Paid Worker and unfamiliar Partner communication training: A scoping review

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Abstract

Background: Communication partner training could be employed to train people working in the community to facilitate interaction with individuals who live with a variety of communication disorders. However, current evidence syntheses are limited to a single disorder (e.g., aphasia) and focus on a variety of familiar and unfamiliar communication partners. An understanding of the scope of literature across the evidence-base of acquired neurological populations may provide a better basis to develop interventions and future research tailored for community workers.

Aims: To explore the scope of literature on paid worker and unfamiliar partner communication training for acquired neurogenic communication disorders with a focus on describing: 1) the types of communication disorders addressed by interventions; 2) the types of learners who received the interventions; 3) the nature of the interventions; and 4) the reported effects on trainees and people with a communication disorder.

Methods & procedures: A scoping review was conducted. Studies were selected by a systematic keyword search, undertaken through four databases. Eligibility criteria included studies that: (i) reported an intervention directed at paid workers or unfamiliar partners where the primary goal was to improve communication with people with acquired neurogenic communication disorders, (ii) reported original results, (iii) contained quantitative or qualitative data on the effects of the intervention, (iv) were written in English or French and (v) were published in a peer-reviewed journal. The PRISMA-ScR was used to guide design and reporting of the scoping review.

Results: Seventy publications met the inclusion criteria. Interventions were mostly disorder-specific and addressed communication with people with dementia, aphasia or traumatic brain injury. 15/70 studies examined training programs that were not restructured to a specific population (e.g., aphasia). Learners were mostly working or studying in the healthcare field and only 2/70 studies included community workers without primarily health training. Sixty different interventions were reported and were mostly delivered by speech-language pathologists. Training varied in terms of duration (a few minutes to 46 hours) and content, but many shared training

methods (e.g., presentation of theory on communication disorders). Nearly all studies demonstrated positive results, 23/26 studies suggested that paid worker and unfamiliar partner communication training may increase the knowledge of trainees, 24/26 studies suggested that it could improve their confidence when interacting with people with a communication disorder and 44/46 studies suggested that it could improve the trainees' communication abilities.

Conclusion: A small developing evidence-base exists for communication training programs for paid and unfamiliar communications partners that focuses beyond a single diagnosis or disorder. However, there is very limited knowledge on interventions for community workers from non-health professions. Future research should focus on the evaluation of existing programs tailored to, or explicitly designed for this context with the aim of identifying active ingredients that lead to improved and sustainable outcomes.

Keywords

Unfamiliar partner; paid worker; communication partner training; communication strategies; communication disorders; scoping review

Introduction

In order to create a more inclusive society, an accessible environment for people living with hidden disabilities such as a communication disorder must be created. Without adaptations, people with a communication disorder (PWCD) may face a range of barriers to participation leading to difficult social interactions with the people they encounter, often due to lack of knowledge and skill of the communication partner (Bunning & Horton, 2007). As communication partners are a key element of the environment (WHO, 2001), it is essential to identify and act on environmental facilitators and barriers to the social participation of PWCD.

Inclusive communication is defined as "the mainstreaming of communication methods which address both the comprehension and expressive communication support needs of the broadest population of actual and potential service users in all interactions between service providers and users" (Hartley Kean, 2016, p.28). Communication interventions embedded within this approach would act on barriers to communication inclusion of PWCD. Communication partner training (CPT) is an intervention that aims to teach communication strategies to communication partners to facilitate their use of a more inclusive communication style. This type of intervention could be oriented toward people working in different businesses or services in the community in addition to healthcare environments. The thesis project of the first author (AT) is anchored in this approach and aimed to develop a CPT program to improve communication accessibility in public transport by offering it to adapted bus drivers who engage with people with a variety of communication disabilities as part of their specific role.

To provide an enhanced communication environment for all their customers, adapted bus drivers either need multiple disorder-specific CPT programs or one training program that uses an approach that considers a diversity of communication disorders. As implementation of CPT programs in society is time consuming and challenging, adoption of multiple disorder-specific programs may be difficult. Furthermore, it could be challenging for a trainee to identify the communication disorder of an individual he/she meets because many people live with multiple disorders and/or diagnoses and specialised knowledge may be required. For example, 69% of patients in hospital acute stroke units had more than two communication-related impairments (O'Halloran, Worrall, & Hickson, 2009). Therefore, a broader approach to CPT that encompasses education and communication strategies that are not limited to a specific disorder alone may be

more easily implemented, scaled and sustained. Moreover, with the increase of the aging population, more people may live with a communication disorder due to increase risk associated with age (Yorkston, Bourgeois, & Baylor, 2010) and CPT program using a broader approach within acquired neurogenic communication disorders would be particularly relevant. Hence, this study aims to explore the scope of literature on paid worker and unfamiliar partner CPT programs in acquired neurogenic communication disorders in order to develop a program offered to unfamiliar partners (such as adapted bus drivers) working in the community.

In this paper, the term "communication training partner programs or CPT programs" will be used to describe all forms of communication training interventions. The concepts of paid worker and unfamiliar partner will refer to, respectively, the 4th and 5th levels of the circle of communication partners introduced by Blackstone (1999). For example, they could be bus drivers, wait staff, or nurses. These individuals may not have a significant personal relationship with the PWCD when they first meet them. Consequently, the definition here excludes familiar partners such as family members, friends and acquaintances, that is, partners inside the 1st, 2nd and 3rd circles of the conceptualisation of communication partner circles.

Influence of the people in the environment of the PWCD. The quality of interactions PWCD experience can influence their social participation. Communication partner-related factors including general knowledge of communication disorders, personal characteristics (Howe, Worrall, & Hickson, 2008a, 2008b; Whitehill, Ma, & Tse, 2010), attitudes (Brady, Clark, Dickson, Paton, & Barbour, 2011; Collier, Blackstone, & Taylor, 2012; Howe et al., 2008a, 2008b; Swaine et al., 2014; Whitehill et al., 2010), communication abilities (Collier et al., 2012; Dalemans et al., 2010; Howe et al., 2008a, 2008b; Swaine et al., 2014; Togher, Hand, & Code, 1997; Williams, Herman, Gajewski, & Wilson, 2009; Whitehill et al., 2010) and willingness of people to communicate with a PWCD (Dalemans et al., 2010) may all act as facilitators or barriers by influencing the quality of the PWCD's interactions.

The impact of communicative environments of PWCD from the perspectives of stakeholders themselves has been investigated in community consultation approaches and surveys. In an Australian consultative process to establish the key features of a communicatively accessible environment, 700 stakeholders including service providers and people with disabilities were

divided into small discussion groups. These groups identified that a fear of people with disabilities and a lack of understanding of communication disabilities as the main reasons for the negative experiences of PWCD in the community (Solarsh & Johnson, 2017). Impatience while interacting with a PWCD, lack of public education about disability, lack of personal experience in interactions with PWCD, and being unable to understand the message being conveyed were other barriers frequently reported by participants. Similar findings were evident in a Canadian study of 61 participants with a complex communication disorders, including cerebral palsy, aphasia, autism, multiple sclerosis and amyotrophic lateral sclerosis (Collier et al., 2012). Participants reviewed a list of accommodations, through an online survey (completed by the participants themselves without or with assistance or by a proxy (family member or friends)), and identified desirable accommodations to facilitate their visits to community businesses or organizations. Accommodations related to other people were the most frequently reported, especially concerning their attitude and their communication behaviour with a PWCD. For example, over 80% of participants wanted the person they were communicating with to give them more time to relay their message, to be patient, to talk with a normal tone and volume, to speak like an adult and to speak directly to them, not to the person accompanying them.

The solution to the barriers identified by stakeholders in the Australian study centred on public education and communication training for those interacting with PWCD to increase the social participation by transforming their communication partners into facilitators (Solarsh & Johnson, 2017). The groups also suggested skill training for communication partners in the community. There is evidence that communication partners themselves have a strong desire to adapt their communication in a way that would facilitate the social participation of PWCD, specifically those with aphasia (Brown et al., 2006). Offering training to these communication partners may be one way to assist them to adapt themselves to people with aphasia or other communication disorders.

Communication partner training (CPT): an intervention to train paid workers and unfamiliar partners. CPT aims to teach those who interact with a PWCD to use communication strategies and communication resources to support the individual (Simmons-Mackie et al., 2016). Systematic reviews on CPT, offered for specific communication disorders (e.g., aphasia, traumatic

brain injury, dementia) show its efficacy to support communication of PWCD and it is recommended in international clinical guidelines for stroke, traumatic brain injury (TBI) and dementia (Hebert et al., 2016; Pink, O'Brien, Robinson, & Longson, 2018 ; Power et al., 2015; Togher et al., 2014).

More specifically, in aphasia, there is high-level evidence that CPT appears to be effective at improving the communication skills of partners and the activities of people with aphasia and it is recommended as a method for providing environmental support and communication access for people with aphasia (Simmons-Mackie, Raymer, Armstrong, Holland, & Cherney, 2010; Simmons-Mackie et al., 2016). Similar findings have been reported in numerous systematic reviews on CPT in dementia. Training can improve the communication abilities and knowledge of the carer (Eggenberger, Heimerl, & Bennett, 2013; Machiels, Metzelthin, Hamers, & Zwakhalen, 2017; Nguyen, Terry, Phan, Vickers, & McInerney, 2018 ; Vasse, Vernooij-Dassen, Spijker, Rikkert & Koopmans, 2010), with positive effects on non-verbal and verbal communication of people with dementia (Machiels, et al., 2017). Fewer reviews have been conducted on people with TBI. However, one systematic review suggested that CPT may be effective to support the communication of people with TBI (Wiltshire & Ehrlich, 2014). One of the four studies included, a non-randomised controlled trial, reported that communication partners have significantly increased ability to support the conversations of people with severe TBI and an increased quality of interaction and transaction was observed for the individuals with TBI. This effect was confined to the training arm that included communication partners and people with TBI and not people with TBI who attended on their own, demonstrating the importance of the communication partner's contribution (Togher, McDonald, Tate, Power, & Rietdijk, 2013).

To date, reviews have had a disorder-specific focus and the nature of the application of training for paid workers and unfamiliar communication partners and its effects in acquired neurogenic populations beyond a specific disorder remains unclear. A recent study has attempted to identify common training content and delivery of four evidence-based published training programs across a broader range of neurogenic populations (dementia, TBI and aphasia) in order to improve implementation of CPT in health and care services for unfamiliar communication partners (O'Rourke, Power, O'Halloran, & Rietdijk, 2018). While this study revealed some of the similarities and differences in elements of training programs, its focus was on the fine-grained analysis of program content and methods. Subsequently, it is still unclear what the scope and nature

of training is available for paid workers and unfamiliar communication partners and whether programs have been developed or adapted that consider a broader approach to CPT in acquired neurogenic communication disorders than a focus on a specific disease/diagnosis alone.

Consequently, in order to develop a CPT program for adapted bus drivers, we sought to conduct a scoping review on CPT programs offered to paid workers and unfamiliar partners across a range of acquired neurogenic communication disorders. A scoping review was chosen as it aims to describe the scope of the literature in an area and identify gaps for further research (Arksey & O'Malley, 2005). We aimed to answer the following research questions:

1) What type(s) of acquired neurogenic communication disorder(s) did the CPT programs address?
2) What type(s) of trainees(s) received the CPT?
3) What was the nature of the CPT provided?
4) What were the measures used and the reported effects, on trainees and PWCD, of the CPT?

Methodology

Using a scoping review approach. The scoping review was guided by the methodological framework suggested by Arksey and O'Malley (2005) and recommendations by Levac, Colquhoun and O'Brien (2010). Arksey and O'Malley's framework contains five core stages including identifying the research question(s), identifying relevant studies, selecting the studies, charting the data, and collecting, summarizing and reporting the results. To ensure rigour, the design and reporting of the study was guided by the PRISMA extension for scoping review checklist (Tricco et al., 2018), see Supplementary material.

Identifying relevant studies. A systematic search of the literature was undertaken through four databases: *Embase, Medline, PsycInfo* and *CINAHL*. A qualified librarian validated the search strategy (see Appendix A for the final search strategy for *Medline*). No limitations were placed on date of publication. Searching involved a keyword search, plus additional hand searches of

reference lists and key references and a keyword search through *Google Scholar.* This search was performed on January 7th 2016 and updates were made regularly until January 23th 2019.

Study selection

Eligibility criteria. To be included in the review, a study needed to assess an intervention directed at paid workers or unfamiliar partners of PWCD (see definitions in section 1), where the primary aim of the intervention was to improve communication with adults with an acquired neurogenic communication disability. The rationale for the focus on this group included that it represents a common, yet diverse adult population that may be co-located (e.g., community day-centre), or have co-existing communication disorders including speech, language and cognitive-communication/social communication impairments. These impairments may encompass training needs of a variety of young and older adults with brain damage or disease who interact with the broader community. Studies about hearing impairment were excluded. Studies about CPT directed to paid workers or unfamiliar partners were both included even if the frequency of communication and familiarity of paid workers with PWCD could be very different from the familiarity of lay acquaintances. For example, some nurses working in residential care facilities may be more familiar with the residents with dementia in their workplace than volunteers meeting an individual with aphasia a few sessions for a project. The rationale for a wide inclusion of types of paid workers and unfamiliar communication partners was to establish the nature of CPT offered to a broader selection of partners in society who may interact with PWCD. Studies included in the review had to present qualitative or quantitative effects of the intervention, contain original data, be written in English or French (languages understood by the first (AT) and third author (CC)) and to be published in a peer-reviewed journal. To establish all relevant effects or perspectives on the training offered, no studies were excluded based on their design. Reviews, conference papers and grey literature were excluded.

Study selection process. Four independent reviewers participated in the study selection process. One reviewer, the first author (AT), reviewed all articles. To achieve a second independent review of the articles, the abstracts were divided among three other reviewers to facilitate timely completion. Articles were initially screened by applying the eligibility criteria to their title and

abstract. Then, inclusion of a study was validated by reviewing the full article. If disagreements occurred about the study inclusion after both reviewers had consulted the complete article, a consensus decision was reached between the two reviewers. If required, a third reviewer was consulted to make a final decision. The search strategy is presented in Appendix A

and its results are illustrated in Figure 1.

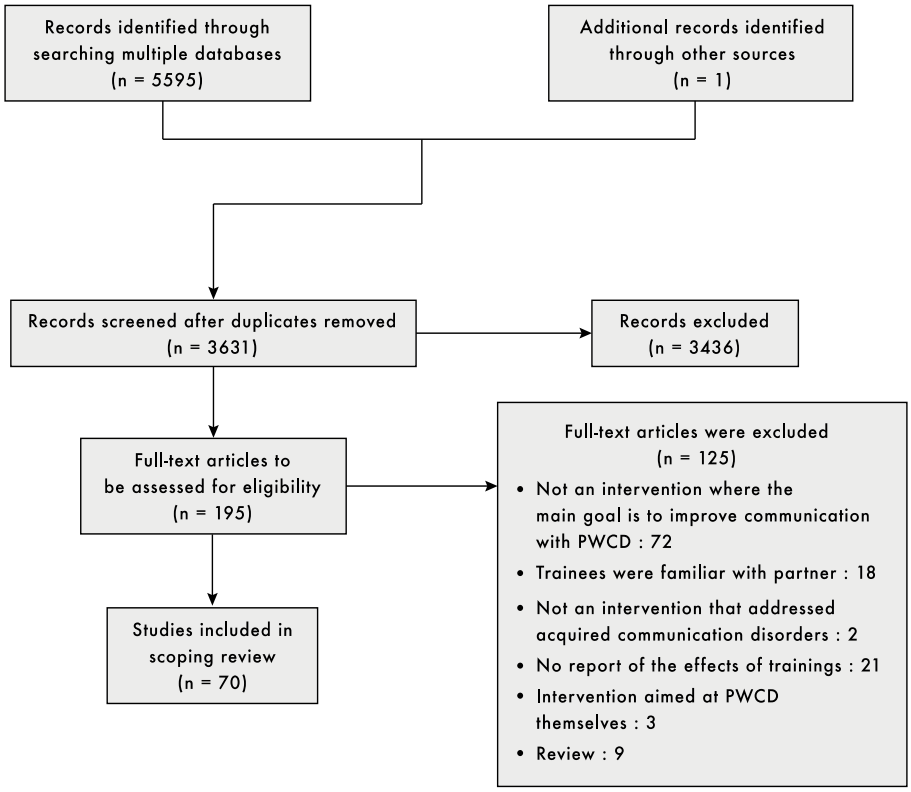

Figure 1. *Flowchart of studies included in the review*

Charting the data. Data were organised using extraction forms developed according to the previously stated research questions. The first author (AT) developed the initial version of the forms and charted the data from the included studies. An iterative process followed between the first (AT) and third (CC) author to determine key information to include with the third author (CC) validating the data extraction from three familiar studies. The final data extraction forms were consistent with the research questions and the goal of the review.

Collecting, summarizing and reporting the results. A descriptive summary was undertaken including the article details (e.g., authors, journal), study design, communication disorder(s) types addressed by the training, trainee characteristics (e.g., age, profession), training characteristics (e.g., duration, training methods), measures used and the reported effects. The first author categorized the effects further and regrouped them according to the type of outcome measure utilised (see Table 1 for the effects categories). The categorization of the effects was verified by the third author (CC).

Table 1. *Effects categories*

Category	Subcategory
Knowledge	Knowledge about communication disorders
	Knowledge about communication abilities
Confidence while interacting with a PWCD	-
Trainees' communication abilities	Observed changes
	Reported changes
Emotional impacts on trainees	-
Impacts on PWCD themselves	Depression
	Well-being and quality of life
	Behavioural manifestations and independence daily activities
	Communication

Results

Descriptive results. Seventy articles met the inclusion criteria (see Figure 1 and Supplementary materials for the complete reference list of included studies). The studies came from a total of 43 different journals and were written by 202 different authors from twelve different countries: United States of America (n=24), United Kingdom (n=15), Australia (n=12), Canada (n=8), Sweden (n=7), Netherlands (n=2), South Africa (n=2), Denmark (n=1), Germany (n=1), Ireland (n=1), South Korea (n=1) and Taiwan (n=1). Half of all articles were published recently (2015-2018: n=35/70, see Figure 2a). The most common study designs were group designs (see Figure 2b) and included pre-post studies with control group (n=13) and without control group (n=23) and randomised controlled trials (RCT) studies (n=10) with six qualitative studies included.

The results are presented in four sections, according to each research question. Table I presents the training characteristics for each included study and Table II their outcome measures and findings (see Supplementary materials).

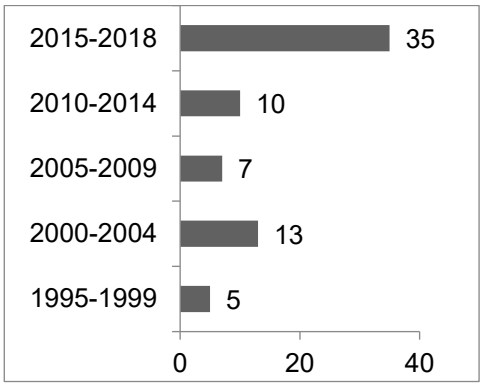

Figure 2a. *Years of publication of included studies*

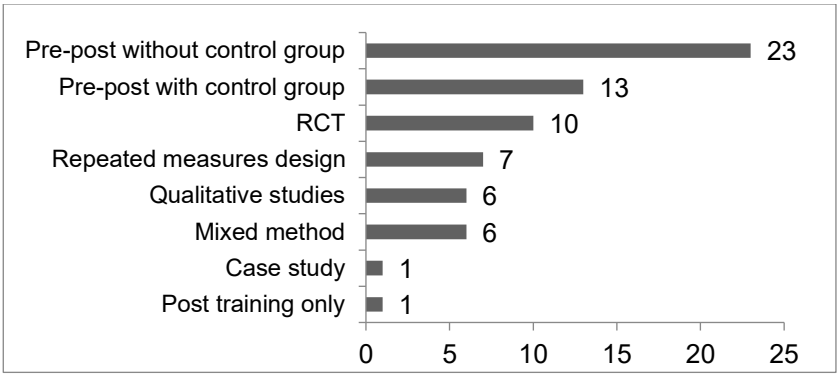

Figure 2b. *Design types of included studies*

Communication disorders addressed by the CPT programs. The selected publications covered a variety of communication disorders (see Figure 3) and were in the vast majority addressing disorder-specific programs (78.6%, n=55) representing mostly dementia (45.7%, n=32) and aphasia (27.1%, n=19). Fifteen studies (21.4%) used a broader approach and trained participants to adapt their communication for more than one communication disorder including 7/15 addressing multiple post-stroke communicative difficulties (for example, dysarthria, aphasia, apraxia, right hemisphere cognitive-communication impairment), and 8/15 targeting multiple (or unspecific) communication disorders and multiple populations.

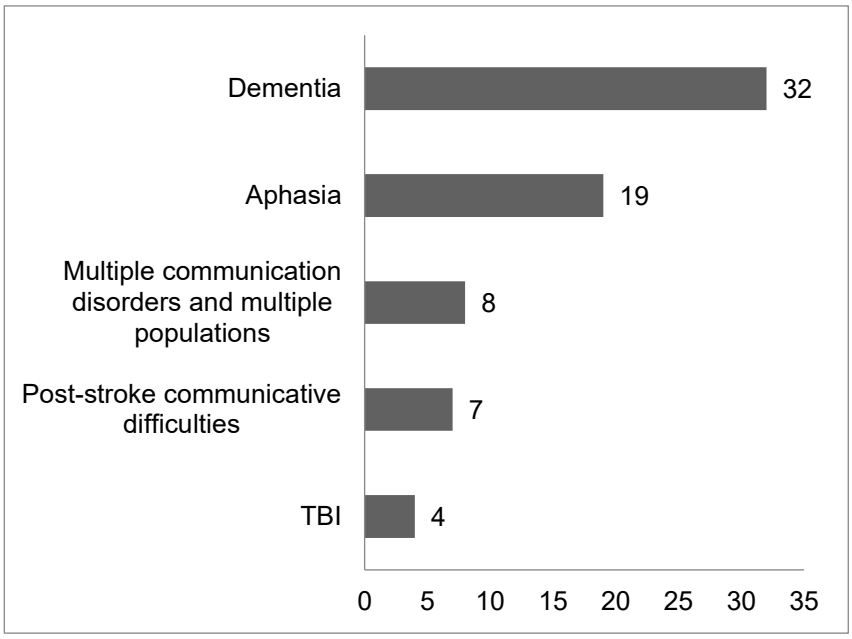

Figure 3. *Number of studies that addressed either single or multiple communication disorders*

Trainees. Participants in 92.9% (65/70) of included studies were working (n=51/65) or studying (n=14/65) in health-related domains (see Figure 4). Thirty studies included nurses (nurses, licensed practical nurses, registered nurses, endorsed and enrolled nurses) and 20 studies included nursing assistants. A smaller number of studies included allied health professions, including occupational therapists (n=5), physiotherapists (n=4) and speech-language therapists (n=3). The students included in 14 studies were studying in nursing (n=5), speech-language pathology (n=5), medicine (n=4), physiotherapy (n=3) and occupational therapy (n=1). It must be noted that in some studies, the trainees included more than one type of professionals or students. Working trainees not related to health care were only present in two studies, i.e., police officers (Togher, McDonald, Code, & Grant &, 2004) and sales assistants (Goldblum & Alant, 2009).

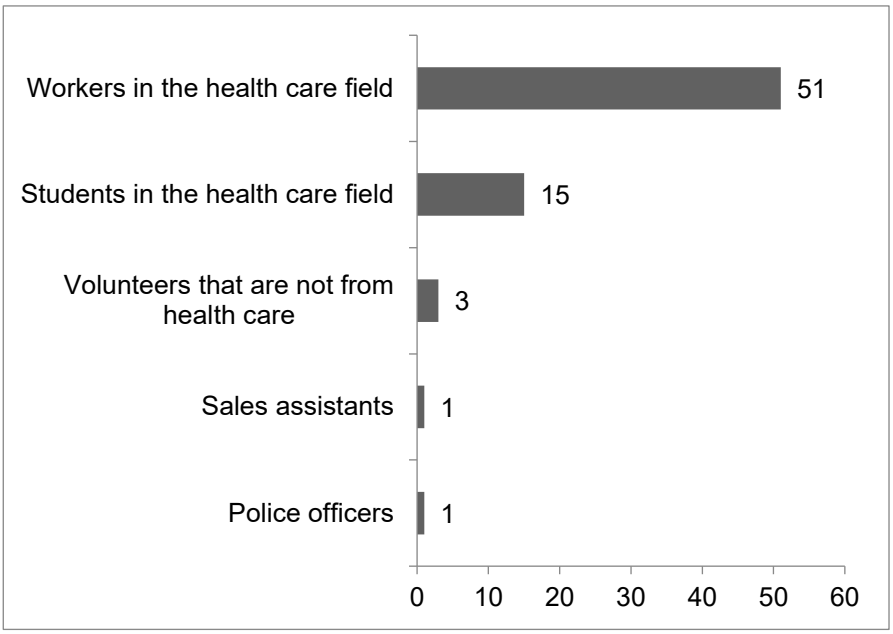

Figure 4. *Number of studies including each type of trainees*

Participants trained to communicate better with people with dementia were almost all located in long term-care settings (n=28) and were all from health occupations (see Figure 2.5). They were mostly nursing assistants and nurses.

The health professionals trained to communicate with people with aphasia were working mostly in acute (n=4) and rehabilitation settings (n=5). They were also all from the health professions, with the exception of volunteers in four studies (see Figure 2.5). Furthermore, in two training studies, the volunteers were already people interested in aphasia and in contact with people with aphasia because they were volunteers in aphasia centre or group (Kagan, Black, Duchan, Simmons-Mackie, & Square, 2001; Rayner & Marshall, 2003). Nurses are the most frequent trainee type for this population as observed in the dementia studies, but there is more diversity in the type of health workers trained (e.g., occupational therapist, physiotherapist) than trainees for communicating with the other types of communication disorders.

People trained to communicate better with people who had post-stroke communicative difficulties were divided between acute care (n=3), rehabilitation (n=3) and long-term care (n=2). The trainees were all from the health field (see Figure 2.5) including nurses (n=5), nursing assistant (n=1), staff working in acute stroke care rehabilitation (n=1) or student speech-language

pathologists (n=1). People trained for communicating with multiple communication disorders or multiple populations were either working in the health field (n=4) or medical (n=2) and nursing (n=1) students. Consequently, broader approaches to CPT were only offered to people working or studying in the health care field.

Participants working in the community were present in training studies to communicate better with people with TBI and consisted of sales assistants (n=1) and police officers (n=1). The other type of trainee for TBI was paid carers working in a residential rehabilitation centre (n=2) (see Figure 5).

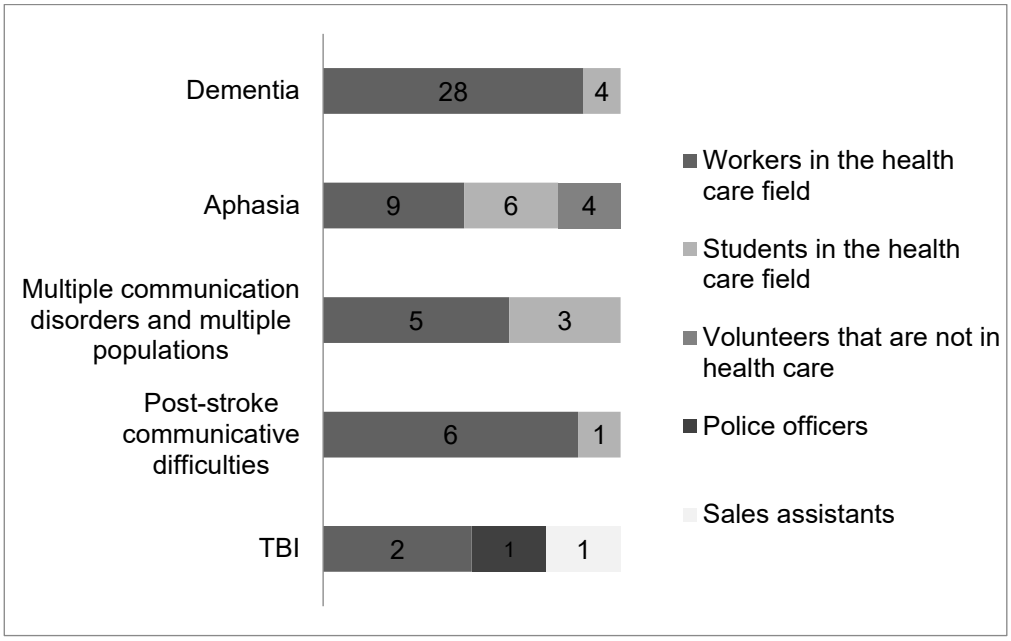

Figure 5. *Number of studies including each type of trainees, categorized by the communication disorder addressed by the CPT programs*

Nature of the CPT programs

Training programmes. Sixty different CPT programs were reported in the 70 articles including multiple articles that reported on a single training study (see Table I in supplementary materials).

Twenty-six different communication training programs were developed to facilitate the communication with people with dementia. Six CPT programs were mentioned more than once: including six studies that reported results for the Changing Talk program (Shaw, Williams, &

Perkhounkova, 2018; Williams, 2006; Williams, Perkhounkova, Bossen, & Hein, 2016; Williams, Perkhounkova, Herman, & Bossen 2017; Williams et al., 2018); four evaluating the use of memory books (Bourgeois, Dijkstra, Burgio, & Allen-Burge, 2001; Burgio et al., 2001; Dijkstra, Bourgeois, Burgio, & Allen, 2002; Hoerster, Hickey, & Bourgeois, 2001); three studies on the Validation Method training program (Söderlund, Norberg, & Hansebo, 2012, Söderlund, Norberg, & Hansebo, 2014, Söderlund, Cronqvist, Norberg, Ternedstedt, & Hansebo, 2016); two studies on the MESSAGE program (Broughton et al., 2011; Conway & Chenery, 2016) and two on communication and respect for people with dementia (Wood, Alushi, & Hammond, 2016; Wood, Alushi, & Hammond, 2017).

Nineteen different CPT programs were reported on better communication with people with aphasia. Six studies presented programs based on the Supported Conversations for adults with Aphasia^{tm} (SCA^{tm}: Heard, O'Halloran, & McKinley, 2017; Kagan et al., 2001; Legg, Young, & Bryer, 2005; Simmons-Mackie et al., 2007; Jensen et al., 2015; van Rijssen, Veldkamp, Meilof, & van Ewjik, 2018); three studies reported programs based on the Connect-Communication Disability Network (Cameron et al., 2017, Cameron et al., 2018, Finch et al., 2018) and two studies presented a program developed both on SCA^{tm} and the Connect programme (Horton, Clark, Barton, Lane, & Pomeroy, 2016; Horton, Lane, & Shiggins 2016).

For people with TBI, three CPT programs were included for communicating better with people with a TBI. An adapted version of the TBI Express for paid carers was presented in two studies with quantitative and qualitative findings (Behn, Togher, & Power, 2015; Behn, Togher, Power, & Heard, 2012). The remaining TBI CPT programs were the only community-based programs offered to non-health workers in all the included studies and included police officers (Togher et al., 2004) and sales assistants (Goldblum, & Alant, 2009). These programs had some elements in common with other health worker-based programs (duration, training methods) and small differences appeared to be largely tailored to the requirements of the interactions of the trainees and were reflected in the training content.

In terms of broader approaches, 12 different CPT programs were reported. Six different programs were reported to improve communication with people with post-stroke communicative difficulties. Only, the Patient-Centred Communication Intervention was presented twice (McGilton et al., 2018; McGilton et al., 2011) for this population. Seven different programs were reported on

better communication with multiple (or unspecific) communication disorders and multiple populations. The Communicate training program was reported in two papers (Maxim, Bryan, Axelrod, Jordan, & Bell, 2001; Bryan, Axelrod, Maxim, Bell, & Jordan, 2002); a lecture about acquired communication disorders was presented in two studies (Forsgren, Hartelius, & Saldert, 2017; Saldert, Forsgren, & Hartelius, 2016) and the same lecture with an additional active workshop was presented in the same two studies (Forsgren et al., 2017; Saldert et al., 2016). In those programs about post-stroke communicative difficulties or multiple communication disorders and multiple populations, there is often theory and education about specific types of communication disorders (e.g., aphasia, dysarthria), but general communication strategies are taught.

Duration of CPT. The approaches to CPT programs varied considerably (see Table I in supplementary material). They had a total duration from a few minutes (Hoerster et al., 2001) to 46 hours (Lyon et al., 1997). In two publications (Söderlund et al., 2012; Söderlund et al., 2016), a CPT program was delivered over a year with 10 sessions and monthly practice with supervision (the total duration was not specified). Forty-eight programs (62.3%) had a duration of seven hours or shorter. Broader CPT programs have variable but shorter general duration and range from 30 minutes to a day and a half with an average duration of 5.2 hours. CPT offered to people working in the community include one at 12 hours (Togher et al., 2004) and the other at four hours (Goldblum & Alant, 2009).

Delivery of CPT. Speech-language pathologists were the most frequent professionals to deliver CPT (34/60, 56.7%). It should be noted that six programs had no face-to-face component, one program was a videotaped lecture (Irvine et al., 2003), three programs were delivered on CD-ROM (Irvine et al., 2003) or DVD (Broughton et al., 2011; Weitzel et al., 2011) and two programs were delivered online (Coleman, Fanning, Williams, 2015; McKinley & O'Halloran, 2016). Finally, two programs were a combination of online and face-to-face training methods (Heard, et al., 2017; Hui-Chen et al., 2016). Speech-language pathologists were all part of the delivery of broader CPT programs, except for one delivered by a clinical psychologist (Williams & Gurr, 2016) and two where the trainer was not specified (Bryan et al., 2002; Shaw & May, 2001). A speech-

language pathologist also participated in the delivery of one community-based training program (Goldblum & Alant, 2009), while the trainer was not specified in the other community program (Togher et al., 2004).

CPT content and methods. Almost all the studies (n=68) included information about the CPT program content except for Naughton et al. (2018) and Wood et al. (2017). Our analysis about the program content is based upon the codes developed by O'Rourke et al. (2018) for the "Provision of information/knowledge content of the programmes". The most frequent content found in the programs is strategies to enhance communication (n=71) and background on disorders (n=43) (see Figure 6).

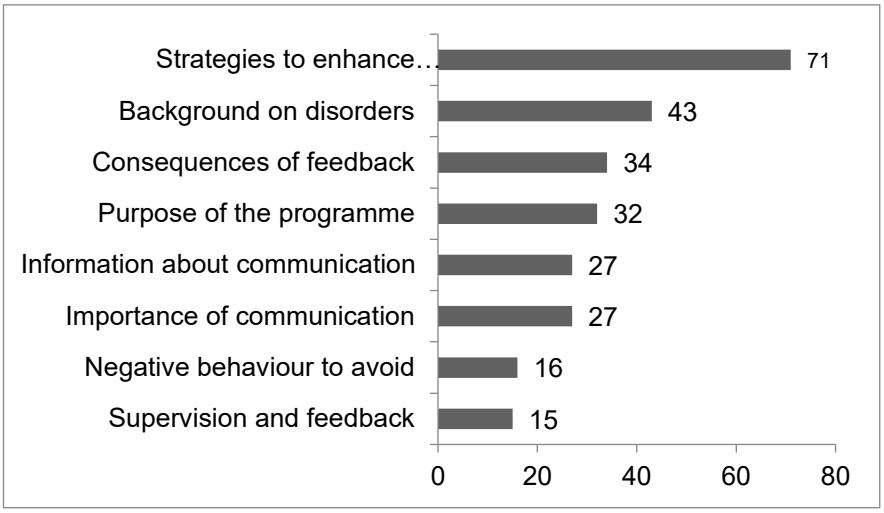

Figure 6. *Number of studies including each training content component*

Table 2. *Description of the CPT program training methods*

Training methods	Description
Theory	Theory is presented to the trainees about multiple subjects including, for example, theory about concepts on communication, communication disorders and communication strategies.
Video presentation	Videos are presented to the trainees. The videos can be used for different purposes such as demonstration of communication skills, presentation of a situation with and without communication strategies, demonstration of key concepts, as the whole training, etc.
Role play	Trainees practice the taught communication skills. They can practice them with a different partner. For example, it could be another trainee or a PWCD.
Discussion	Open discussions occur in the group. Discussions can be led by the trainer or occur in small group. Discussions can serve many purposes such as share experiences between trainees, express their fear and hopes, etc.
Direct feedback on an interaction	Trainees receive feedback on their communication skills. The feedback can be given by the trainer, a PWCD, a trained supervisor, etc.
Participation of a PWCD	PWCD participate in the process of the training. They can be in the assessment, in the training for practice, assist or act as the trainer, etc.
Other	The category includes all training methods that are not presented above. It can be staff supervision, use of log book, quiz, etc.

The differences between programs resided mostly in the theory on communication disorders presented, the communication strategies taught and the training methods used. Still, many training methods were shared between programs which include teaching theory about different concepts on communication and communication disorders (n=68, e.g. Bourgeois, Dijkstra, & Hickey, 2005; Franzmann, Haberstroh, & Pantel, 2016; Hammar, Emami, Engstrom, & Gotell, 2011; Vento-Wilson, McGuire, Ostergren, 2015), video presentations (n=42, e.g. Kagan et al., 2001), direct feedback on an interaction (n=32, e.g. Eriksson et al., 2016), role play (n=32, e.g. Cockbain, Thompson, Salisbury, Mitter, & Marton, 2015; Glenwright, Davison, Hilton, 1999), discussion (n=33, e.g., Behn et al., 2012) and participation of a PWCD (n=28, e.g. Bourgeois et al., 2004) (see Table I in the supplementary materials for details of studies included). Other training methods, such as staff support, were also used. Table 2 describes the training methods.

Training methods, even if similar, were sometimes employed in different ways. Videos were mostly used to demonstrate communication skills (Bryan et al., 1996; Heard et al., 2017; Chu,

Sorin-Peters, Sidani, De La Huerta, & McGilton, 2018; Conway, & Chenery, 2016; Finch et al., 2017; Irvine, Ary, & Bourgeois, 2003; Jensen et al., 2015; Levy-Storms, Harris, & Chen, 2016; McGilton et al., 2011; McGilton et al., 2017; Ripich, Wykle, & Niles, 1995; Welsh, & Szabo, 2011; van Rijssen et al., 2018), to compare an interaction with and without communication strategies (Horton, Lane, & Shiggins, 2016; Legg et al., 2005; McKinley, Heard, Brinkmann, Shulsinger, & O'Halloran, 2015; McKinley, & O'Halloran, 2016; Passalacqua, & Harwood, 2012; Ross, Barton, & Read, 2009; Weitzel et al., 2011), as a demonstration of key concepts (Conway, & Chenery, 2016; McKinley et al., 2015; McKinley, & O'Halloran, 2016; Söderlund et al., 2012; Söderlund et al., 2014, Williams, 2006), as hands-on exercises (Coleman, Fanning, Williams, 2015; Hui-Chen et al., 2016; McVicker, Parr, Pound, & Duchan, 2009; Shaw et al., 2018; Williams et al., 2016; Williams et al., 2018), to show and comment an interaction with a PWCD (Eriksson, Forsgren, Hartelius, & Saldert, 2016; Forsgren et al., 2017; Saldert et al., 2016), to identify barriers and facilitators to effective communication (Behn et al., 2015; Behn et al., 2012; Goldblum, & Alant, 2009), or even as the whole training program itself (Broughton et al., 2011; Weitzel et al., 2011). Another difference occurred in the nature of the PWCD participating in CPT programs. First, for most programs, the participation of a PWCD meant that they participated by interacting with the trainees. They were mostly residents with dementia or post-stroke communication difficulties living in a long-term care facility where the trainees worked. In these circumstances, the trainees received feedback after an interaction with these residents (Behn, Togher, & Power, 2015; Behn, Togher, Power, & Heard, 2012; Bourgeois, Djikstra, Burgio, & Allen, 2004; Bourgeois et al., 2001; Burgio et al., 2001; Dijkstra et al., 2002; Conway & Chenery, 2016; Eriksson, Forsgren, Hartelius, & Saldert, 2016 ; McCallion, Toseland, Lacey, & Banks, 1999; McGilton et al., 2011; Söderlund et al., 2012; Söderlund et al., 2014; Söderlund et al., 2016; Sorin-Peters, McGilton, & Rochon, 2010 ; Sprangers, Dijkstra, & Romijn-Luijten, 2015). Second, PWCD were present in the training sessions themselves for practice (Cameron et al., 2018; Cameron et al., 2017; Finch et al., 2017; Finch et al., 2018; Horton et al., 2016; Horton, Lane, & Shiggins, 2016; Kagan et al., 2001; McKinley, et al., 2015; McVicker et al., 2009; Ross et al., 2009; Togher, McDonald, Code, & Grant, 2004) or were assisting or acting as the trainer (Goldblum & Alant, 2009; Welsh & Szabo, 2011).

Measures and effects of CPT programs. CPT program effects and measures are described and presented in Table II available in the supplementary material. They are classified into five categories and eight sub-categories according to their measures (see Table 1).

Knowledge. Measures about knowledge of communication disorders were included in 37.1% (n=26) of studies and increased knowledge of communication disorders was reported in 88.5% (n=23) of the reported interventions or studies. No increased knowledge of communication disorders was reported in three studies (Bourgeois et al., 2004; Goldblum, & Alant, 2009; Naughton et al., 2018). Measures of knowledge of communication abilities were included in 35.7% (n=25) of studies and in all of these studies, knowledge of communication abilities was reported to have increased. Knowledge was mostly assessed using questionnaires, scales and surveys. Exceptions included studies that utilised qualitative analysis of interviews, focus groups or learning logs (a directed logbook) (Behn et al.,2015; Cameron et al., 2018; Horton et al., 2016; Simmons-Mackie et al., 2007; van Rijssen et al.. 2018; Williams & Gurr, 2016)

Confidence. Measures about confidence were included in 38.6% (n=27) of studies. Increased confidence or competence in interacting with a PWCD was found in 92.6% (n=24) of trainees. This variable was assessed using scales, questionnaires, interviews, learning logs, focus groups or surveys.

Communication abilities. Measures of communication abilities were included in 65.7% (n=46) of studies. A change in communication abilities is suggested in 95.7% (n=44) of these 46 studies. Measures assessing participants' perception of their own communication abilities (e.g. interviews, scales) were present in 34.3% (n=24) of studies and 91.7% (n=22) reported that participants perceived that they had changed their communication after CPT, six studies reported statistically significant changes and 19 studies reported changes from the perceptions of the trainees themselves. Changes in communication abilities, suggested by observation-based measures are reported in 40% (n=28) of studies. Measures used for communication abilities varied and trends were difficult to identify. However, five studies employed either the original or an adapted version of the *Measure of Participation in Conversation* scale and the *Measure of Support in Conversation*

scale to evaluate the communication abilities of the participants. The results obtained with this scale demonstrated that trainees were significantly better at acknowledging and/or revealing the competence of their partner with aphasia (Finch et al., 2017; Kagan et al., 2001; Legg et al., 2005; Rayner & Marshall, 2003) and those with a TBI (Behn et al., 2012). Other measures were used, such as the Communication Skills Checklist (Bourgeois et al., 2004; Sprangers et al., 2015) or the Interaction Rating Form (McGilton et al., 2011; McGilton et al., 2017). Other results were, for example, a statistical increase in the use of some of the communication strategies taught. Some examples of strategies that increased in use following CPT included: short instructions (Sprangers et al., 2015), reminiscence (Weitzel et al., 2011), use of props (Finch et al., 2017), eye contact (Levy-Storms et al., 2016), siting in front of the individual (Levy-Storms et al., 2016), pausing (Levy-Storms et al., 2016; Söderlund et al., 2016), directing/redirecting reduced use of elderspeak (Forsgren et al., 2017).

Emotional impacts on trainees. Emotional impacts on trainees were reported in 21.4% (n=15) of the publications. 80% of studies (n=12) reported positive emotional impacts from the CPT program, in at least one item of their measure. Some studies suggested that, after the program, the trainees felt stronger and happier (Söderlund et al., 2012), experienced less stress (Sprangers et al., 2015) and had a better workplace climate (Söderlund et al., 2014). Some trainees also experienced significantly less caregiver burden and strain (McGilton et al., 2017). Other studies reported that trained nurses were able to relate more with their patients (McGilton et al., 2011) and that nursing assistants had improved communication satisfaction with their patients with Alzheimer Disease (Ripich et al., 1995).

Impacts on PWCD themselves. Finally, 42.9% (n=30) of studies described a diversity of effects of CPT program on the PWCD themselves. For example, studies reported less depression (n=4/7, 6/7 are studies about dementia), better well-being or quality of life (n=8/11), a decrease in perceived negative behaviours including less aggressiveness, withdrawal or refusals (n=9/12, 11/12 are studies about dementia) and changes in the PWCD's communication (n=13/15, 8/15 were studies about aphasia). A pattern found in the studies was the effect of a trained partner on the PWCD's communication. For example, an increase in comprehensible statements was found when

a person with aphasia was conversing with a trained partner (Hickey et al., 2004). Significantly increased participation was also reported with this population when interacting with a trained volunteer (Kagan et al., 2001; Rayner & Marshall, 2003), but not for participants with TBI (Behn et al., 2012).

Results for broader CPT programs. Studies about broader CPT programs reported results in the five outcome categories (see Table 1). The most frequent reported categories and subcategories of results were knowledge about communication disorders (n=8), knowledge about communication strategies (n=7), confidence (n=7) and reported communication abilities (n=7). Results in the other categories were reported less: observed communication abilities (n=4), communication of the PWCD (n=3), emotional impacts on trainees (n=3), quality of life of PWCD (n=2), depression of PWCD (n=1) and behaviours manifestation and independence in daily living of PWCD (n=1). Positive results were found in all studies. Only two studies reported negative results in some categories. No significant changes were found in depression or quality of life scores (McGilton et al. 2011) and no emotional impact on trainees was found in the study of McKinley et al. (2015), where the trainees still found it challenging to communicate with the PWCD when they were not able to understand them.

Results for community based CPT. The types of measures employed in the studies about CPT programs for people working in the community (Goldblum, & Alant, 2009; Togher et al., 2004) did not appear to differ from the other types of programs provided to healthcare professions. One study evaluated the confidence and knowledge about communication disorders of sales assistants (Goldblum, & Alant, 2009) and the other study examined the communication abilities of police officers (Togher et al., 2004). The broad type of tools used did not differ either (scales, questionnaire, conversation analysis). The effects of the CPT on police officers were positive as with the majority of the studies outlined above and it is one of the 43/45 studies that reported a positive change in the observed communication abilities of the trainees. However, the effects of the CPT on trained sales assistants (Goldblum & Alant, 2009) were not as positive and it represented one of the three of twenty-six studies that did not report an increase in knowledge about communication disorders. A significant increase of confidence to serve customers who live with a

TBI was reported in a subjective measure (a five-point scale), but this significant increase in confidence was not translated in the results of two questionnaires that evaluated it by asking questions about a video presenting a transaction with a customer with TBI.

Discussion

This review is the first to explore the nature and scope of literature on paid worker and unfamiliar CPT across acquired neurogenic communication disorders in adults. It presented the results in terms of the communication disorder addressed by CPT, trainees, the nature of intervention, measures used and program effects.

Communication disorders addressed by CPT. This scoping review reveals that the vast majority (78.6%, n=55) of the CPT programs were developed to improve communication with one specific communication disorder. Fewer broader approaches to CPT for acquired neurogenic communication disorders were identified (22.9%, n=15). However, the findings of these 15 studies indicate there is a developing evidence-base and motivation to investigate this approach. With the increase of seniors in our society, more people will have a communication disorder (Yorkston et al., 2010) and more co-morbidity of communication deficits will occur Therefore, system wide opportunities for communication inclusion could be aided by these types of broader CPT. Furthermore, it is possible that some communication strategies that promote inclusion of people with a variety of communication disorders could be similar, regardless of the type of communication disorder (O'Rourke et al, 2018). This finding might also be represented in the Canadian study on communication accommodations that could be made to services or businesses, where the core perceived highly-rated accommodations were relevant to a variety of communication disorders (Collier et al., 2012).

Consequently, despite the challenges, CPT programs targeting more than one disorder alone may be more efficient and be a better use of resources to train people offering services to people having a diversity of communication disorders across speech, language and social communication impairments. The findings of the present study indicated that the target trainees for broader approaches were mostly health-related professionals rather than community members with non-

health related occupations. As with disorder-specific CPT programs, these broader programs also showed potential success and therefore future research should evaluate the efficacy of broader CPT in non-health related community members. These programs could aim to improve communicative interactions for people with a variety of communication disorders with an understanding of key communication strategies that provide most benefit for a broader population.

Trainees. Most CPT programs (92.9%, n=65) were offered to participants working or studying in the healthcare field. Recent evidence suggests that healthcare professionals are an important trainee target as they may interact less in hospitals with people with communication impairments post-stroke than those without communication impairment post-stroke (Hersh, Godecke, Armstrong, Ciccone, & Bernhardt, 2016). The authors reported that nurses participating in the study used fewer supported conversation techniques and the patterns of conversational moves they made disempowered the patients with aphasia compared to patients without any post-stroke communication impairment. The current review provides a list of CPT programs for healthcare workers that could be utilised by clinicians to choose an efficient training that matches their needs, trainee audiences, capacity and resources.

Evidence suggests that non-health related community members (e.g., police, Togher et al, 2004) may also have difficulties communicating with a PWCD. However, we found only two studies that examined this trainee group (Goldblum & Alant, 2009; Togher et al., 2004) compared with the large number of health professional programs discussed above. Further research is required in this trainee group to develop and document effects of CPT because these community members could enhance the social participation of PWCD in their daily lives, as demonstrated in our introduction section (e.g., Solarsh & Johnson, 2017). This focus on training has also been identified by people with aphasia and they advocated for more universal training beyond healthcare professionals (Cameron et al., 2018). Furthermore, a recent study by Kagan, Simmons-Mackie and Victor (2018) suggested that exposure to people with aphasia could potentially result in poorer communication than no exposure at all. This result could mean that community-based workers with some knowledge of aphasia still may require CPT. Future research could broaden the scope of paid worker and unfamiliar partner communication training to employees working in public spaces including, for example bus drivers (Tessier & Croteau, 2018) or wait staff (Carroll et al., 2018).

Nature of the CPT programs. Presentation of strategies to enhance communication (n=71) was the most frequent component included in the CPT programs, followed by background about disorders (n=43). Supervision and feedback (n=15) and negative behaviour to avoid (n=16) were the two less frequently included components. Despite the various differences between the programs (e.g. duration, content, number of participants, etc.), many training methods were shared. A more extensive comparison of four communication training programmes (all included in this scoping review) arrived at the same conclusion, that there were broad similarities in term of content, but that the specificity of some communication strategies may be different (O'Rourke et al., 2018). A broader CPT program could contain core content on similar topics for the benefits of community members who interact with a wide variety of the population whilst allowing for modularisation of focus on specific disorders tailored to the needs of the community member (e.g., a volunteer at a stroke support group compared with a bus driver).

In a randomised controlled study, Finch et al. (2018) demonstrated that a theoretical lecture on communication strategies was an essential component to include in a CPT program. Trainees that received the lecture and an experience of communicating with a person with aphasia with feedback had a significantly greater confidence and identified significantly more strategies post-training than trainees that only had the experience of communication and feedback. To contribute to the development of a broader approach to CPT in the community, more studies are needed to reveal the functional characteristics and essential elements of both knowledge and skill training to include. Further research could be conducted to study in more depth the 15 CPT programs using a broader approach included in this review and retrieve the common elements between them. The trainees' evaluation and perspectives on the training could also be considered in order to include the consumer voice in the understanding of the value of elements of these programs.

Effects of CPT

Knowledge.Many studies in this review reported that paid worker and unfamiliar partner CPT programs increased participants' knowledge of communication disorders and communication strategies. However, increased knowledge is not necessarily translated into a change in communication behaviours as suggested by Kirkpatrick (1975) in his model of program evaluation. For example, Maxim et al. (2001) demonstrated that trainees were able to identify significantly

more positive communication strategies but did not use significantly more basic strategies. Changes resulting from CPT should be observed in the workplace and measures assessing whether the participants have integrated the training content into the way they communicate with PWCD are essential to include in research evaluating the outcomes of paid worker and unfamiliar CPT.

Confidence. Approximately one third of included studies measure trainee confidence with nearly all studies reporting that training lead to an increase feeling of confidence when interacting with PWCD. However, it is not clear that an increase in confidence is always accompanied by a subsequent increase in skill and capacity (Henerson, Morris, & Fitz-Gibbon, 1987). Despite of that, social learning theory (Bandura, 1977) suggests that a person that believes in his/her capability to accomplish an action will initiate a change in his/her behaviour and try to maintain it. Therefore, increased belief in capability may be critical in implementation. However, confidence measures may not be a proxy for increased communicative abilities necessarily and some studies in this review only included self-report measures (see below). Therefore, future research requires use of multiple measures. Further studies, could study the association between confidence level and improvement in communication abilities.

Communication abilities. Many studies (62.9%) included in this review measured and reported positive changes in trainees' communication abilities. For example, trainees were rated as better at acknowledging and/or revealing the competence of people with aphasia (Finch et al., 2017; Kagan et al., 2001; Legg et al., 2005; Rayner & Marshall, 2003), and other trainees increased their use of the strategies taught, such as multimodality statements (Hickey et al., 2004). However, a few articles only measured specific changes in the communication abilities. Consequently, the extent to which CPT programs facilitate a taught communication strategy to be used in practice requires further research. Future studies could observe more systematically, in real-life situations, which communication abilities change, and document the link between explicitly taught communication strategies in community worker contexts and their use post-training to understand further the critical ingredients of CPT for this population and their needs.

Emotional impact on trainees. Positive emotional impacts on trainees were reported in just under one fifth of the included studies. Emotional impacts measures were more frequently included in training about dementia (n=8/15). Furthermore, emotional impact measures were mainly present in studies where the trainees were healthcare workers, mostly nursing staff (n=13/15). In future studies, measures of emotional impacts would be important to include for all trainees and in all types of paid worker and unfamiliar CPT because these results could offer additional arguments to convince workplaces to train their employees to improve their communication with PWCD. For example, it could be argued that workers, who feel confident and competent to interact with PWCD, are more satisfied in the workplace.

Impacts on PWCD. The impacts of paid worker and unfamiliar CPT on PWCD's depression, well-being, quality of life, behaviour manifestations and independence in daily activities were mixed. Changes in the communication of a PWCD while interacting with a trained partner were a more common result reported throughout the studies. These results are consistent with the known impacts documented in systematic reviews about CPT offered to communication partners of person with aphasia, dementia or TBI where a trained partner has been shown to be effective at improving the communication of PWCD (Machiels, et al, 2017; Simmons-Mackie et al., 2016; Vasse et al., 2010; Wiltshire & Ehrlich, 2014). It would be relevant for future studies to document the satisfaction of PWCD while interacting with a trained partner through PWCD reported outcome measures. Indeed, the emotions experienced by PWCD while interacting can lead them to choose or avoid certain services according to the communicative support offered by the service provider. This in turn can impact on how much they frequent public places and their amount of social participation because a good supported interaction is perceived as secure and it can help to strengthen the self-esteem of the person to engage with the community (Andersson and Fridlund, 2002).

Types of measure used. Studies in this review used a variety of measures which focus on various different CPT outcomes. The lack of consistency of measures increases the difficulty in comparing studies and the development of a core set of CPT outcome measures has been recommended in dementia and aphasia research (Machiels et al., 2017; Saldert, Jensen, Blom

Johansson, & Simmons-Mackie, 2018). To extend this, further research may develop a similar agreement on key outcomes measures for a broader approach to paid workers and unfamiliar CPT in various contexts. For example, an observational tool evaluating the attitude of a communication partner when communicating with a PWCD would be useful for a broader approach as it could be applied in all types of contexts.

Limitations. Our search strategy and eligibility criteria limited the communication disorders addressed by CPT to acquired neurogenic communication disorders. While this enabled a cohesive approach to the review and consideration of a range of speech, language and cognitive-communication disorders, a further scoping review would be required to integrate findings for other types of acquired and developmental communication disorders such as autism spectrum disorder or hearing impairment. This scoping review provides a brief summary of the content of the different CPT programs. Another review could extend the work of this study by making deeper comparisons of CPT included in this scoping review in terms of content and adult education theory (see O'Rourke et al. 2018), to highlight evidence-based elements of training that may be common to a variety of populations.

Clinical applications. To support the development of a more inclusive society, speech-language pathologists could train paid workers and unfamiliar partners, such as healthcare staff and community workers, to adapt their communication and facilitate the interactions of PWCD. As documented in previous research (Dalemans et al., 2010; Hilari & Byng, 2009, Le Dorze, Salois-Bellerose, Alepins, Croteau, & Hallé 2014; Wallace, Worrall, Rose, & Le Dorze, 2016), it could contribute solutions to the need for social participation approaches in the rehabilitation setting. For example, speech-language pathologist and speech-language pathology students were involved in the development of a CPT program, "Hear me!", offered to coffee shops and restaurants in Ireland (Carroll et al., 2018). This experience demonstrates how speech-language pathologists can play a role in advocating for the right and access of PWCD and can support businesses to answer the needs of all their customers and more especially PWCD. However, a recent Australian survey with speech-language pathologists who had worked with people post-stroke revealed that only 66.1% of the clinicians reported offering CPT to unfamiliar partners and these were mainly healthcare

staff or people working in an hospital setting (Chang, Power, O'Halloran & Foster, 2018). Therefore, addressing the barriers to the implementation of CPT for paid and unfamiliar workers, especially in emerging community contexts is essential.

Conclusion

This scoping review of paid worker and unfamiliar CPT reveals that this type of training is mostly tailored to a specific communication disorder and that trainees are mostly healthcare workers or students. A gap in research identified was the lack of evidence for training non-health related occupations in the community, using a broader approach that is not disorder-specific. As such, few studies are available to guide our training of adapted bus drivers (and many other community-based workers). Further research is required to identify the essential ingredients to include in CPT programs offered to paid workers and unfamiliar partners. Finally, the studies included in this review reported many types of effects: knowledge on communication disorders and communication strategies, confidence, communication abilities and emotional impact of the trainees. Some studies also reported effects on the PWCD. Key outcomes need to be identified so that uniformity in the choice of measure may be achieved to compare and evaluate more easily the CPT program. Further research could specify trainees' communication changes and explore the emotion of a PWCD communicating with a trained partner.

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The authors report no con icts of interest and they are responsible alone for the content and writing of the paper. The authors wish to disclose that they were part of the teams who published a portion of the included references.

CRediT authorship contribution statement

Alexandra Tessier: Conceptualization, Methodology, Formal analysis, Investigation, Data curation, Methodology, Writing - original draft, Writing - review & editing, Visualization, Project administration, Funding acquisition. **Emma Power:** Conceptualization, Writing - review & editing, Visualization. **Claire Croteau:** Conceptualization, Methodology, Supervision, Validation, Writing - review & editing.

Supplementary materials

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