequently with the

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Table 1
Characteristics of the clients.

Client, gender, age	Diagnosis	Sensory impairment	Communicative functioning	Behaviors difficult to interpret and attune to	Physical functioning
Clarice, female, 26	Congenital rubella	Visually impaired and deaf	Pushing, pulling, touching, gesturing, understanding some conventional signs, augmentative communication (full-color pictogram)	Agitation, inactive, self-stimulation	Spastic paralysis of the legs
Bryan, male, 15	Marden Walker syndrome	Visually and hearing impaired	Pushing, pulling, touching, gesturing, vocalizing comfort and discomfort, understanding some concrete objects of reference, reacting to name calling	Protesting, non-cooperative, self-stimulation	Motor and balance problems
Dewy, female, 15	Severe shortage of oxygen at birth	Visually and hearing impaired	Speech, gesturing, some conventional signs, augmentative communication (drawing, black-and-white pictogram)	Aggressive, reactive, compulsive, easily distracted	Epilepsy
Nick, male, 54	Congenital rubella	Blind and deaf	Pushing, pulling, touching, gesturing, some objects of reference, understanding two conventional signs (drinking, finished)	Aggressive, agitation, self-injurious and dominant behaviors (pushing and pulling)	Diabetes at older age; high blood pressure

client, and (b) having difficulties in sharing emotions with the client.

The communication partners received coaching from three coaches (one for Clarice and Nick, one for Bryan, and one for Dewy). The coaches were familiar with the aim, principles, and protocol of the IMAI, and they were skilled in

Table 2
Characteristics of the clients' communication partners.

Client	Number of communication partners	Age of communication partners	Years of work experience with clients	Function
		Range M (*SD*)	Range M (*SD*)	
Clarice	4	21–41	1.5–10	Caregiver (3)
		30.25 (8.46)	5 (4.1)	Caregiver assistant (1)
Bryan	3	46–54	9–25	Teacher (2)
		50.67 (4.17)	14.67 (7.3)	Teacher assistant (1)
Dewy	5	35–55	4–25	Teacher (2)
		44.6 (8.27)	16.4 (8.88)	Caregiver (1)
				Caregiver assistant (2)
Nick	4	22–49	1–25	Caregiver assistant (4)
		35 (12.94)	9.25 (9.81)	
Total	16	21–55	1–25	Teacher (4)
		39.75 (11.93)	11.87 (9.32)	Teacher assistant (1)
				Caregiver (4)
				Caregiver assistant (7)

conducting video analysis and coaching with video feedback. They had extensive work experience and were specialized in interaction and communication with persons who are congenitally deafblind.

The study was conducted in structured settings involving a fixed-day program (school: Bryan, and Dewy; daytime activities center: Clarice) and in unstructured settings involving a more flexible day program (group home: Clarice, Dewy, and Nick). All these settings are part of Royal Dutch Kentalis, an organization specializing in auditory and visual disabilities.

The intervention

The IMAI-based intervention aimed to foster affective involvement between the clients and their communication partners during interaction (for phase I of the intervention, see steps 1 through 4 in the Intervention protocol section) and communication (for phase II of the intervention, see steps 5 through 8 in the Intervention protocol section). The intervention principles were to improve the communication partners' competence in: (a) recognizing affective behaviors, (b) attuning to interactive behaviors, (c) sharing meaning for better understanding, (d) sharing emotions and evaluating the adequacy of their own affective behavior during interaction and communication, and (e) adapting the context to promote affective involvement.

The coaches followed the seven-step protocol to foster affective involvement and trained the communication partners using team and individual coaching in steps 4 and 6. Coaching included video analysis, information transfer, and role-playing (Martens et al., 2014a).

Intervention protocol

The first phase of the intervention protocol, "Phase I: Intervention focusing on Interaction**,"** that was followed by the coaches involved the following steps:

Step 1. Determining the question. The communication partners of the four clients requested coaching.

Step 2: Clarifying the question. Information on the clients' characteristics was gathered and relevant interactional situations were chosen in consultation with the communication partners. Table 3 lists the target questions for the clients.

Step 3: Analyzing interactions. Recordings of interaction situations with each client were analyzed to formulate intervention aims based on the four core categories, defined by Martens et al. (2014a) as: (a) attention: focusing on the interaction partner, the content of the interaction, and the persons or objects within the interaction context; (b) initiatives: starting an interaction or raising a new idea or issue as part of a reaction; (c) regulating intensity: waiting while the client is adapting the intensity or pace of the interaction or is processing new information; and (d) affective involvement: recognizing positive and negative emotions and sharing these emotions in a positive way that is perceivable for the client. Table 3 shows the intervention aims and interactional situations for all clients.

Step 4: Implementing intervention focusing on interaction. During two 120-minute team coaching sessions and three 60-minute individual sessions over 10 weeks, the communication partners were trained to change their interactive behaviors. The client's communication modalities were taken into account (see the

Table 3
Target questions for coaching, intervention aims, and interactional situations in the different settings per client.

Client	Target questions for coaching	Intervention aims: Phase I: Interaction	Intervention aims: Phase II: Communication	Settings and interactional situations
Clarice	(a) When does she express negative emotions? (b) How can we regulate agitation and self-stimulation? (c) How can we establish enjoyment and mutual interactions with her?	• Recognizing and interpreting positive and negative emotions • Regulating negative emotions • Sharing positive emotions • Increasing mutuality and enjoyment	• Sharing positive and negative emotions • Sharing positive interactions more often	Group home: leisure and household activities; daytime activities center: unstructured and structured activities
Bryan	(a) How can we be explicit without being harsh? (b) How can we enhance his positive emotions? (c) How can we share different states of emotions?	• Interpreting and attuning to different states of emotions • Evoking positive emotions • Sharing negative emotions	• Expressing intentions clearly and interpreting his emotional behaviors • Sharing joyful experiences	School: eating yoghurt in the afternoon
Dewy	(a) How can we improve independent acting without losing control of the situation? (b) How can we establish mutual trust and have a joyful contact?	• Providing predictable interactions • Reducing negative tension • Increasing positive emotions • Sharing positive emotions	• Sharing positive emotions more often • Reducing negative experiences	School: making music, arts and crafts Group home: leisure and household activities
Nick	(a) How can we prevent him from having negative emotions? (b) How can we regulate his negative emotions? (c) How can we promote mutuality and foster positive emotions?	• Reducing negative emotions • Regulating negative emotions • Increasing mutuality and fostering positive emotions	• Being an interesting and enjoyable partner • Sharing meaningful experiences • Sharing positive emotions	Group home: having afternoon coffee, having dinner

communicative functioning column in Table 1) and the communication partners were coached to foster affective involvement while simultaneously focusing on the four core categories. The following are examples of activities for each category: (1) attention: communication partners were taught to tap on an object together with the client or to co-actively roll a ball on the floor; (2) initiatives: communication partners were taught to reduce or repeat initiatives; (3) regulating intensity: communication partners were taught to wait for the client's initiative or to exaggerate their movements; (4) affective involvement: communication partners were taught to

share emotions tactilely by rubbing the client's arm or imitating muscle tension. The steps for "Phase II: Intervention focusing on communication" of the intervention protocol were as follows:

Step 5: Analyzing communication. For the communication phase, new videos were analyzed to formulate intervention aims according to the three core categories of behavior, defined by Martens et al. (2014a) as: (a) sharing experiences: elaborating on events and introducing new events so that the client becomes motivated, feels secure, and knows what is going to happen; (b) sharing meaning: interpreting and affirming the client's expressions of communication and taking turns to negotiate about the correct meaning of an expression; and (c) affective involvement: recognizing positive and negative emotions and sharing these emotions in a positive way that is perceivable to the client. See Table 3 for the intervention aims of the communication phase.

Step 6: Implementing interventions focusing on communication. In a procedure similar to Step 4, the communication partners were trained to change their communicative behaviors. The following are examples of target behaviors: (1) sharing experiences: increasing coactive acting or checking whether information was perceived; (2) sharing meaning: using more turns to negotiate about a certain topic; (3) affective involvement: using friendly facial expressions or using rhythmical vocalizations and higher pitch.

Step 7: Evaluating. The coach evaluated the intervention with the communication partners in a separate team session. Video fragments of the first recordings at baseline and the last recordings of phases I and II were used to support the evaluation.

Fidelity

Intervention fidelity was secured through close collaboration between the coaches and researcher during the implementation of the intervention, and by monitoring (video recording all coaching sessions) and supervising the coaches. Moreover, the coaches followed the seven-step IMAI intervention protocol. In consultation with the communication partners, they formulated aims and target behaviors to ensure the engagement of communication partners. The coaches monitored changes in the behavior of communication partners by reviewing the most recent videos recorded during the intervention.

Design

A multiple-baseline design across subjects was used to examine the functional relationship between intervention conditions (baseline, intervention phase I, intervention phase II, and follow-up) and possible changes in affective involvement between the clients and their communication partners as well as the clients' expressions of negative and positive emotions (described under Observational categories) (Barlow, Nock, & Hersen, 2009). The baseline started in the same week for all clients and was continued while the intervention was randomly introduced for Clarice (week 8), Bryan (week 9), Dewy (week 10), and Nick (week 12). The intervention was followed by follow-up measures after 2, 4, and 6 months.

Observation and measurements

Video recordings of interaction situations of at least 20 minutes were used to observe the effects of the intervention. The situations differed per client (see Table 3). The activities of each communication partner were videotaped weekly during weeks 28–32 and during follow-up. From these videos, 182 recordings in different settings and with different clients were selected for analysis. The observers were not informed about the observation phase, definitions were read before each recording session, and interobserver reliability was checked continuously.

Observation procedure

Time sampling was used for observation: for the first 10 minutes of each recording, the occurrence of the observational categories was noted on a coding form in 30-second intervals (see also Martens et al., 2014b). Three trained observers (the first author, a psychologist, and a master's student in educational psychology) rated the recordings.

Observational categories

Five behavioral categories were observed. The first category, *affective involvement*, is a client–communication partner category: sharing negative and positive emotions in a positive way so that they are perceivable to the client (for instance, rubbing the client's arm when he or she is showing discomfort). The other four categories pertain to emotions displayed by the client: *very negative emotions* (aggressive and self-abusive behaviors); *negative emotions* (negatively tense, bad-tempered, compulsive, or noncooperative behaviors); *positive emotions* (exploring and cooperative behaviors); and *very positive emotions* (laughing and behaviors expressing excitement). Table 4 lists examples of each client's behavior.

Training and reliability

Before data collection, the observers were trained to reach 80% interobserver agreement. Reliability was calculated for 25% of the formal observations (Barlow et al., 2009). Retraining was provided when the percentage of agreement was below 80%. Interobserver agreement ranged from 75% to 100% ($SD = 7.98$) across clients, with a mean agreement of 95% across observation categories. The mean agreement for affective involvement was 98% (range 80%–100%), for very negative emotions 97% (range 75%–100%), for negative emotions 94% (range 82%–100%), for positive emotions 92% (range 77%–100%), and for very positive emotions 91% (range 77%–100%).

Social validity

The communication partners' acceptance of and commitment to the program were secured by consulting the partners repeatedly before, during, and after the intervention. The evolving process was evaluated during the coaching sessions, and the intervention outcomes were evaluated afterwards. The communication partners' perceptions of satisfaction and the usefulness and effectiveness of the intervention were measured with an adapted version of the Social Validity Scale (Martens & Janssen, 2011, according to Seys, 1987).

Table 4
Examples of emotional behaviors per client.

Client	(Very) negative emotions	Negative emotions	Positive emotions	Very positive emotions
Clarice	Screaming, pinching, and hitting communication partners	Ignoring or pushing communication partners away, vocalizations of discomfort	Looking at and touching communication partner, affirming initiatives	Smiling, vocalizing comfort
Bryan	Persistently biting bib, falling onto the floor, stiffening body	Walking away, pulling on communication partner, vocalizations of discomfort	Looking at communication partner, participating in acting, exploring objects	Laughing, flapping arms or jiggling legs
Dewy	Spitting, yelling or screaming, throwing objects	Clinging to communication partner (clothing, hair), restless moving, repeating questions	Friendly smiling, making eye contact, affirmatively responding	Laughing, joking
Nick	Stamping feet, hitting head, vocalizations of discomfort	Pulling and pushing, increasing tempo, increasing muscle tension	Repeatedly and softly touching communication partner, vocalizations of comfort	Brief moments of smiling, asking for head caresses

Results

Effects on behavior

Figures 1 and 2 show the observed occurrence of dyadic affective involvement (client– communication partner) and Figures 3 and 4 show the clients' very positive and (very) negative emotions. Each target behavior is depicted in two figures because of the different nature of settings (see Participants and Settings section): structured (school and daytime activities center) and unstructured (group home).

The left panel of each figure presents the mean occurrence of the target behaviors in the four intervention conditions: baseline, phase I, phase II, and follow-up. The right panel shows the actual data and trend line within the different conditions. Trend lines are not included if less than three observation sessions were videotaped during follow-up.

Affective involvement

Figure 1 shows that affective involvement for Clarice appears to increase during phase I, showing an uptrend line. During phase II, the mean occurrence increases, although a downtrend line is displayed in the right panel. During follow-up, affective involvement decreases with a steeper downtrend line than in phase II.

For Bryan, affective involvement appears during phase I and increases during phase II with upward trends during both phases. During follow-up, affective involvement slightly increases but shows a downward trend line.

For Dewy, affective involvement increases considerably during phase I (showing a downward trend) and slightly

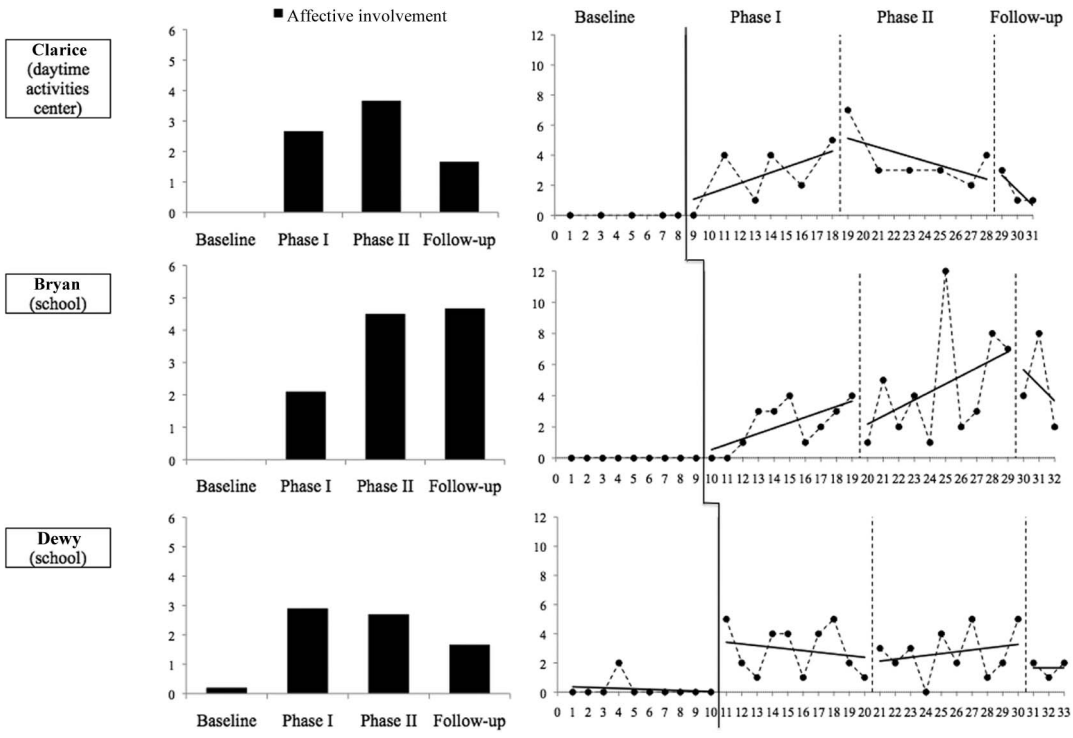

Figure 1. Affective involvement: mean occurrence across the entire phase for each of the four intervention conditions (left), and occurrence during the separate observation sessions within the conditions in structured settings (right).

decreases during phase II (including an upward trend). During follow-up, affective involvement further decreases but remains above baseline.

Figure 2 shows that affective involvement varies for Clarice during phases I and II and follow-up, remaining above baseline conditions. The trendlines during these conditions are all upward.

For Dewy, affective involvement increases during phases I and II, with uptrend lines, while it decreases but remains above baseline conditions during follow-up.

For Nick, affective involvement is observed during one session only in phase I (three times in session 13); it is absent during phase II but appears twice during one of the follow-up sessions.

Very positive and (very) negative emotions

Figures 3 and 4 present the occurrence of (very) negative emotions (negative and very negative emotions summed) and very positive emotions. In the right panel, the occurrence of (very) negative emotions is subtracted from the occurrence of very positive emotions. Hence, positive values indicate that very positive emotions predominate while negative values indicate that negative emotions predominate.

Figure 3 shows that Clarice's (very) negative emotions decrease in phase I, increase in phase II (remaining below baseline), and disappear during follow-up. Very positive emotions increase

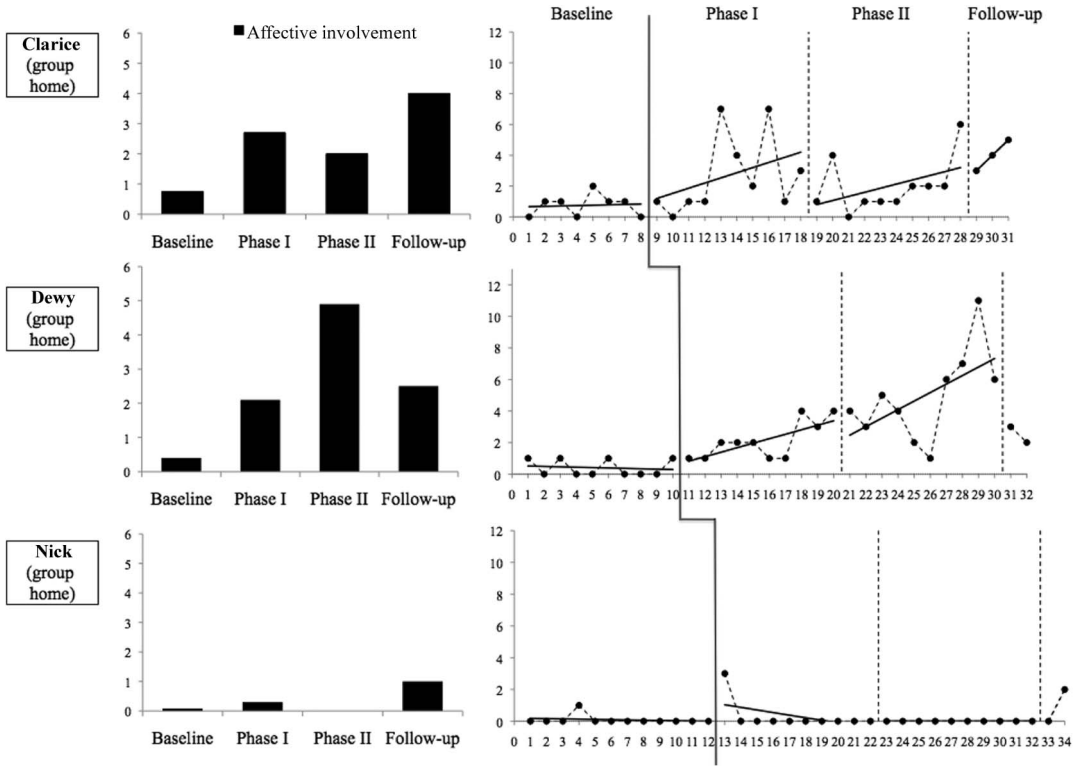

Figure 2. Affective involvement: mean occurrence across the entire phase for each of the four intervention conditions (left), and occurrence during the separate observation sessions within the conditions in unstructured settings (right).

during phase I, decrease slightly during phase II, and increase considerably during follow-up. The right panel shows that the decrease of very positive emotions in phase II is due to a high peak of (very) negative emotions in session 19. Unlike the downward trend during follow-up, upward trends are shown during phases I and II.

For Bryan, (very) negative emotions steadily decrease during phases I, II, and follow-up. Very positive emotions increase during the three intervention conditions. The right panel shows an upward trend during baseline. Phase I shows a slight downward trend, and phase II a slight upward trend, followed by a strong upward trend during follow-up.

For Dewy, (very) negative emotions decrease in phase I, increase slightly in phase II (remaining below baseline), and disappear during follow-up. Very positive emotions increase during phase I, decrease slightly during phase II, and decrease during follow-up. The right panel shows a downward trend during baseline, suggesting that Dewy's (very) negative emotions increase during baseline. Upward trend lines are shown during phases I and II. A downward trend reappears during follow-up.

Figure 4 shows that for Clarice (very) negative emotions decrease during phases I and II and increase again during follow-up (remaining below baseline). Very positive emotions increase during

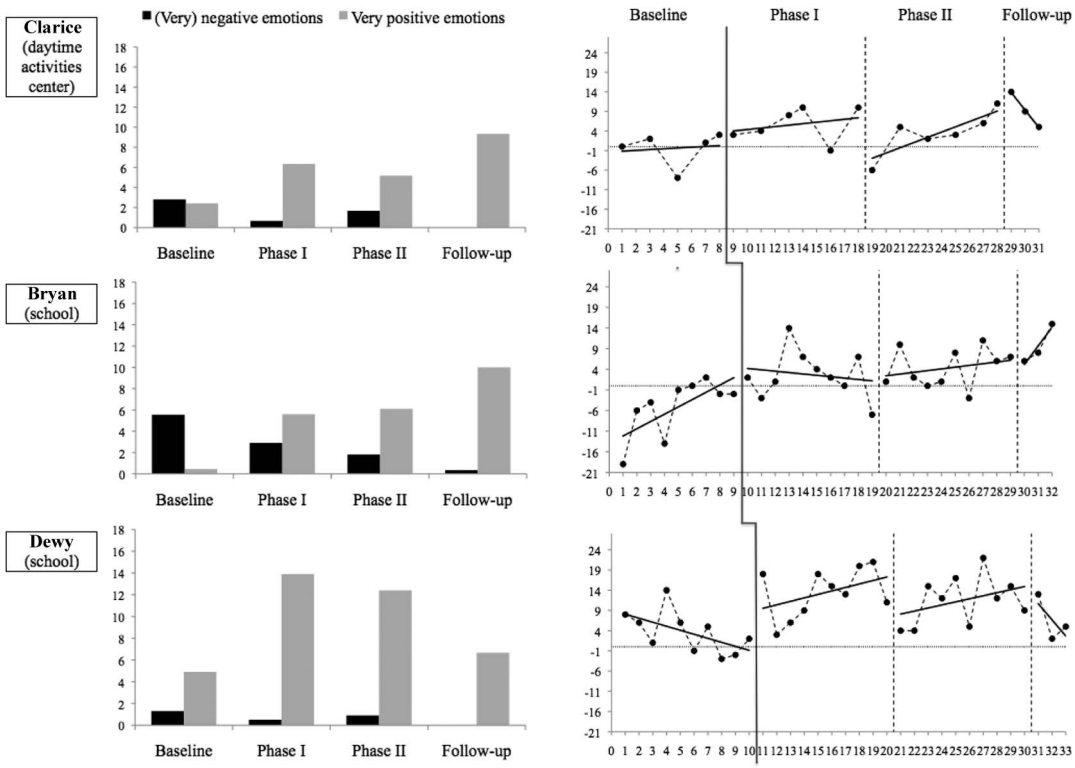

Figure 3. (Very) negative and very positive emotions: Mean occurrence across the entire phase for each of the four intervention conditions (left), and differences between occurrence of very positive and (very) negative emotions (calculated as positive minus [very] negative emotions) in structured settings (right).

phase I, decrease during phase II, and increase again during follow-up. The right panel shows an upward trend line during phase I, a stable trend line during phase II, and another upward trend during follow-up.

For Dewy, (very) negative emotions decrease during phase I, disappear during phase II, and reappear during follow-up (remaining below baseline). Very positive emotions increase during phases I and II, and decrease during follow-up. The right panel shows upward trends during phases I and II.

For Nick, (very) negative emotions disappear during phases I and II and reappear during follow-up but remain below baseline. Very positive emotions appear during phase I and increase during phase II and follow-up. The right panel shows stable trend lines for the conditions during baseline and phases I and II.

Social validity

The ratings on the five-point Social Validity Scale (Martens & Janssen, 2011; 1 = low; 5 = high) were averaged across communication partners. The coaching was judged as "effective" to "highly effective" with preferences for individual coaching (M = 4.5) over team coaching (4.2). The communication partners judged their attitude and communicative skills (4.2) and the client's behavior (3.9)

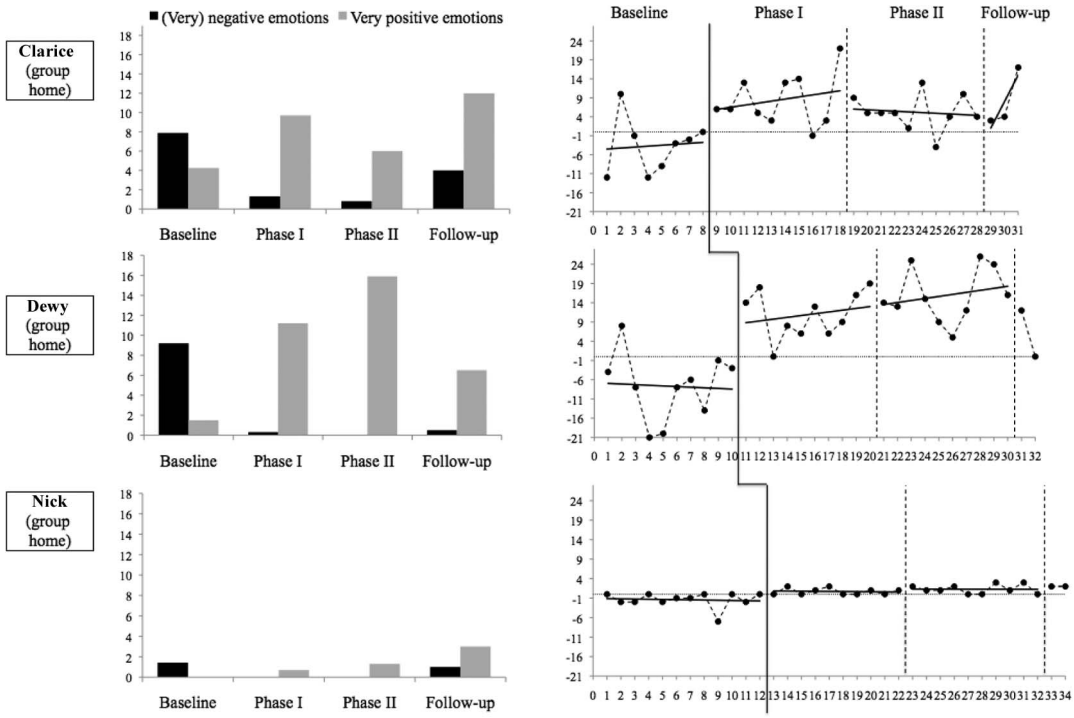

Figure 4. (Very) negative and very positive emotions: mean occurrence across the entire phase for each of the four intervention conditions (left), and differences between occurrence of very positive and (very) negative emotions (calculated as positive minus [very] negative emotions) in unstructured settings (right).

as "positively changed" to "very positively changed," with the best results being for Bryan (4.5 and 4.4). Affective involvement (3.9) was judged to be "somewhat easy to implement" to "easy to implement," with the highest scores being for Clarice (4.2) and the lowest scores for Nick (3.3). In the open comment box in the survey, the communication partners indicated that they could more easily share positive emotions than negative emotions. Sharing attention (3.8), recognizing and interpreting initiatives (3.8), and regulating intensity (3.7) were also judged to be "somewhat easy to implement" to "easy to implement." Sharing experiences (2.9) and sharing meaning (2.7) were judged to be "rather difficult" to implement, with the lowest scores being for Nick (both 2.3).

Discussion

The present study shows that affective involvement and very positive emotions can be improved and (very) negative emotions can be decreased in persons who are congenitally deafblind by coaching their communication partners according to the IMAI. The communication partners learned to attune to their clients' interactive behaviors and emotions and to share emotions and meanings. Three clients showed an increase of affective involvement, and all clients showed an increase of very positive emotions and a decrease of (very) negative emotions. The

intervention also proved to be effective for different communication partners and in different settings and interactional situations. These promising results agree with those of a previous study by Martens et al. (2014b).

For Dewy, affective involvement improved at school immediately after the onset of the intervention (see Figure 3), with high peaks of affective involvement when her communication partner could focus her on one topic at a time. This shows how important it is for communication partners to be able to share a focus on a third element outside the dyadic space with the person with congenital deafblindness. This communication pattern is the most difficult in establishing social interaction with people with congenital deafblindness (Janssen & Rødbroe, 2007).

It is remarkable that affective involvement only increased during follow-up in Clarice's case (group home; Figure 2). Her communication partners continued to apply the IMAI skills learned during coaching (for instance, maintaining the flow of interaction by lowering tempo and repeating initiatives; making use of opportunities for communication by mutually choosing between activities; sharing emotions by persevering in sharing very positive emotions visually and tactilely).

For Bryan, despite the absence of affective involvement during baseline, the upward trend (see Figure 3, right panel) suggests that his emotional behavior had already improved during this condition. Spontaneous improvement of behavior before the intervention begins is a quite common phenomenon in single-case research (Barlow et al., 2009). One explanation for this sudden improvement may be that the communication partners had already—unintentionally—adapted their behavior to Bryan's behavior during baseline.

For Nick, no clear effects for affective involvement were found because the frequency of affective involvement was too low to draw conclusions. But his emotional behavior improved: (very) negative emotions disappeared completely and very positive emotions appeared during phase I and further increased during phase II (see Figure 4). Nick's communication partners indicated that during intervention they could more easily attune their behavior to Nick's behavior, but sharing experiences and sharing meaning (phase II of the intervention) remained difficult due to the few and brief moments of mutual contact. A possible explanation for this is that he has more difficulty making contact because he had few opportunities to develop social communicative relationships during his 40-year stay in group homes run by two different organizations specialized in intellectual disabilities. In those settings, there was a lack of deafblind-specific education involving communicational development within social engagement. A second possible explanation could be that the interaction situations were not the best for eliciting affective involvement with Nick. During evaluation, communication partners reported that affective involvement occurred in other interaction situations such as drinking a beer in a pub. Such situations could be chosen for future interventions with Nick.

Limitations

As noted above, we could have made a more optimal selection of interaction situations to improve affective involvement.

Second, the small number of clients involved restricts generalization to other persons who are congenitally deafblind. Replication of the intervention is therefore recommended (Barlow et al., 2009).

Third, the present study only allows conclusions regarding the effectiveness of the intervention program as a whole on the affective involvement and emotions of the clients. We cannot draw any conclusions about which categories of communication partner behaviors or which specific communication partner behaviors that were assessed during coaching specifically brought about the observed changes in the affective involvement and emotions of the clients. This topic could be explored for future studies directed at increasing the effectiveness of such interventions.

Implications for practice

The IMAI is based on the assumption that focusing on affective involvement during interaction should precede focusing on affective involvement during communication. The communication partners in this study confirmed that this approach was effective, which supports the practicality of the two-phase IMAI-approach.

The social validity outcomes provide useful information on how to maximize the impact of the intervention on practice (Barlow et al., 2009). For example, the communication partners experienced more difficulties in phase II of the intervention: they found sharing experiences and meaning rather difficult to implement. This finding suggests that the intervention could possibly be improved by reducing phase I and extending phase II.

Consistent with previous studies (Janssen et al., 2003; Martens et al., 2014b), our findings indicate that affective involvement can be improved during intervention, but that it is difficult to maintain affective involvement over time. This is not surprising, because it is a constant challenge for the hearing and seeing communication partners to imagine the experience of the person who is congenitally deafblind (Miles, 1999). Affective involvement, though, serves as the most informative and helpful route to understanding another person's emotions. Therefore, we recommend that communication partners of people who are deafblind be constantly coached in fostering affective involvement or at least be coached at regular intervals.

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