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Communication between people with deafblindness: how could it be facilitated?

Information Monitoring Summary

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The information in the following pages is not intended to be an exhaustive review of the literature. The goal was to make directly relevant selected information more readily available. Accordingly, not all articles or documents dealing with the topic have been reviewed.

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Communication between people with deafblindness: how could it be facilitated?

Summary

Deafblindness is a condition comprising the dual impairments of vision and hearing to a more or less severe degree, hampering communication and access to information. The impact of both impairments is intensified or multiplied, as there is no possibility of effective compensation of sensory loss and information received is incomplete, impoverished or distorted. However, most individuals have residual vision and hearing that can potentially be maximized through rehabilitation.

The incidence of deafblindness increases with age and this dual sensory impairment is most often of acquired origin. Besides residual vision and hearing, people can use various **communication modes** and receive rehabilitation services in order to improve their communication skills. It is recommended that these services include **formal training in communication** to optimize the use of vision, hearing and technical aids, language perception and communication. **Adaptation of the environment** to people's vision and hearing needs and **use of effective strategies** (e.g. requests for clarification; conversation repair strategies, etc.) should also be taught.

People with congenital or profound deafblindness represent only about 20% of the population with this dual sensory impairment, but they have far more problems than those with acquired deafblindness. This includes greater difficulty in acquiring communication skills and interpersonal and social relationships, as their dual impairment imposes limitations in terms of both receptive and expressive communication. Even when living in a specialized residence, their interpersonal interactions can be very rare. Unlike their counterparts who have acquired dual impairment later in life, they have not had the opportunity to explore the world with their vision and/or hearing or to participate, interact and really communicate with others.

Support intervention by a trained and experienced third person may be useful or even necessary to manage and facilitate conversation from a directional and participatory perspective. **Philosophical intervention concepts** have been developed by the *Canadian Deafblind & Rubella Association*, and van der Heijden (2009) has explained and used **scaffolding intervention principles.**

Communication between people with deafblindness: how could it be facilitated?

1. Introduction

Workers in the Institut Nazareth et Louis-Braille Deafblind program observe that people with deafblindness often have difficulty communicating with each other, especially face to face. They would like to know if the literature addresses the problem of communication among peers and how this could be facilitated.

The scientific literature on this subject is quite limited, indeed almost non-existent. A number of articles treat communication between children with congenital deafblindness and their parents, educators and schoolmates. But communication between two deafblind persons is almost never addressed. Despite this limitation, some recommendations and intervention leads can be drawn from the literature consulted. Though most of the literature deals with communication between a deafblind person and an interlocutor without sensory impairment, it can still prove useful in a context of communication between individuals with deafblindness.

The first part of this paper gives an overview in order to situate the neophyte reader. It focuses on various deafblind profiles, deafblindness among elderly people, and communication modes. Next, training in communication is discussed. Congenital or profound deafblindness is treated separately, as its impact on communication skills is often much more pronounced than with individuals whose sensory impairments are less severe. Lastly, and more specifically to communication between two deafblind people, support intervention concepts and scaffolding principles for interaction between peers are presented.

2. Deafblindness

Deafblindness is a condition comprising the dual impairments of vision and hearing to a more or less severe degree, hindering communication and access to information. Even when the individual has usable residual vision or hearing, neither of the senses can be used as a main source of information access [2; 12; 24]. It is a rare condition affecting about 1 in 3000 Canadians [2]. In Quebec, approximately 2000 people are affected [12].

Deafblindness can be categorized according to four profiles, according to when the condition appeared [12].

    a. Person who is deafblind from birth or before developing language.

        This group is identified herein by *congenital deafblindness.*

b. Person who has become deafblind (acquired deafblindness).

>   This is the most frequent type of deafblindness among adults and the elderly, who typically present appropriate cognitive and communicational development [12; 24]. In a Montreal study, 69% of deafblind people admitted to rehabilitation were at least 65 years old [26]. They rarely had total deafness and blindness. In Canada, the proportion of people 65 and over who have deafblindness is growing without cease. It was around 45% in 2005, according to statistics cited by Wittich, Watanabe & Gagné (2012).

c. Person deaf or presenting a hearing impairment from birth, losing vision.

>   These individuals have acquired language while significantly using their visual abilities (oral or gestural language); in addition, they already know sign language [12]. Vision loss is therefore a big shock to them, as they are thereby losing their ability to read lips and see facial expressions and signs. Those who use sign language must make a transition to the tactile mode to continue to communicate.

>   The Usher syndrome belongs in this profile. In a study by Wittich et al. (2012), it made up the second largest deafblindness diagnostic group (21 %). The deafness can be moderate or profound from birth, or progressive. The person also experiences a gradual reduction of the visual field and deterioration of night vision.

d. Person blind or presenting a visual impairment from birth, losing hearing.

>   These people generally have developed good language abilities. Some have used Braille or the white cane for a long time. Loss of hearing information causes great difficulties in terms of functional autonomy and communication [12].

People with deafblindness thus present very heterogeneous profiles. Communication difficulties may differ according to: **1.** whether deafness or visual impairment appeared first; **2.** the degree of severity of each of the sensory impairments, and **3.** whether the impairment appeared early or late in life. The time of acquiring dual impairment greatly influences development of the individual's abilities and needs [12].

The disabilities confronting individuals with deafblindness exceed the simple sum of those associated with each sensory impairment considered individually [12; 21]. The impact of both impairments is somewhat intensified or multiplied, as there is no possibility of effective compensation for sensory loss and information received is incomplete, impoverished or distorted. The condition therefore causes significant difficulties in information access, learning, communication, travel and participation [2; 12]. There follows a reduction of satisfaction in activities and social contacts [10].

According to a Saunders & Echt (2007) review of literature, vision loss has a more pronounced effect than hearing loss on everyday function, but dual impairment has the greatest impact. The causes of visual impairment associated with deafblindness are varied and the same is true for the resulting visual impairment (blurred vision; altered sensitivity contrast; affected central or peripheral visual field, near vision, far vision; darkness adaptation; glare, etc.).

As mentioned earlier, acquired deafblindness is the type most frequently encountered. The communication difficulties it engenders may be quite different from those associated with congenital deafblindness. A separate section will therefore be reserved for the latter, even if many of the findings and recommendations that follow can also be applied to it.

3. Deafblindness in the Elderly

Around 80% of deafblindness cases are acquired, according to Rødbroe & Janssen (2006), cited by Prain, McVilly, Ramcharan, Currie & Reece (2010). About two out of three individuals admitted to rehabilitation are elderly [26]. Their deafness and blindness are rarely total. In a study by Wittich et al. (2012), the degree of impairment severity for elderly people ranged from moderate to severe for both measures, with quite variable thresholds. The majority had residual vision and hearing that could potentially be maximized by rehabilitation.

Presbycusis is a hearing loss associated with age that mainly affects high frequencies and word discrimination ability [10]. It is the most frequent cause of perception deafness among adults and its prevalence increases with age [6]. At around age 70, about one person out of two has a hearing loss great enough to interfere with daily life [9]. Hearing impairment is normally compensated by the use of visual cues. But in the case of deafblindness, severe vision loss prevents perception of nonverbal cues like facial expressions, gestures and body posture, and causes much difficulty in reading lips. Quite often, these disabilities restrict communication effectiveness [10].

Elderly persons with deaf blindness are frequently confronted by communication disturbances or ruptures as well as incomprehension. They often confuse verbal messages and experience difficulty in maintaining a conversation, particularly in noisy circumstances. They often find themselves in demanding conditions for hearing, such as group situations where there is high ambient noise [10; 11]. Table 1, drawn from Erber & Scherer (1999) and Heine & Browning (2002), presents typical causes of communicational difficulties due to hearing and visual impairments.

Table 1.

Typical causes of communicational difficulties experienced by people with a sensory loss

Hearing loss	Vision loss
Environment: distance (reduced sound level); noise; echo	Environment: distance (reduced visual angle); visual distractions; reflections, glare
Partner: low voice level; rapid speech rate; soft or high-pitched voice; unclear articulation	Partner : poor facial illumination; low facial features contrasts; rapid speech rate; unclear articulation
Group situation; conversation with specific groups (especially adolescents)	

Multiple studies and reviews of literature show that deafblindness in the elderly has a negative impact on their communication and their mental and social well-being and that it may cause social isolation and depression [10; 20; 21]. These individuals are more susceptible to feeling depressive symptoms than their counterparts who have a single sensory impairment [20]. They present a reduction in independence and more cognitive impairments [10; 20; 21]. They often experience negative feelings and self-perception, and a feeling of vulnerability. When they communicate with others, they must constantly concentrate intensely, which causes fatigue, anxiety and a reduction in social contacts [10; 21]. In addition, their dual sensory impairment is complicated by the fact that other challenges related to age figure in the picture, such as loss of cognitive abilities, reduction of manual dexterity, changes in communication needs and lifestyle [20].

Despite their disabilities, persons with acquired deafblindness have the possibility of exploring the world with their residual vision or hearing. They can participate, give meaning to situations and, depending on their mental abilities, learn to interact and communicate with other people [23].

4.   Communication Modes

People with deafblindness can use various communication modes, depending on their vision and hearing loss, antecedents and education [1; 13; 15; 17; 19; 22]. A number of modes exist, which can be used singly or in combination:
- Voice amplification system.
- Labial reading.
- Tactile speech reading (Tadoma method; *Tactiling*).
- Sign language:
    - Non adapted;

- o Adapted (e.g. sign language in a narrow residual field of vision; in front of the face; tactile sign language, etc.).
- Fingerspelling (spelling difficult words or proper nouns in space in a narrow visual field or tactilely).
- Print-on-palm.
- Writing:
  - o Paper support with black marker;
  - o Dry erase board;
  - o Computer with increased font size onscreen or equipped with a screen reader, screen magnification software (e.g. *ZoomText*) or Braille display device;
  - o Fingerspelling and writing in the hand;
  - o Braille.
- Reference-to-object systems (e.g. presentation of an object for purposes of description, anticipation or reminder; communication board).
- Pointing.
- Technological aids:
  - o Braille writing and tactile systems (e.g. Braille note taker; *TellaTouch*, which allows the deafblind person to read in Braille the message produced by the interlocutor from the device's standard keyboard; *TeleBraille*, etc.);
  - o Telephone systems for the deaf (visual screen) or deafblind (refreshable Braille display);
  - o Other technological systems (e.g. *Light Writer*).

Use of these systems requires training and presupposes well-ingrained skills allowing dialogue activity [22].

5. Communication Training

Elderly people with deafblindness often experience communication disturbances that go unresolved [10]. Communication training could help them. A number of researchers recommend that rehabilitation services be offered to improve communication skills [7; 10; 11; 15]. Some think that formal communication training should be a part of the services [7; 11] and should also be offered to communication partners [10].

5.1 Training the person with deafblindness [7; 15]

Communication training of a person with deafblindness involves a number of aspects, including use of vision, hearing and technical aids; improvement in language perception through vision and hearing training; communication training, including optimization of the environment and strategies [7; 15].
- Training in the use of vision, hearing and technical aids.

- o Aims at optimizing the use of vision, hearing and technical aids in an interpersonal communication situation.
- Vision and hearing training for language perception.
  - o Non-vocal visual cues – gestural, facial cues, head movements, posture; environmental cues;
  - o Hearing cues – word discrimination; consonant, vowel and phoneme (word sounds) recognition.
- Communication training.
  - o Manipulation/adaptation of the environment:
    - Reduction of background noise, reverberation (echo) and auditory distractions;
    - Adjustment of the distance between communication partners, according to the reception mode of the deafblind person (visual vs. tactile). Examples: Visual reception mode: positioning favouring labial reading; for tunnel vision and visual reception of sign language, adjustment of interlocutor positioning distance to optimize the latter's visibility in the vision field. Tactile reception mode: for one-handed reception, both persons can sit side by side or at a table corner so that the receiver's elbow is supported on it; for two-handed reception, face-to-face seated position, alternating legs;
    - Use of a table with a padded top when using tactile sign language;
    - Adjustment of seat height to compensate for difference in partner height, to optimize communication reception and avoid discomfort and fatigue.
    - Adequate lighting of the interlocutor's face. Avoidance of lighting sources that cause shadows. Additional lamps, accent or on a stand can be useful;
    - Reduction of distractions or visual confusion behind the interlocutor (e.g. wall with patterns);
    - Reduction of glare sources from windows, lights, reflections, etc.;
    - Direct lighting on reading space (e.g. accent lamp);
    - Use of sufficiently large letters.
  - o Encouragement of conversations in dyad or small groups rather than a big group.
  - o Use of effective communication strategies:
    - Requests for clarification – ask the interlocutor to repeat the message, talk slower, move closer, talk louder, use short sentences, etc.;
    - Conversation repair strategies – check message comprehension; repeat the message; speak more clearly; simplify the message

(vocabulary, sentence structure); change syntax or message structure itself; provide non-verbal cues, show the task, etc.;

- Give the person time to react.

5.2 Communication partner training

In addition to benefiting from communication training, the communication partner who is frequently in contact with the deafblind person should be made aware of the following factors:

- The partner should first discuss with the deafblind person the latter's preferred communication mode, style and speed [7; 16];

- The partner must speak slowly at a uniform sound level, using a simple and familiar vocabulary and an appropriate degree of redundancy [7]; the partner must not shout, as this may cause vocal distortions, making the voice less comprehensible [5];

- If the person is profoundly deaf but still has residual hearing, it may help to approach as close as possible to the person's ear for him/her to at least be able to receive information derived from vocal intonation [5]. Make sure that such approach does not interfere with visual cue perception;

- Facial expression reception being altered by vision impairment, the partner should enhance it by the use of body and hand language [16].

- Partners should wear clothes contrasting with their skin colour to facilitate perception of expressive communication [16]. For example, if the partner has pale skin, dark colours are preferable and vice versa. Clothing fabric should be of a uniform colour (avoid stripes and polka-dot patterns, etc.). Wearing a turtle neck helps bring out the face better, as opposed to V-shaped necklines. The partner should avoid wearing jewels or accessories that might be visually or tactilely distracting or cause sound (e.g. clicking bracelets) or visual (sparkling or light-reflecting jewels) interference.

It should be noted that the training strategies and components mentioned above in points 5.1 and 5.2 were established in reference to conversation occurring between a person with deafblindness and an interlocutor without sensory impairment [13; 15; 16]. There is reason to believe, however, that they could prove useful in a communication context between deafblind individuals.

6. Congenital Deafblindness

6.1 Communication difficulties

According to a review of literature by Prain et al. (2010), individuals with congenital deafblindness only represent about 20% of the population with dual sensory impairment. In a Canadian study published in 2005, the proportion was about 32% [25]. These individuals present many more problems that those with acquired deafblindness. According to the Mar & Sall (1996) literature review, they have a lot of difficulty in acquiring communication skills and with interpersonal and social relations, given that their dual impairment imposes limitations in terms of both receptive and expressive communication. As they are unable to use physical and non-verbal cues that support language, (e.g. facial expressions, gestures), their social interactions tend to be less developed.

According to Mar & Sall (1996), individuals with congenital deafblindness confront many social difficulties and challenges, as their dual sensory impairment may reduce awareness of social events occurring outside their immediate physical proximity. They may experience much difficulty: **1.** understanding the context of a social event, even when they are personally directly involved in the interaction, **2.** being aware of the impact of their own behaviour and **3.** signalling their social interest by initiating behaviour or responding to that of others. Their communication partners also frequently have difficulty interpreting the response to their communication actions. Thus, persons with congenital deafblindness have reduced opportunities for interpersonal communication

The Prain et al. (2010) review of literature shows that many of these individuals never develop formal language and communicate rather by body movements, muscular tension, postures and gestures. They manifest stereotypical and idiosyncratic behaviour, meaning peculiar to each, and therefore their potential communication partners must be aware and skilled in interpretation. Even when living in a specialized residence, their personal interactions may be rare, as shown in the Prain et al. (2010) study. These researchers observed, in a specialized residence, normally occurring interactions between adults with congenital deafblindness and caregiving personnel. But the deafblind residents were very disengaged and their interactions with the personnel were rare [18].

6.2 Communication among peers with congenital deafblindness

Multiple studies have addressed communication among children or adults with congenital deafblindness and their non-impaired interlocutor, such as an educator or parent. They show that it is basic to good communication conditions that the partner be alert, make good observations and harmonize attitude and behaviour with those of the deafblind interlocutor [23]. But in a context where communication occurs between two people with congenital deafblindness, it is probable that both will experience major and

similar difficulties. In contrast to their counterparts who have acquired dual impairment later in the course of the life, they have not had the opportunity to explore the world with vision and/or hearing, whether partially or totally, nor to really participate, interact and communicate with others.

Conversation is a complex activity that requires effort on the part of both communicator and listener. The effort can reach a considerable level for people with deafblindness. The listener must construct a mental representation of the meaning of the communicator's message and determine the communicator's intention in producing the message. Once the message is received, the receiver must reverse roles and choose the appropriate response [10]. But according to Rødbroe & Janssen (2006), cited by van der Heijden (2009), many people with congenital deafblindness risk having very little or no interaction with their counterparts, as their respective attempts to establish contact often remain difficult to perceive or interpret. Van der Heijden (2009) was also interested in communication among adults with congenital deafblindness who had lived many years in a specialized home. She determined that most of them never had social interactions with the other residents. As they have limited vision, they do not perceive attempts at contact from their peers, are not used to making optimal use of tactile modes to meet and rarely touch each other.

7.   Support Intervention

People with congenital deafblindness often do not have the prerequisites for engaging in communication with their counterparts. Sometimes, there is such an asymmetry in their interpersonal communication and attempts to make contact for one are so difficult to perceive or interpret by the other, due to the dual sensory impairment, that it is quite difficult to reduce these obstacles without the introduction of human assistance. For many, these interactions only become possible if the physical and social environments are made accessible and if the challenge of spending time with each other is presented to them. A support worker can then play an important support role in stimulating and facilitating these experiences [23].

The assistance of an experienced third person (e.g. speech therapist, interpreter or other trained professional) may be useful, even required, to direct and facilitate conversation from a directional and participative viewpoint. This need, often present in individuals with congenital deafblindness, may also be present in those who have acquired dual impairment at an advanced age (e.g. seniors) [7]. With the help of an interpreter, the latter may nonetheless carry on interesting conversations. Contact of deafblind seniors with their counterparts is important, as it allows them to psychologically identify with their fellows, share their feelings, their experiences in managing their impairments and seek solidarity, comfort and encouragement [23].

Various professional or support personnel can help the deafblind person acquire information, interpret and transmit it in turn. They can facilitate social relations, interactions with the environment and accomplishing activities of daily living. Among these professionals can be found the following ones [16]:

- *Interpreter*, who translates information from one mode or language to another (e.g. from spoken language to sign language and vice versa);

- *Intervenor*, who facilitates learning, for example, and development of communication skills. He intercedes with the person and his environment, allowing access to information normally gained through visual and auditory channels.

- *Support Service Provider,* who provides support to increase the person's independence (ex.: facilitates communication, provides sighted guidance and transportation to/from events, etc.).

Their roles and responsibilities are different but complementary, and vary according to their basic training and certification, among other things. Morgan (2001) gives an interesting and detailed comparison table [16]. However, their specificity is not necessarily universal. These roles and responsibilities may differ somehow in other countries or depending on the Education or Service Agency.

The Canadian Deafblind Association has defined a detailed Competency Framework for intervenors with the deaf-blind [3]. According to the association, intervention requires a set of skills that are not necessarily easy to learn. The intervention process must be adjusted to the needs and abilities of the individual. The intervenor's competence and effectiveness are influenced by his understanding his role as an intervenor, along with his knowledge, training and experience [4].

Various Canadian institutions train interpreters or intervenors (e.g. *Mohawk College* in Ontario, the Canadian Deafblind Association, etc.). A number of articles and books have been written on interpretation in deafblindness. The *American Foundation for the Deaf-Blind* gives a list of them on its website [1]. In addition, specialized programs to become intervenor or support service provider of deafblind persons are offered in Canada – at *George Brown College* in Toronto, for example, and *Medicine Hat College* in Alberta [8; 14].

7.1   Concepts of intervention

The *Canadian Deafblind & Rubella Association* (1995; 2005) has drawn up 11 concepts of intervention with people who have deafblindness [17]. More details are provided on their Web site.

1) *Total and unconditional belief in and respect for an individual who is deafblind.* Always believe and say that there is a way to communicate with the person; we simply haven't found it yet.

2) *Total and unconditional belief in the value of intervention for all individuals who are deafblind.* Every person who is deafblind can benefit from interventions providing visual and auditory information by the best means possible, in a complete and undistorted fashion.

3) *The amount of intervention and the form it will take must be individualized to meet the specific needs and desires of each individual who is deafblind.* Constantly reassess how communication is being received and, consequently, how it should continue. Allow the necessary response time.

4) *Individuals who are deafblind have a right to access information in their preferred modes of communication.*

5) *Intervention is "Doing With, Not For."* "Doing with" is much more difficult than "doing for", which does not allow developing skills. "Doing with" and not "for" means getting the individuals actively involved and letting them choose and make decisions because they have the required information. As the saying goes, "Tell me and I'll forget. Show me and I'll remember some. Include me and I'll understand and learn."

6) *No assumptions should be made regarding the cognitive abilities of the individual who is deafblind.* Maturation is a learning factor. Avoid introducing an element only once and then abandoning it. Instead, try to break it into smaller components, or try again later in other circumstances.

   Intervenors should also ask themselves the following questions:

   - Do I give too much information at one time?

   - Is it the right time to reintroduce the new concept?

   - Is there sufficient basic information and experience for the individual to refer to?

   - Am I starting intervention from a point comfortable for the individual?

7) *Never underestimate the importance of the relation between the intervenor and the deafblind individual.* The latter must have confidence in the intervenor. The intervenor must develop specific skills in relation with the person being helped, understand the latter's behaviour, looks, mannerisms and modified language, whether sign, verbal or written. Moreover, during a relationship between two people who are deafblind, intervention involves being able to enter and exit the relationship in a timely manner as its development progresses [23]. Developing

a dependence on the intervenor must especially be avoided. Set clear guidelines.

8) *The process of intervention must always provide the individual who is deafblind with the information required for anticipation, motivation, communication, and confirmation.*

- Anticipation. The person with deafblindness distinguishes with difficulty subtle environmental clues, such as may hint at what is happening. (e.g. body language, social cues, etc.).

- Motivation. The person with deafblindness sees and hears little or nothing. Thus, motivation to communicate may fade quickly. The intervenor must develop emotional bonds that generate confidence and promote the motivation to access, explore, learn and experience.

- Communication. Dual sensory impairment not only limits the ability to access the world through the usual channels of communication, but also by those who send more subtle messages (e.g. body language, social cues).

- Confirmation. The intervenor should not assume that there has been confirmation; this must be specifically given by the deafblind person. Confirmation is a form of positive or negative feedback. Negative feedback is just as important, as it allows deafblind individuals to learn from their mistakes. Morgan (2002) mentions, however, that the dialogue should not be constantly interrupted for the purpose of checking clarity. A message clarity communication system should be established from the start. The speaker can for example ask the deafblind person to stop him if the message is unclear. The deafblind person will then have the responsibility to ask for clarification rather than being continually asked "Do you understand?" Or "Is that clear?", which can become disturbing and even insulting.

9) *Every experience is an opportunity to provide information and encourage interaction.*

10) *The focus of intervention should always be on the needs of the individual who is deafblind.*

11) *Intervention is recognized as a process that requires intervenors to have specific skills, knowledge and experience in order to be effective in providing the best possible opportunity for people who are deafblind to gather information, process it and develop communication, concepts and skills.*

During intervention, the professional must also consider the eight main areas of individual development (perceptual, visual and auditory abilities; communication skills;

concepts; fine and gross motor skills; social skills; emotional skills; orientation and mobility; life skills).

8. The principle of interaction scaffolding between two deafblind individuals

The notion of scaffolding is based on Vygotsky's Zone of Proximal Development theory, which assumes that individuals can sometimes perform beyond their normal level if supported by a partner who is more competent or can fulfill a complementary role (scaffolding) in the interaction [23]. We find this principle particularly in the field of education, where the scaffolding is an instruction strategy that involves supporting new learners by limiting context complexity and gradually removing those limits as the learner acquires the knowledge, skills and confidence to manage the total context complexity [27].

In the context of communication between two deafblind people, according to Rødbroe & Nafstad (1999), cited by van der Heijden (2009), scaffolding is defined as follows: the support worker provides the deafblind individual with a routine or a clear interaction format, which provides a stable base (scaffold) and stimulates the individual to express opinions, thoughts and memories. The support worker takes the role of initiator and actor, modeling actions and reactions. After a while, when the deafblind person feels ready, he or she joins in actively and takes the initiative. With scaffolding support, the deafblind individual learns to consider the perspective of the interlocutor and to enter into contact with the latter. Scaffolding strategies are thus based on the idea of how a support worker can model effective reactions from one participant to another, without disturbing the continuity of action flow. The support worker should be unobtrusive and know how to withdraw when the two deafblind persons interact together.

Scaffolding strategies may consist of 1) the organization of a fun activity for interaction among peers and/or 2) scaffolding of a direct contact between peers [23]. The principles are:

1) Organization of a fun situation for interaction among peers:
    a. Having fun with other people has an emotional impact and stimulates communication;
    b. Create opportunities where people with deafblindness can offer each other mutual aid, giving them a reason to interact and communicate with each other;
    c. Provide support to maintain interest when one partner seems to lose it, as long as the contact takes place in an unforced manner;
    d. Model effective reaction focused on the actual, from one participant to another, without disrupting the flow of action;

    e. Withdraw at the appropriate moment, when the two interlocutors are interacting and don't need support. But stay alert and available if support for the contact becomes necessary.

2) Scaffolding for direct contact between peers:
    a. Be alert for spontaneous interaction activities;
    b. Support contact by becoming the eyes and ears of the deafblind person in order to make contact at the appropriate time;
    c. Support with scaffolding when the person does not perceive the message of the interlocutor;
    d. Provide support to give information about the interlocutor in order to elicit a reaction.

The use of scaffolding strategies requires that the support worker be alert to the initiatives of the two deafblind persons (signs, signals, gestures, etc.). The reader will observe that many of the *Canadian Deafblind & Rubella Association* concepts of intervention can be found in the principles of Van der Heijden.

Van der Heijden (2009) experimented multiple times with an interaction scaffolding role between two people with severe deafblindness, in order to improve the dialogical communication between them. A detailed description of these scaffolding actions, reactions by deafblind participants and her critical analysis is presented in her thesis.

9. Conclusion

Deafblindness hampers communication and access to information. People who have this dual sensory impairment, however, can use their residual vision and hearing and learn to use various modes of communication.

Rehabilitation specialists working with deafblind persons workers have an important role in optimizing the communication skills of these people. In particular, they can offer training to optimize the use of visual, hearing and technical aids, the perception of visual or verbal language, as well as communication itself, including the adaptation of the environment, encouraging conversations in dyads and use of effective strategies. In cases of profound congenital or even late-acquisition deafblindness, peer communication can be quite difficult. A support worker can then be very useful, even necessary to stimulate and facilitate communication experience and help individuals to acquire information, interpret and transmit it in turn. Support intervention is based on skills acquired through training and experience, and on defined intervention concepts. The use of interaction scaffolding strategies between two deafblind individuals can also be beneficial.

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