Reporting Interventions in Communication Partner Training: A Critical Review and Narrative Synthesis of the Literature

Cruice, M. [a], Blom Johansson, M. [b], Isaksen, J. [c], and Horton, S. [d]

[a] Division of Language and Communication Science, School of Health Sciences, City University London, London, United Kingdom

[b] Department of Neuroscience, Speech-Language Pathology, Uppsala University, Uppsala, Sweden

[c] Department of Language and Communication, University of Southern Denmark, Odense, Denmark

[d] School of Health Sciences, University of East Anglia, Norwich, United Kingdom

Running head: Reporting Interventions in Communication Partner Training

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Abstract

Background: Communication partner training (CPT) is an umbrella term for a complex behavioural intervention for communications partners (CPs) of people with aphasia (PWA) and possibly PWA themselves, with many interacting components, deployed in flexible ways. Recent systematic reviews (Simmons-Mackie, Raymer, Armstrong, Holland, & Cherney, 2010; Simmons-Mackie, Raymer, & Cherney, 2016) have highlighted the effectiveness of CPT in addressing the skills of conversation partners and the communicative participation of people with aphasia but have suggested that CPT has been variably delivered, with no clear picture of what the essential elements of CPT are and how CPT is expected to achieve its results through hypothesized mechanisms of change (Coster, 2013).

Aim: This paper aims broadly to consider specification of CPT and describes how CPT has been conducted overall and in relation to treatment recipients. Recommendations for CPT and areas for future research are considered.

Methods & Procedures: A critical review and narrative synthesis was carried out through: i) the systematic application of the 12-item TIDieR checklist (Hoffmann et al., 2014) to the 56 studies appraised in the Simmons-Mackie et al. (2010; 2016) reviews, providing a quantitative overview of the completeness of CPT intervention reporting; and ii) a qualitative synthesis of the reviewed CPT literature according to TIDieR items.

Results: Half of the TIDieR checklist items were reported by 71% or more of the studies, and the rest of the items were reported by 0 - 63% of studies. TIDieR items relating to the treatment (goal, rationale or theory of essential elements, materials and procedures) and provision (provider, mode, timing, dose) were more frequently reported, however the level of detail provided was often inadequate or incomplete. The interventions were insufficiently specified to enable replication for most of the studies considered. The most infrequently reported items were: name, location, intervention tailoring and modification, and planned and

actual intervention adherence/fidelity.

Conclusion: For a better understanding of an intervention, it is necessary to identify and describe potentially central elements and perhaps especially in complex interventions as CPT, where it is likely also more difficult. Whilst the reviewed CPT studies are on average reporting on slightly more than half of the TIDieR items, they are overall insufficiently detailed. Some items appear easier to report on, whereas other items have not been attended to, are too complex in nature to give a full report on, or simply have not been relevant for the individual study to include.

Introduction

The experience of aphasia as a communication disability is mediated by environmental factors. The significance of the environment is recognised by its prominence in international frameworks i.e. the World Health Organization International Classification of Functioning, Disability and Health (ICF) (WHO, 2001), and in aphasia rehabilitation approaches, such as the Living with Aphasia Framework for Outcome Measurement (A-FROM) (Kagan et al., 2008), the Life Participation Approach to Aphasia (LPAA; Chapey et al., 2000), the Living with aphasia: goals of intervention approach (Byng, Pound, & Parr, 2000), and aphasia rehabilitation best practice statements (Power et al., 2015). Both the dynamic social environment (e.g. other people as communication partners) and the static physical environment (e.g. signage, written information) are recognised as positively and negatively influencing the experience and engagement of people with aphasia (PWA) in daily life contexts; the dynamic social environment is the focus of this paper.

In acute hospital stroke units, healthcare providers' knowledge, skills and attitudes, amongst other environmental factors, are known to influence the experience of patients with communication disability (O'Halloran, Grohn, & Worrall, 2012). An observational study in acute stroke illustrates the complexity of knowledge and skills needed, i.e. awareness of communication impairment, knowledge of aphasia versus cognitive communication impairment, and knowledge of assistive communication devices; as well as skills in using and offering strategies, such as gaining attention, giving time, checking responses, being alert to non-verbal cues, interpreting communication attempts, modelling tasks, giving prompts as well as providing opportunities to engage (O'Halloran, Worrall, & Hickson, 2011). Investment in creating communicatively accessible healthcare environments is considered worthwhile as this is considered to have a range of potential benefits including improved access to individualised patient care and range of services, improved patient satisfaction, and

reduction in preventable adverse events and patient complaints (O'Halloran, Shan Lee, Rose, & Liamputtong, 2014).

When considering community participation, interviews with people with chronic aphasia exploring environmental factors revealed barriers and facilitators (Howe, Worrall, & Hickson, 2008a). Examples of barriers are: unhelpful behaviours or actions of others that hinder communication, negative attitudes, and lack of knowledge about aphasia and stroke and the impact it has on communicative participation. Examples of facilitators are: helpful behaviours and actions such as waiting and giving time and assistance, positive attitudes (patience, respect, light-heartedness), and knowledge and familiarity of stroke, aphasia and the person. These barriers and facilitators relating to other people's actions and knowledge were also observed in a naturalistic study of community participation of people with chronic aphasia (Howe, Worrall, & Hickson, 2008b). People with chronic aphasia identify 'poorly adjusted speaking partners' as a barrier to participation, indicating others (including family) feel uncomfortable, do not attempt or pursue communication with them, misunderstand them, and do not support them. Such situations can lead to isolation in conversations, tension in relationships, and distress (Le Dorze, Salois-Bellerose, Alepins, Croteau, & Halle, 2014).

Thus it is clear that the environment must be a target for intervention to minimise the negative experience of communication disability and participation restriction that often arises from aphasia. Recent international consensus stakeholder research also confirms the importance of this focus in intervention. With relevance to this paper, practising aphasia clinicians and managers considered the following important: that the PWA can communicate with relevant communication partners (CPs) and can engage in conversation; that family and carers are better CPs as well as have good knowledge about aphasia and more positive attitudes; and that health professionals have greater awareness about aphasia and how to support communication (Wallace, Worrall, Rose, & Le Dorze, 2017a). The PWA themselves

identified 'to be able to participate in conversation' as a priority desired outcome of aphasia rehabilitation, specifically to keep up with conversation and change in topic, to have elaborated conversations, to be included in group conversations, and to have normal and meaningful conversations (Wallace et al., 2017b).

Two systematic reviews of communication partner training (CPT) critiquing and synthesizing a total of 56 studies published between 1975 and July 2015 provide a substantial evidence base for the effectiveness of CPT for different interactants and outcomes (Simmons-Mackie et al., 2010, 2016). The findings of the first review concluded based on 31 studies that CPT is effective at improving the communication skills/activities/participation of the partner, and is probably effective at doing the same for the person with chronic aphasia when interacting with the trained individual. There was insufficient evidence though for CPT in other settings specifically the acute context, and in other domains (language functioning, psychosocial adjustment, and quality of life). The second review identified a further 25 studies which all reported positive changes, hence no changes were made to the 2010 recommendations advocating for CPT to facilitate the communication of people with chronic aphasia.

Although these findings are generally positive, further consideration of a proportion of studies from the CPT evidence base, via application of methodological quality criteria PEDro (http://www.pedro.org.au/) (Herbert, Moseley, & Sherrington, 1998) and SCED (Tate et al., 2008), has revealed variable study quality.[1] This ranged from 1-11/12 for PEDro-rated studies and 3-12/12 for SCED-rated studies (Cherney, Simmons-Mackie, Raymner, Armstrong, & Holland, 2013). Further issues of variability across studies have been noted, specifically a wide range in intervention dosage (4 – 35 hrs, 2010; and 1.25 – 100 hrs, 2016), huge variability in outcomes measures as well as effects, lack of clarity around intervention

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[1] Minimum score 0; maximum score 12 for both the PEDro and SCED scales.

elements (e.g. communication, education, counselling, or combinations thereof), and variable recipients targeted (family, volunteers, healthcare professionals) in different ways (individual, dyad, group), and with/without the person with aphasia present. Although intervention descriptions were judged by authors to be acceptable, many details were noted as unclear or lacking, giving rise to problems for comparison, replication and future intervention development (Simmons-Mackie et al., 2010). In addition, the authors felt that adaptations to original protocols should be specified, and manualized interventions are needed for researchers and clinicians to move forward with replication and implementation (Simmons-Mackie et al., 2016). Indeed, such problems have already been noted. Although not solely CPT, a survey and focus groups with aphasia clinicians in South-East England on delivery of conversation therapy found substantial variability in definition, assessment, treatment, outcome measurement, and aspects of intervention delivery (dosage, target) (Sirman, Beeke, & Cruice, 2017), which highlights the problem of a lack of consensus for an intervention in the research literature. A survey of aphasia clinicians in Australia revealed limited use of CPT approaches, especially compared to social, functional and cognitive-neuropsychological approaches, and relatively low confidence in this approach, identifying CPT as a priority research area (Rose, Ferguson, Power, Togher, & Worrall, 2014). Attention to CPT research for implementation is urgently warranted as national clinical guidelines in stroke recommend the training for family and carer communication partners to optimise engagement in rehabilitation, and promote autonomy and social participation (Royal College of Physicians Intercollegiate Stroke Working Party, 2016; recommendation 4.4.1.1.F); and the aphasia rehabilitation best practice statements advocate communication partner training for healthcare professionals and family/carers (Power et al., 2015; recommendations 1.4, 2.6, 2.7, 5.3, 5.5, 6.1).

In recent years[2], there has been increased interest in understanding how interventions work, which can be linked to the concept of treatment theory i.e. "the actual nature of the process that transforms received therapy into improved health" (Keith & Lipsey cited in Turkstra, Norman, Whyte, Dikers, & Hart, 2016, 164). They propose interventions should be specified according to three elements of treatment theory: targets (functioning intended to change following intervention), ingredients (clinician's actions that effect change in target); and mechanisms of action (known or hypothesized ways that that ingredients exert effect) (Turkstra et al. 2016). Horton, Clark, Barton, Lane, & Pomeroy (2016a) have highlighted the complex nature of CPT interventions, including for example, interacting components, a range of behaviours from those delivering and receiving the intervention, a number of possible outcomes, and the need for flexibility and adaptation (Craig et al., 2008). Complex interventions should have a theoretical basis and have been modelled to identify the intervention components, and the mechanisms of change that deliver the intended outcomes. Specifying interventions in this way enables comparison, replication and implementation, but also aids interpretation of outcomes of studies and potentially illuminates further how change is achieved (Yamato, Maher, Saragiotto, Hoffmann, & Moseley, 2016). Intervention description and reporting requires more than simple labelling or listing of components – for complex interventions details of key features, including dose, duration, mode of delivery, and essential processes are needed for each component of the intervention (Hoffman et al., 2014). In order to address the "remarkably poor quality" of intervention descriptions in published studies, Hoffman et al. (2014) developed an extension of item 5 of the CONSORT 2010 statement The Consolidated Standards of Reporting Trials (CONSORT 2010, 2010), and item 11 of the SPIRIT 2013 statement (Standard Protocol Items: Recommendations for

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[2] A clinical forum on learning in aphasia therapy was published in *Aphasiology,* 1999, 13, 125-150, which suggests this has been circulating for some time, however it is not until recently that process and rationale of intervention has been considered seriously.

Interventional Trials) (Chan et al., 2013) in the form of a checklist and guidance entitled

Template for Intervention Description and Replication (TIDieR). The checklist was

developed through a modified Delphi consensus process and includes twelve items,

considered to be the minimum needed to describe an intervention (Hoffman et al., 2014)

These are: 1) brief name of the intervention; 2) the rationale, theory, or goal of intervention;

3) intervention materials; 4) intervention procedures; 5) who provided the intervention; 6)

delivery mode; 7) place of delivery; 8) when and how much intervention provided; 9)

tailoring (i.e., personalization); 10) modifications (i.e., unforeseen modification at a study

level); and 11) and 12) intervention adherence and fidelity (planned and actual) (see Hoffman

et al., 2014, for further description of items). The checklist is intended to apply across all

kinds of evaluative study designs; however, some items, like 11 and 12, are not relevant to

case studies or smaller qualitative studies.

Applied to 200 physiotherapy intervention randomised controlled trials studies, Yamato et al.

(2016) found that 23% of studies did not report on at least half of the 12 TIDieR items. In

speech pathology, a similar undertaking with 129 papers published between 2012-2014 and

available through speechBITE (www.speechbite.com.au), found similarly variable reporting

(Ludemann, Power, & Hoffmann, 2017). Here the authors also presented data according to

items rather than studies: items 1, 2, and 8 were most frequently reported (name, rationale,

when and how much treatment), whereas items 3, 9 and 10 (materials, tailoring, and

modifications) were least frequently reported. In summary, CPT is a complex environmental

intervention in aphasia rehabilitation that has demonstrated benefits in training a range of

others (family, carers, healthcare professionals, volunteers) to adapt their communication

skills when interacting with people with aphasia. Following four decades of research in this

field, a critical mass of evidence now exists; however, this evidence base also reveals

challenges to interpreting and understanding the nature of the evidence due to variations in

conduct and reporting of this intervention in the research literature. Reviewing the reporting of interventions is one method of examining the components of intervention, which in turn may lead to a clearer understanding of how CPT works.

This paper aims to extend the existing evidence base through a narrative synthesis of intervention reporting in the 56 studies appraised in the Simmons-Mackie et al. (2010; 2016) reviews, applying the TIDieR checklist (Hoffmann et al., 2014) as an orientating framework. The objectives are broadly to describe the completeness of CPT intervention reporting according to TIDieR, and specifically to consider how CPT has been conducted according to treatment recipient, identifying necessary and ideal components for CPT, and propose recommendations for consideration in any CPT intervention. This paper will highlight areas for future research, particularly the opportunity for theoretical enrichment of CPT and its essential elements.

Methods

This study uses narrative synthesis (Barnett-Page & Thomas, 2009) informed and organised by the systematic application of the TIDieR checklist (Hoffmann et al. 2014) to the 56 studies appraised in the two systematic reviews of CPT (Simmons-Mackie et al., 2010; 2016). A narrative approach allows for flexibility and accommodation of a range of study types (Mays, Pope, & Popay, 2005), while synthesis attempts to move beyond textual summary and description in order to generate comparative understanding, new insights and knowledge (Barnett-Page & Thomas, 2009; Mays et al., 2005). We used the TIDieR checklist as an orientating framework to organise our examination of intervention reporting, with a particular focus on reporting of causal mechanisms or theories thought to underlie the intended changes.

Material

The included 56 studies were identified in systematic searches of the literature prior to the two systematic reviews (see search terms and databases in Simmons-Mackie et al., 2010; 2016). Since starting our study in 2016 we estimated that only a few new CPT studies would be published and hence decided to only include the studies incorporated in the systematic reviews and not to do additional searches. These systematic reviews were of interventional studies of various types, where CPT was defined as a "socially oriented intervention" aimed at changing the communication environment (Simmons-Mackie et al, 2010: 1814) through approaches including communication skills training as well as education and counselling (Simmons-Mackie et al, 2016).

The included literature covers a wide range of studies of CPT in aphasia including skills and educational training, and counselling for any CPs of PWA. Skills training typically incorporated training of the CP to use strategies and resources in supporting their communication with PWA, whereas educational programs focussed on increasing the CPs' knowledge of aphasia. The counselling programs comprised management of psychosocial consequences of aphasia. Studies where partners were trained to provide more traditional aphasia therapy at home with PWA were, according to Simmons-Mackie et al. (2010), excluded from the original reviews.

In all cases, we only examined the original articles from the systematic review, and did not access other sources of information, such as manuals or websites, which may have been referred to in these articles (e.g., Wilkinson, Bryan, Lock, & Sage, 2010; Beeke et al., 2014).

In the following section we describe how we applied the 12-item TIDieR checklist, and the procedures for conducting the narrative synthesis.

Procedure

We used a three stage iterative process (Barnett-Page & Thomas, 2009) in applying the TIDieR checklist and developing the synthesis. The procedure at each stage was broadly comparable: i) the researchers independently read and reviewed articles, highlighting key points or concerns in notes entered into the TIDieR checklist. These points or concerns represented concepts in the articles under review in relation to their fit or lack of fit with the TIDieR framework, as well as problems of interpretation; ii) each stage of review was followed by group discussion, where the researchers raised points of concern or identified conceptual issues noted during the review. Group discussions were conducted via Skype (first two stages), with the final stage being a two-day face-to-face working conference.

In the first stage the four authors individually reviewed and rated the same four papers and then compared and discussed the ratings. Any key concerns to do with the relationship between the checklist and the content of the articles were discussed among the authors with frequent checks with the description of each TIDieR item in Hoffman et al. (2014) until consensus was reached. At this first stage further understanding of the TIDieR items was established and agreed upon, and a customised data extraction tool based on the TIDieR checklist developed for use in the next and subsequent stages (see Appendix). In addition to the fields within the original checklist (Yes/No, page numbers and comments), the adapted checklist allowed the possibility of inserting direct quotes to describe the reason for assigning to each item.

In the second stage, a further ten papers were reviewed by all four authors to check alignment of ratings and utility of the TIDieR-based data extraction tool. After this round, the last 42 papers were assigned for review to the researchers by the first author. In the final face-to-face working conference, we addressed the TIDieR checklist ratings for all reviewed papers, reaching consensus agreement for each article on the level of completeness of reporting

according to the TIDieR. When aligning the use of the TIDieR items with Hoffman et al.'s (2014) description of each item, we made one exception. Concerning item 6, *mode of delivery*, no study explicitly reported that the intervention was delivered face-to-face. However, we agreed to mark item 6 as 'Yes' where procedures reported in the articles implied face-to-face delivery.

All ratings (Yes/No) were then collated into an Excel file for each item and each article to provide a descriptive overview of completeness of reporting. Discussions based on researchers' independently recorded notes over the course of the whole review process addressed issues arising from each TIDieR item, and formed the basis of the narrative synthesis. In addition, we noted a range of strengths and limitations in the use of the TIDieR relative to its utility in framing the reporting of CPT interventions.

Data analysis

TIDieR ratings were summarized for each item and each article resulting in a total 'Yes' (i.e., description of the item present at least to some degree) in each article, and a total and mean rating for each item. The rated 56 papers were also categorised and subsequently summarised according to recipient/target and frame of intervention (e.g., family member/volunteer and dyad/group) as reported in the studies, rather than the focus of intervention (i.e., communication, education, or counselling) as in the systematic reviews (Simmons-Mackie et al., 2010; 2016). This was intentionally undertaken as target and frame of intervention were considered to impact greatly on the goals, rationales and essential elements of CPT, which were of particular interest in this study. This resulted in five categories: *Family Dyad*; *Family Group*; *Family Mixed Group*; *Healthcare Staff and Students*; and *Volunteers*.

Researchers' notes, comments, concerns and records of subsequent discussions from all meetings were used to explore similarities and differences across articles in relation to the five study categories and twelve TIDieR items and formed the basis of the narrative

synthesis. The synthesis consists of both description (e.g. similarities and discrepancies among the different studies and CPT interventions; use of names to describe the intervention), and interpretation (e.g. researchers' consensus judgements regarding discrepancies between overall aims and the essential elements of the intervention / mechanisms for change; degree of adequacy of item specification). The synthesis is organised under headings embodied in the TIDieR framework.

Results

Descriptive overview: completeness of reporting

Completeness of reporting is set out under the five categories: *Family Dyad*; *Family Group*; *Family Mixed Group*; *Healthcare Staff and Students*; and *Volunteers* (see Table 1).

Table 1. Total TIDieR item reporting by checklist item and recipient group (N=56). M=the average of Yes responses per study in the given recipient group

	TIDieR checklist items												
Recipient group	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Total Yes**
Family dyad (n=24)	9	18	20	22	21	23	11	22	21	0	0	0	167
Subtotal (% Yes of 24)	38%	75%	83%	92%	88%	96%	46%	92%	88%	0%	0%	0%	m=7.0
Family group (n=10)	2	8	6	10	7	10	4	10	6	0	0	0	63
Subtotal (% of 10)	20%	80%	60%	100%	70%	100%	40%	100%	60%	0%	0%	0%	m=6.3
Family mixed group (n=9)	4	5	6	6	6	7	1	8	3	0	1	0	47
Subtotal (% of 9)	44%	56%	67%	67%	67%	78%	11%	89%	33%	0%	11%	0%	m=5.2
HC staff & students (n=8)	7	7	7	7	6	7	5	7	3	0	0	0	56
Subtotal (% of 8)	88%	88%	88%	88%	75%	88%	63%	88%	38%	0%	0%	0%	m=7.0
Volunteers (n=5)	3	4	5	5	3	5	4	5	2	0	1	1	38
Subtotal (% of 5)	60%	80%	100%	100%	60%	100%	80%	100%	40%	0%	20%	20%	m=7.6
Total (n=56)	**25**	**42**	**44**	**50**	**43**	**52**	**25**	**52**	**35**	**0**	**2**	**1**	**371**
Total (% of 56)	**45%**	**75%**	**79%**	**89%**	**77%**	**93%**	**45%**	**93%**	**63%**	**0%**	**4%**	**2%**	**m=6.6**

The *Family dyad* group was the largest with 24 studies included. In four of the studies, more than one significant other was involved in addition to the PWA (Borenstein, Linell &

Währborg, 1987; Lesser & Algar, 1995; Nichols, Varchevker & Pring, 1996; Währborg & Borenstein, 1989). Ten studies targeting family members only in a group setting were categorised into *Family Group*. In the *Family Mixed Group*, nine studies targeting both family and PWA in a group setting were included, with some studies also incorporating dyad intervention alongside the group intervention. Eight studies were included in *The Healthcare Staff and Students* category; and five studies into the category where the CPT targeted *volunteers*.

Of the 56 included studies, a majority (75%) reported on between six and nine items, although 13 (23%) reported on less than half the TIDieR items. The items most often reported were items 6 *Mode of delivery* (93%)[3]; 8 *When and how much* (93%); and 4 *What – procedures* (89%), with items 2 *Describe any rationale, theory or goal of the essential elements of the intervention*, 3 *What – materials*, and 5 *Who provide* also reported in 75% or more of the studies. Least reported were items 10, 11 and 12 on *Modification* and *Fidelity*.

Studies of interventions targeting *Family mixed group* were the least well described ($m = 5.2$ items), followed by *Family Group* (m = 6.3), compared with interventions targeting *Family dyads* ($m = 7.0$), *Healthcare staff and students* ($m = 7.0$), and *Volunteers* ($m = 7.6$) (see Table 2).

Table 2. Total TIDieR item reporting by study and recipient group (N=56).

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[3] See comment on item 6 in Methods section

Reporting interventions in communication partner training

Family dyad (n=24)	Total TIDieR items	Family group (n=10)	Total TIDieR items	Family mixed group (n=9)	Total TIDieR items	HC staff & students (n=8)	Total TIDieR items	Volunteers (n=5)	Total TIDieR items
Beckley et al, 2013	9	Bevington, 1985	6	Hinckley & Packard, 2001	6	Cameron et al, 2015	6	Hickey et al, 2004	10
Beeke et al, 2007	8	Booth & Perkins, 1999	7	Hinckley et al, 1995	5	Jensen et al, 2015	8	Lyon et al, 1997	8
Beeke et al, 2014	9	Booth & Swabey, 1999	6	Purdy & Hindenlang, 2005	8	Legg et al, 2005	6	Kagan et al, 2001	8
Beeke et al, 2015	9	Draper et al, 2007	5	Rautakoski, 2011a	4	McGilton et al, 2010	9	McVicker et al, 2009	6
Blom Johansson et al, 2013	9	Fox et al, 2004	6	Rautakoski, 2011b	6	Mc Menamin et al, 2015	2	Rayner & Marshall, 2003	6
Boles, 1997	7	Hagge, 2014	5	Rautakoski, 2012	1	Simmons-Mackie et al, 2007	9		
Boles, 1998	4	Pound et al, 2001	5	Rautakoski, 2014	1	Sorin-Peters et al, 2010	9		
Boles, 2000	5	Rice et al, 1987	6	Sorin-Peters & Patterson, 2014	8	Welsh & Szabo, 2011	7		
Boles, 2015	7	Saldert et al, 2013	8	Turner & Whitworth, 2006	8				
Boles & Lewis, 2003	5	Saldert et al, 2015	9						
Borenstein et al, 1987	6								
Carragher et al, 2015	7								
Cunningham & Ward, 2003	8								
Fox et al, 2009	7								
Hopper et al, 2002	7								

Lesser & Algar, 1995	7								
Nichols et al, 1996	4								
Nykänen et al, 2013	8								
Simmons-Mackie et al, 2005	7								
Sorin-Peters, 2004	6								
Wilkinson et al, 1998	7								
Wilkinson et al, 2010	9								
Wilkinson et al, 2011	8								
Währborg & Borenstein, 1989	4								
Sub-total	**167**	**Sub-total Family group**	**63**	**Sub-total**	**47**	**Sub-total**	**56**	**Sub-total**	**38**
Sub-total (% Yes of 24)	**m=7.0**	**Sub-total (% of 10)**	**m=6.3**	**Sub-total (% of 9)**	**m=5.2**	**Sub-total (% of 8)**	**m=7.0**	**Sub-total (% of 5)**	**m=7.6**

Comparing older studies with more recently published ones, there is a gradual increase in items reported from the 1980s to 2010, from on average 5.7 to 7.8 items (Figure 1).
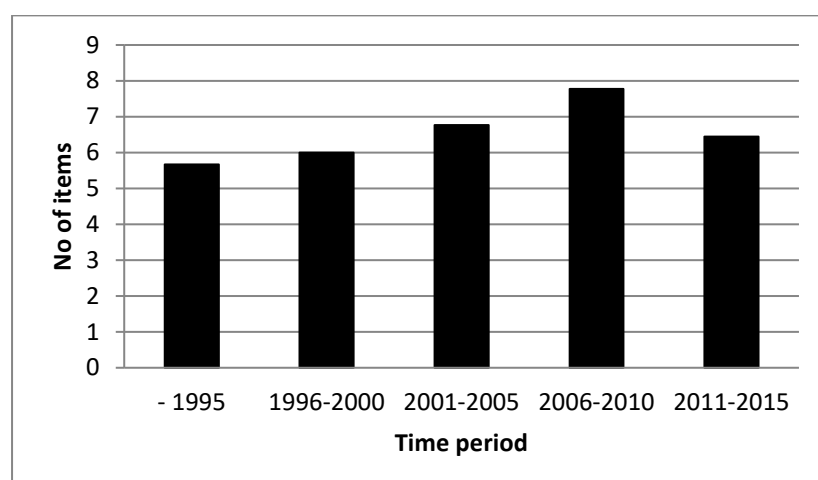
Figure 1. Average number of TIDieR items reported in studies from 1985 to 2015.

However, for the more recent period (2011-2015), the number of items reported has slightly decreased. Some studies e.g. Rautakoski (2012, 2014) (*Family mixed group*) and McMenamin, Tierney, & Mac Farlane (2015) (*Health care staff and students*) have extremely low completeness of reporting scores for TIDieR items (see Table 2), but this is likely caused by reasons related to the actual study's aims (see Discussion).

Narrative synthesis

TIDieR Item 1: Brief Name "Provide the name or a phrase that describes the intervention"
Overall, CPT was poorly reported as *specifically named* interventions. Those studies (n=25) with recognizable or clearly labelled intervention names included: Supported Conversation for Adults with Aphasia™ (SCA™) (n=9) (e.g., Jensen et al., 2015; Kagan, Black, Duchan, Simmons-Mackie & Square, 2001), Supporting Partners of People with Aphasia in Relationships and Conversation (SPPARC) (n=7) (e.g. Saldert, Backman & Hartelius, 2013; Wilkinson, Bryan, Lock & Sage, 2010), Conversation Partners Programme/Scheme (n=2) (McMenamin et al., 2015; McVicker et al., 2009), Patient-Centred-Communication-

Intervention (PCCI) (n=2) (McGilton et al., 2010; Sorin-Peters et al., 2010), Opening doors – a family education programme (n=2) (Hinckley et al., 1995; Hinckley & Packard, 2001), Better Conversations with Aphasia (BCA) (n=2) (Beeke et al., 2014, 2015), and Communication therapy for people with aphasia and their partners (APPUTE; n=1) (Nykänen et al., 2013). Some studies were *clearly branded* by type e.g. total communication training (n=4) (e.g. Rautakoski, 2011a, 2011b), family therapy (n=3) (Nichols et al., 1996; Borenstein et al., 1987; Währborg & Bohrenstein, 1989), or unique name/ features e.g. learner-centred conversation training programme (n=2) (Sorin-Peters, 2004; Sorin-Peters & Patterson, 2014), interactive storytelling therapy (n=1) (Carragher et al., 2015) and conversational coaching (n=1) (Hopper et al., 2002). Many however were *unspecified*, using a range of terms: conversational treatment, communication partners, conversation partners therapy, conducting conversation, aphasia couples therapy, solution focused aphasia therapy, recognition training, multimodality communication, therapy using conversation analysis, and combining neuropsychology and pragmatic approaches; and structured/ psycho-education programme for carers, residential family based intervention, group communication training for carers, and (social) support course/ group.

TIDieR Item 2: Why: "Describe any rationale, theory, or goal of the elements essential to the intervention"

Most studies provided rationales, goals or some theories relating to their CPT interventions, however these generally served to substantiate the *main purpose or aim* of the whole intervention, rather than specifically focusing on *elements deemed essential*.

The main goal of all studies was to increase knowledge and communication skills of those trained. *Family dyad* studies sought to raise PWA' and CPs' awareness of conversational behaviour and strategies *in general*, followed by raising awareness of their *own* conversational behaviour and strategy use. They subsequently sought to increase facilitatory

behaviours or reduce non-facilitatory behaviours, with the aim of communicating more effectively or increasing success in communication between the dyad. In addition to increased knowledge and skills some of the *Family Group* studies aimed to improve psychosocial outcomes, such as reduced stress or increased coping (Draper et al., 2007; Hagge, 2014; Rice et al., 1987; Saldert et al., 2013). In fact, the primary focus of the studies by Fox et al. (2004) and Pound et al. (2001) was on psychosocial outcomes. In the *Family mixed group* studies the goals also included increased knowledge and understanding of physical, emotional and psychosocial consequences of aphasia and what resources are available. In addition, the interventions aimed at encouraging PWA to use total communication and the CPs to use supportive conversation strategies. An additional goal in family (mixed) group studies was to create opportunities for the participants to share experiences and learn from each other (e.g., Fox et al, 2004; Hinckley et al, 1995). In the CPT studies of *Healthcare staff and students* the most prominent goal was improved knowledge and skills, with an additional goal of improving access for and participation of PWA in health care settings. The five *Volunteer* studies rather focused on improving communication between those with aphasia and the volunteers to improve social participation and well-being of the PWA.

Rationales for included intervention elements were provided in some studies. Most *Family dyad* studies implied the use of actual conversation as being the most relevant for dyads, or the use of video clips of candid camera or news clips as having ecological validity as typically discussed in daily conversations amongst people. Implicit in most studies across recipient groups was the assumption that explanation of aphasia and conversational behaviour, self-reflection and/or possible review of own or others' behaviours would raise awareness and aid self-identification in future. Then active engagement with a varied range of SLT instruction, modelling, coaching, and online feedback would change both individuals'

behaviour, and enable self-monitoring for on-going behaviour change following treatment.

The family *therapy* studies argued that aphasia is a family problem thus requiring treatment as a unit. They emphasized the need to focus on relationships that constitute the family system as well as individual personalities, and made connections between levels of relationships and experience of identity, noting communication was core in this (Nichols et al. 1996; Borenstein et al. 1987; Währborg & Borenstein, 1989). Studies describing residential or support programmes for family members included some aspects of peer-learning and support (Fox et al., 2001). Small group sizes and group provision were believed to maximise peer learning and support, and joint problem-solving (Hinckley & Packard, 2001; Purdy & Hindenlang, 2005). To facilitate generalisation to everyday use, Carragher et al. (2015) outlined four essential or active ingredients that were hypothesized to contribute to generalisation of behaviours to untrained tasks, which was the motivation for their study. These included targeting *micro- and macro-linguistic skills*, *thinking for speaking* in narrative production, *involvement of the CP*, and *information exchange* in everyday storytelling.

In a smaller number of the studies, researchers clearly articulated their theoretical basis for their interventions, primarily drawing on SCA[TM] and SPPARC underlying principles, and Kolb's experiential learning theory (e.g. Beckley et al., 2013; Kagan et al., 2001; Wilkinson et al., 2011). Six studies across recipient groups clearly or loosely referred to *SCA[TM]*, considering aphasia as a social unit and addressing the masking/ revealing competence power of the CP, and the equality of both CPs and consideration of the CP attitudes (e.g. Blom Johansson et al, 2013; Cunningham and Ward, 2003). The theoretical foundations of SCA[TM], constitutes of the framework of ICF (WHO, 2001); and the LPAA (Chapey et al., 2000). In the SCA[TM] studies the importance of conversation is emphasized with reference to Schegloff (1987), Schiffrin (1988), and Brown & Yule (1983) and that conversations are collaborative and co-constructed (Grice, 1975; Sacks, Schegloff & Jefferson, 1974). Predominantly

SPPARC and BCA studies' targets or goals for 'learning' and/or behaviour change were identified by using *Conversation analysis* (CA) to analyse individual dyad videoed conversations (e.g. Beckley et al., 2013; Beeke et al., 2007; 2014; 2015; Wilkinson et al., 1998). These studies highlighted the theoretical basis for focusing on turns, repairs, and sequences and how conversational behaviours or strategies recommended to dyads were based on existing evidence. Although not explicitly acknowledging CA, Hopper et al. (2002) drew on co-construction (Goodwin in Hopper et al.), with meaning being negotiated between speaker and listener, and applied this to their outcome measurement as their main concept of analyses. *Family Group* studies also draw on similar aspects of CA (Booth & Perkins, 1999; Booth & Swabey, 1999; Saldert et al., 2013; 2015) whilst Clark and Shaeffer's (1987) model of repair underpinned others (cited in Turner & Whitworth, 2006). *Experiential learning theory*, including self-reflection was a key theoretical basis for some studies across recipient groups (e.g., Beckley et al., 2013; Purdy & Hindenlang, 2005; Sorin-Peters, 2004; Sorin-Peters and Patterson, 2014) generally citing Kolb (1984). For example, Beckley et al. (2013) explain how the SPPARC programme (Lock, Wilkinson & Bryan, 2001) in addition to CA is based on Kolb (1984) and his conceptualization of learning as "the process whereby knowledge is created through transformation of experience" (p. 221) where learning is achieved via a reactive response to a learning situation (an experience), which triggers a recursive process of reflecting, thinking, and acting. As a person must engage in all stages of learning, beginning with concrete experience, their CPT intervention thus involved: (1) re-experiencing one's own and others' conversations by watching videos; (2) taking part in reflective written and verbal activities; and (3) engaging in role play (to enact new strategies) (see p. 221). Sorin-Peters (2004) in addition to Kolb's experiential learning theory, outlined *adult learning theories and principles* (e.g. Fisher-Brillinger, 1990; Griffin, 1994) which substantiated the elements of reflection on current behaviour and knowledge; own goal

setting; conversation practice; and use of videotaped interactions. She discusses the process

of learning, how it is activated and involves the whole person, and how adults learn best.

Also, *Family Group* studies often provided an explicit rationale or theory underpinning

elements such as supported review of videoed conversations, teaching of explicit strategies,

drawing on *adult or learner centred approaches* (Bevington, 1985; Hagge, 2014); *learning*

theory (Purdy & Hindenlang, 2005; Sorin-Peters and Patterson, 2014), and *relationship*

enhancement theory and *adults learning principles* drawn on by Sorin-Peters et al. (2010).

TIDieR Item 3: What "Materials: Describe any physical or informational materials used in

the intervention, including those provided to participants or used in intervention delivery or

in training of intervention providers. Provide information on where the materials can be

accessed (e.g. online appendix, URL)"

Video and video-derived data were key aspects of most of the studies regardless of recipient

group, and were used in a number of ways. Video clips of own conversations (dyads) were

typically used for explanation of concepts, to facilitate discussion of key features (positive

and negative) of interaction and thus raising awareness of own communication behaviour

(e.g., Turner & Whitworth, 2006). Such video clips were most of all used in *Family dyads*

(e.g. Beckley et al., 2013) and in *Family group* interventions (e.g., Saldert et al, 2015). On

occasion, videos and analyses (e.g. selective transcription; analysis against checklist of

conversational behaviours) were used for therapy planning, but not in the actual delivery.

Generic video clips – either purposively created (e.g., instructional videos in Kagan et al.,

2001), recordings of other CPs speaking with PWA (Beckley et al., 2013)), or downloaded

from YouTube (e.g., Carragher et al. 2015) were used to raise awareness generally about

conversation and in particular about conversations between PWA and their CPs. The overall

aim was to identify or illustrate skills and strategies (e.g. Beeke et al., 2015), or as a

sensitising tool (e.g. Bevington, 1985). Excerpts from television programmes provided content to be shared in conversation (Hopper et al. 2002; Simmons-Mackie et al. 2005).

Written materials/ hand-outs on aphasia and communication strategies related to aphasia were provided in all recipient groups. Written material also included quotations from research describing aphasic conversations (Rayner & Marshall, 2003). Some of the studies personalised such material prior to or during intervention delivery (e.g., Beeke et al. 2007; Cunningham & Ward, 2003; Wilkinson et al. 1998).

Pictures, photos, newspapers, maps, communication books, and other objects were used by studies in all recipient groups to most of all stimulate practice conversations (e.g., Borenstein et al. 1987; Hickey et al, 2004; Jensen et al., 2015; Kagan et al, 2001; Rautakoski, 2011b; Sorin-Peters et al., 2010).

Formal available resources were rarely reported as used, however studies reporting to use SPPARC methods do mention the usage of SPPARC resources (Lock et al., 2001), or were supposed to use them. This includes the two studies that used the Better Conversations with Aphasia website (https://www.ucl.ac.uk/betterconversations/aphasia) (Beeke et al., 2014, 2015). Other formal resources mentioned were literature from the National Aphasia Association website (https://www.aphasia.org) (Purdy & Hindenlang, 2005) and a communication partner-training package based on Connect's 'Making Communication Access a Reality' program including content and practical components (Cameron et al., 2015).

An explicit educational part about stroke, aphasia (e.g., cause, symptoms, treatment, prognosis, deficits, and psychological aspects), conversation, and communicate on strategies was most of all used in group interventions including *Family group*, *Family mixed group*, *Healthcare staff and students* and *Volunteers*. However, this kind of information was also

provided to the *Family dyads*. The *lecture content* in family (mixed) groups was often broad beyond stroke and aphasia, possibly reflecting caregiver needs, and included vocational issues, driving, coping, parenting, legal and medical issues, communication strategies (Hinckley and Packard, 2001), neuroanatomy (Purdy and Hindenlang, 2005), AAC, and interpreter service (Rautakoski, 2011b). In two *Healthcare staff and students* studies, the behavioural management REAP model was introduced (McGilton et al, 2010; Sorin-Peters et al, 2010). The model includes principles and strategies on Relating well, Environmental manipulation, Abilities-focused care, and principles about Personhood (McGilton, 2004) and was, for example, used by the nurse participants in the study of Sorin-Peters et al (2010) when developing individual communication plans for residents in a long-term care facility. Additional topics that were discussed in the educational parts in intervention *Volunteer* studies were the meaning of disability, concepts of conversation, communication, and communication disability (McVicker et al, 2009), to explain concepts and to motivate the volunteers (Kagan et al (2001). In addition, the expected role and commitment of being a volunteer was discussed (McVicker et al, 2009).

TIDieR Item 4: What "Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities"
The majority of studies are considered to have reported on procedures, however with vastly differing degrees of procedure specification. Many procedures are under-specified and replication was considered only possible for a small number of studies. Some studies had generally clear phases or stages, most of which related to SPPARC/SCA^{TM}-type programmes (e.g. Booth and Perkins, 1999; Booth and Swabey, 1999; Saldert et al. 2013, 2015; Sorin-Peters et al., 2010). Interventions typically included at least five stages: education, awareness

raising, identification of target behaviours/strategies, practice, and for some studies
implementation and post-training support.

Education. Most studies focused on education and information provision, which was either
general in content (e.g. lecture about aphasia) or highly specific (e.g. effects of agrammatism
on building a turn in conversation) (Beeke et al., 2015); or a 20 page personally tailored
advice booklet with diagrams and conversational excerpts (Lesser & Algar, 1995). Across
studies, most used a group setting format for the educational part. The exception was when
dyads were targeted where the educational part most of all consisted of information provision
with different levels of specificity noted. Education in groups ranged in length from one
shorter session (e.g. one 60 minutes-lection in Cameron et al., 2015) to a whole day (Kagan et
al., 2001), and included learning on topics described above (see item 3). Conversation
strategies were modelled by a SLT (e.g. Lyon et al, 1997; Rautakoski, 2011b; Sorin-Peters
and Patterson, 2014), exemplified from video clips (Hickey et al, 2004; McVicker et al, 2009;
Rayner & Marshall, 2003; Turner and Whitworth, 2006), or discussed with SLT or among the
other participants (Sorin-Peters and Patterson, 2014). When using a group format for
education, the content typically (but not exclusively) were more general in type (e.g. Jensen
et al., 2015), compared to studies targeting dyads where information was tailored to that
specific dyad (e.g. Sorin-Peters, 2004).

Raising awareness. In most studies, there were activities included that aimed to raise the
participants' awareness of own attitudes and communicative skills or behaviours. This was
accomplished by review and evaluation of video recordings of own conversations analysed
by or reflected on by the participant alone (e.g. Hickey et al., 2004), together with SLT (e.g.
Beckley et al., 2013) or in group with other participants (e.g. Booth & Swabey, 1999). The
studies varied in the extent to which they focused on facilitatory versus non-facilitatory
conversational behaviours, and in the extent to which the participants were involved in

reviewing their own behaviours from video as a baseline for the intervention, and throughout the intervention. Sometimes role-play was used as a means of increasing understanding of aphasia and having conversations with a PWA (e.g. Kagan et al, 2001). Some studies explicitly used a reflecting process, not only to reflect on own behaviour but also on learning new behaviours (e.g., Purdy and Hindenlang, 2005; Sorin-Peters and Patterson, 2014).

Identification of target behaviours/strategies. Specifically, in studies targeting dyads, intervention activities included identifying and selecting specific communication strategies as well as making goals in some instances (e.g. Beeke, Maxim & Wilkinson, 2007). However, also in the other recipient groups intervention elements typically included identifying facilitating communication skills/strategies; most of all from video-observations. In some *Healthcare staff and students* studies, elements were more tailored to the environment, such as the development and implementation of individualised communication plans (McGilton et al., 2010; Sorin-Peters et al., 2010) or medical students making medical interviews with PWA (Legg et al., 2005).

Practice/experiential part. Most studies included some kind of practice of communication strategies. Role-plays were used especially in *Healthcare staff and students* and *Volunteers* studies following education, as a means of practicing techniques and strategies (e.g. Kagan et al, 2001; Rayner & Marshall, 2003), but also practice with people with aphasia took place for those recipient groups (e.g. Jensen et al., 2015; Legg et al., 2005). *Family dyad* studies typically involved working on conversation as it is happening, with SLT involvement in the form of feedback during and after event and/or coaching (suggestion of strategies or techniques to use). Two *Family dyad* studies clearly target only CP (Beckley et al., 2013; Nichols et al., 1996); but the remaining studies in this recipient group explain how both PWA and CP are targeted in intervention (e.g. Beeke et al. 2014, 2015; Carragher et al., 2015). In Rautakoski (2011a, 2011b, 2012, 2014) papers, PWA were also targeted in that they were

trained in total communication via small group discussions, or in real-life activities such as shopping (Rautakoski, 2011b). Intervention elements in *Health care staff and students* studies as well as in *Volunteer* studies included both generic training in verbal and non-verbal techniques and strategies to facilitate communication, and practical experiences. The latter included face-to-face training with feedback provided by a SLT (e.g. Hickey et al, 2004; Lyon et al, 1997) or from PWA (e.g., Cameron et al., 2015; McVicker et al, 2009).

Practice was in most studies within the programme but was also set up as homework to encourage reflection on strategy usefulness and generalisation (e.g. Carragher et al, 2015; Turner & Whitworth, 2006). Another way of practicing was used in 'Opening doors' (Hinckley & Patterson, 2001; Hinckley et al, 1995), where attendees could choose to attend hands-on workshops (content not specified).

Implementation and support. In the *Healthcare staff and student* and the *Volunteer* categories some interventions included a staff support systems with post-training support and follow-up including on-site problem-solving and implementation issues (McGilton et al., 2010; Sorin-Peters et al., 2010). McVicker et al (2009) report on how an additional bi-monthly support (written dialogue between volunteer and supervisor based on volunteer feedback sheets) and 6-weekly group supervision was provided.

Finally, some studies reported on *comprehensive programmes* where CPT was only one component and was thus usually minimally described (e.g., Draper et al., 2007; Fox et al., 2004; Pound et al., 2001; Rautakoski, 2011b). Examples of additional activities (to education, awareness rising, and practice) in these programs were psychologist-led significant other discussion groups and playing language games (Rautakoski, 2011b), or accessing resources in an exhibit hall with resources and books (Hinckley and Patterson, 2001).

TIDieR Item 5: Who provided "For each category of intervention provider (e.g. psychologist,

nursing assistant), describe their expertise, background and any specific training given"

Whilst the majority of studies (77%) specified the intervention provider, very little other

information was reported. Communication partner training was most commonly provided by

a SLT; in 23 studies by SLT alone (e.g. Beckley et al., 2013; Jensen et al., 2015), and in 7

studies in combination with another professional or "assistant" (psychologist, nurse, family

therapist, communicative disorders assistant, community volunteer, graduate student, or

PWA). In four studies, trained PWA were directly involved in CPT provision by conversation

practice and giving immediate feedback to trainees (Cameron et al., 2015; Mc Menamin et al,

2015; McVicker et al, 2009) and in co-delivering presentations with SLT (Welsh & Szabo,

2011). In four further studies, CPT was provided by professional teams including SLT and

other professionals as psychologist, neurologist, social worker, and nurse (e.g. Rautakoski,

2011b). Several studies loosely specified provider as the "clinician" or "researcher" or

"first/lead" author. Background and expertise was loosely described in the following ways:

"certified", "experienced", "trained to teach supported conversation", "experienced in the use

of supportive communication strategies", "specialized in aphasia", and "familiar with

aphasia-friendly methods of communication".

TIDieR Item 6: Mode of delivery "Describe the modes of delivery (e.g. face-to-face or by

some other mechanism, such as internet or telephone) of the intervention and whether it was

provided individually or in a group"

Mode of delivery was rarely stated but presumed to be face-to-face, and in two studies,

additional telephone and/or email support was provided for volunteer support and supervision

(McVicker et al., 2009) and to support implementation of goals and objectives (Simmons-

Mackie et al., 2007). Studies that targeted significant others were typically conducted in a

dyad or in a group (with/without the PWA), with isolated studies targeting the CP as an individual (Simmons-Mackie et al, 2005), or the whole family (e.g., Nichols et al, 1996; Währborg & Borenstein, 1989). *Healthcare staff and students* and *Volunteers* CPT were typically conducted in a group, with some hands-on training in dyad incorporated in some studies (e.g., Cameron et al, 2015; Kagan et al, 2001).

TIDieR Item 7: Where "Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features"

A minority (45%) reported location, with many studies being implicit or vague (e.g. mentioning of an American state), or not reporting at all. Those clearly reported included: *Clinical setting* (hospital, clinic, rehab unit/centre, nursing home) (n = 8) (e.g. Fox et al., 2009; Simmons-Mackie et al., 2007); *Home* (n = 7) (e.g. Cunningham & Ward 2003; Lesser & Algar, 1995); *Mixed setting* (e.g. rehab unit and home) (n = 3) (Blom Johansson et al., 2013; Lyon et al., 1997; Nykänen et al., 2013); *Educational setting* (university/college) (n=3) (Saldert et al., 2013, 2015; Welsh & Szabo 2011); *Residential course* (n = 2) (Borenstein et al., 1987; Fox et al., 2004); and *Community centre* (n = 2) (Kagan et al., 2001; McVicker et al., 2009). Communication partner training provided in clinical settings covered the range of recipient groups. Communication partner training provided at home was typically *Family dyad*, but also one *Volunteer* study (Lyon et al., 1997). Communication partner training provided in educational settings targeted *Family dyads*, or *Healthcare students*. Finally, CPT provided on residential courses targeted family (mixed) groups; whilst the study in community centres targeted *Volunteers*.

*TIDieR Item 8: When and How Much **"Describe the number of times the intervention was***

delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity or dose"

Whilst the large majority (93%) of studies provided some description of how much intervention was given, there was a substantial lack of clarity and consensus in reporting. More than half of the studies (n = 34) described interventions lasting over a number of consecutive sessions, usually distributed over several weeks, lasting from 2 - 20 sessions or weeks. Communication partner training was usually provided once weekly, but some studies reported a higher intensity (e.g. Hickey et al., 2004). Sessions were mostly between 1 - 2 hours, however sessions varied from 45 minutes up to 4 hours. The reported duration of the CPT varied a lot in total length from one short session of less than an hour to a two-day workshop or even longer in residential courses where, for example, 8+4 days over a period of three months are reported (the studies by Rautakoski, 2011a, 2011b, 2012, 2014). The precise numbers of hours in many of the CPTs are unclear since several of the studies (n = 15) only report either on number of weeks or sessions and hence not providing information enough to calculate the total number of hours. Thirty-seven of the studies clearly provided either a total number of hours or workshop days. In 18 of those studies, the intervention lasted less than 10 hours (e.g. McGilton et al., 2010) and three of them was very brief (ranging from less than an hour to 75 minutes) (e.g. Cameron et al., 2015). The short interventions were both one-off sessions (e.g. one day workshop) (e.g. Jensen et al., 2015) or sessions distributed over several weeks (e.g. Saldert, 2013). Fifteen studies report intervention duration between 10 - 20 hours typically delivered over 6 - 12 weeks (e.g. Hagge, 2014), but with two of the interventions delivered as a two-day workshop (e.g. Simmons-Mackie et al., 2007). Four interventions lasted from 24 up to a maximum of 89 hours (e.g. Lyon et al., 1997; Turner and Whitworth 2006).

Regarding this checklist item, Hoffman et al. (2014, p. 6) write "*for some interventions, as part of the "when" information, detail about the timing of the intervention in relation to relevant events might also be important (for example, how long after diagnosis, first symptoms, or a crucial event did the intervention start)*". This information was not extracted for this paper, but detail is reported already in the two systematic reviews. In Simmons-Mackie et al (2010), participants varied from 1.25 - 178 months post-onset, and the most typical PWA were between 6 months and several years, with only 4 studies reported on PWA who were less than 6 months post-stroke. In Simmons-Mackie et al. (2016), 17/25 studies reported time post-onset, with all participants more than 4 months post-stroke, with exception of one study where participants were 14-63 days post-stroke.

TIDieR Item 9: Tailoring "If the intervention was planned to be personalized, titrated or adapted, then describe what, why, when, and how"

Thirty-five studies (63%) reported adapting CPT for a particular population. All *Family dyad* studies except three reported tailoring via addressing barriers and facilitators in conversational strategies identified at a pre-intervention assessment or baseline phase; individualised goal setting; and subsequent strategy development and practice. Several *Family Group* studies personalised CPT by using personal video-recordings (e.g. Saldert et al., 2013, 2015); individualised information, booklets, and suggestions of strategies (e.g. Booth & Perkins, 1999); individualised advice on linguistic and conversational abilities of each person with aphasia as collected through participant reports or observed from video-recordings (e.g. Booth & Swabey, 1999); and participant-led agendas in group discussions (Fox et al., 2004). A few *Family Mixed Group* studies personalised CPT using data from video-recordings or participant reports of communication abilities and supportive communication strategies specific to each partner to personalise information and propose

strategic approaches. Some *Healthcare staff and student* studies personalised CPT to PWA

via individualised communication plans, and/or to staff via support systems and resources

(McGilton et al., 2010; Simmons-Mackie et al., 2007; Sorin-Peters et al., 2010). Finally, two

Volunteer studies described adaptations via highly individualised programmes adapted to the

specific needs of volunteers and PWA in community (Lyon et al., 1997) and residential

(Hickey et al., 2004) settings.

TIDieR Item 10: Modifications "If the intervention was modified during the course of the

study, describe the changes (what, why, when, and how)"

No studies reported modifications to the intervention.

TIDieR Item 11: How well "Planned: If intervention adherence or fidelity was assessed,

describe how and by whom, and if any strategies were used to maintain or improve fidelity,

describe them"

Only two studies reported on planned assessment of fidelity of CPT. Sorin-Peters and

Patterson (2014) used "methods to enhance treatment fidelity were implemented in the

design, training, delivery, receipt and implementation of the intervention" (p.742), for

example using a training manual to guide the content of all sessions, with the length and

number of sessions the same for each participant. Hickey et al. (2004) reported strategies

used to ensure adherence to treatment procedures such as the use of a manual, criterion

behaviour for each step, and a script for the general education programme.

TIDieR Item 12: How well "Actual: If intervention adherence or fidelity was assessed,

describe the extent to which the intervention was delivered as planned"

Hickey et al. (2004) was the only study to report how well the intervention was actually

adhered to. This was through the use of an independent trained observer, who watched videotapes for each step of the training programme, calculating adherence to the protocol by dividing actual experimenter behaviours by the total number of opportunities for such behaviours, reporting "procedural reliability" of 95% - 100% for each step (p.630).

Finally, during the critical review process, some studies were noted to be exemplary in their reporting, and are highlighted for the reader who desires more in-depth understanding of CPT. These include: (1) McGilton et al. (2010), Sorin-Peters (2004), and Sorin-Peters et al. (2010) for strong rationales, and Purdy and Hindenlang (2005) for the clear application of strong Kolb learning theory in CPT; (2) Beckley et al. (2013), Carragher et al. (2015), and Sorin-Peters and Paterson (2014) for detailed reporting of intervention materials and procedures leading to high likelihood of replicability based on the papers alone; and (3) Hickey et al. (2004) for very specific delineation of training for student volunteers (i.e. to a criterion rather than length of time), and for fidelity; and Lesser and Algar (1995) for personalised education advice booklets. Fox et al. (2004) is an interesting example of no *a priori* rationale of CPT ingredients/essential elements, where in fact, the purpose of the paper is to report how these have been derived from carers' perceptions of participating in the intervention. Pound et al. (2001) is interesting for its bottom-up development of the family education programme (including CPT), which might suggest essential elements for this broader programme had face validity. Finally, Simmons-Mackie et al. (2007) exemplifies how SCA[TM] training is one component of a wider systems-level intervention that includes other important elements of goal setting, whole team involvement, and on-going support.

Discussion

Main findings

In summary, half of the TIDieR checklist items (2, 3, 4, 5, 6, 8) were reported by 71% or more of the studies, and the rest of the items were reported by 0 - 63% of studies. TIDieR items relating to the treatment (goal, rationale or theory of essential elements, and materials and procedures) and provision (provider, mode, timing, and dose) were more frequently reported, however the level of detail described was often inadequate or incomplete, and the general consensus of the authors was overall that CPT was insufficiently specified to enable replication for most of the studies considered. The items name, location, intervention tailoring and modification, and planned and actual intervention adherence/fidelity were infrequently reported. These main findings are considered in turn below.

The increase of reported details in intervention descriptions seemed to halt and even start to decrease around 2010. Thorough intervention descriptions are necessary in order to understand the details of a study, but also to make replication of the intervention possible in both research and clinical practice for the benefit of PWA and their CPs. We acknowledge that the word limits of journal articles can be a possible explanation, but draw attention to newer possibilities of publishing supplementary materials.

Most CPT studies provided overall goals or aims of the intervention with a range of rationales, and some theoretical underpinning, that justified the study being undertaken, and in the context of the existing evidence base. However, the specific elements of the intervention deemed essential in CPT were rarely explicitly stated by study authors, and the authors were required to make consensus judgments about what elements could be deduced or inferred from within the study reporting. As such, there is little explicit reasoning in publications about why and how the elements are believed to change and improve target behaviours. There were, however, notable exceptions to this, with these studies being

SCA^{TM}- or SPAARC/CA-based studies and those based on learning theories. Researchers urgently need to embrace this field following complex interventions guidance (Medical Research Council, 2000, 2008), and causally model or hypothesize the mechanisms of change, and then test these. Very recent research shows that personalised communication strategy training for dyads (Better Conversation for Aphasia) does indeed result in increased use of CP strategy support, increased awareness of own (CP's) behaviour, increased use of strategies in conversation by both CP and PWA, and does result in more successful conversations overall (Johnson, Best, Beckley, Maxim, & Beeke 2017). However, Johnson et al (2017) also identify motivational aspects which may cause improved conversations, such as changed expectations of communication behaviour's impact, changed priorities in conversation, and changed perceptions of success. Previously, these aspects may not have been well considered in CPT, and the authors highlight the value of such research in moving forward.

Both materials and procedures were mainly well reported. Materials included videos, written information and other props. They were used in intervention procedures such as education/ teaching, practice or role-play, feedback, and group discussion. Often sequence was important, with formal educative elements prior to active practice, and some studies advocating in-setting practice (i.e. at home or on the ward). There was some perceptions reported that goal generation/ reflection was a useful active procedure to engage participants in their learning (see e.g., Sorin-Peters, 2004). Similarly, some procedures such as on-going on-ward or telephone support (e.g. McGilton et al., 2010; McVicker et al., 2009; Simmons-Mackie et al., 2007; Sorin-Peters et al., 2010) were mentioned to be possible intervention elements in order to facilitate transfer of learning into intended settings (see Horton et al., 2016a), and are worthy of broader consideration in CPT packages.

CPT was almost entirely face-to-face with some limited telephone or email support in two studies; further consideration of alternative modes of delivery is needed (e.g. Heard, O'Halloran & McKinley, 2017) to scale up this intervention and support transfer/ generalisation. Most CPT-interventions were SLT-led. However, some CPTs were multi-disciplinary. These tended to be the *Family mixed group* programmes, and ward-based or residential care interventions. The backgrounds and expertise of these providers were minimally reported. Some CPT programs do require specific training i.e. in SCA^{TM} as acknowledged in Jensen et al. (2015), and more attention to this is needed in the field. Involving PWA in CPT is a novel and more recent development (e.g. Horton, Lane, & Shiggins, 2016b). Further investigation is needed to specify what benefits this might bring (and if proved to be successful incorporated as a likely mechanism of behaviour change). Finally, when and how much CPT was provided was very difficult to synthesize as the data was so variably reported across the studies. There is clearly no consensus on optimal dosage or scheduling to support learning and generalisation, nor optimal timing post-stroke. Most studies appear to be convenience-sampled, resulting in most CPT literature arising from the chronic phase, with some exceptions (Bevington, 1985; Blom Johansson et al., 2013).

Whilst it is a positive outcome to see 25 studies with a clear label, including 9 studies drawing on SCA^{TM} suggesting a critical mass of literature developing for one type of CPT, the multiple or absent intervention labels reflect and contribute to on-going complexity and confusion in the field. Our review shows that while CPT has been delivered across a range of settings, many studies fail to report location. It would thus appear that the influence of the environmental context (social and physical) as highlighted in the Introduction is yet to be fully realised in how CPT is constructed and potentially also evaluated (see Ahlsén & Saldert, this issue for a more elaborate discussion of context in relation to CPT).

Intervention tailoring was positively noted in approximately two thirds of the CPT literature, and implemented at outset of CPT. It was typically individualised in choice of communication strategies, and information and advice, and most prominent in dyadic intervention, although not limited solely to this CPT recipient group and there is indication it can be achieved with *Healthcare staff and students*, and *Volunteers* as well. More effort is obviously required for personalisation, in that it often involves video-recording and analysis of specific conversational interactions as a basis for treatment. As highlighted by Horton et al. (2016a), some CPT will need adaptation, i.e. different information content, if some patients have additional cognitive difficulties that impact on their communication. Modifications were not reported, similar to the findings of Ludemann et al. (2017), which may imply that all CPT was delivered as intended. However, given the lack of identity and specificity around any one specific CPT, and the general practice to variably deliver CPT, it would seem more that researchers flexibly implement CPT and report *what was delivered* rather than providing a protocol made prior to delivery. Overall, CPT needs to be conceptualised as a package to be delivered according to specific guidelines and protocol, and various measures implemented to determine whether the intervention package is adhered to. In a review of general aphasia intervention literature, Hinckley and Douglas (2013) found that less than 14% of studies explicitly reported on fidelity. Only two studies in our review considered this, and only one reported on it, highlighting a substantial source of potential bias that influences interpretation of findings.

Treatment recipients

In general, studies targeting dyads aimed to improve communication behaviours and strategies of one/both members; studies involving family members targeted broader consequences, communication, and psychosocial caregiver needs; and *Healthcare staff and*

students' and *Volunteer* studies aimed to improve the CP's knowledge and communication strategies for increasing PWA participation in clinical or community settings or PWA wellbeing/confidence. As such, CPTs target communication and the CPs either in their own right as the intended explicit goal, as a component within a broader framework of intervention, or as a means to achieving a higher goal, largely for PWA to increase their participation in everyday life in different contexts and thereby an improved quality of life. When PWA is targeted as recipients of CPT it is often with the purpose of identifying, learning and using optimal communication strategies or to reduce the use of unsuitable strategies.

The authors hypothesized that target and frame of intervention would impact on goals, rationales and theories, materials and procedures of CPT interventions. Across the CPT interventions in the reviewed studies, there are common features, such as an overall goal of increased knowledge and improved communication skills, and identified stages of education, awareness raising, identification of target behaviours/strategies, and practice. However, although there is overlap in materials and procedures of CPT for different recipient groups, there are also indeed some distinct features, with a specific CA and Kolbian focus in *Family dyad* CPT; broader education and small group discussion/workshops in *Family (mixed) group* CPT (also indicating the role of CPT needs more delineation within these broader programmes), and knowledge/education provision and conversation practice for *Healthcare staff and students*, and *Volunteers*. Additional goals of intervention also differ somewhat between the recipient groups in terms of different emphasis on skills and knowledge versus psychosocial wellbeing and increased participation of the PWA.

Recommendations for future CPT intervention specification

From the findings of this present review of CPT studies, we suggest for future CPT intervention studies, that:

1. CPT is clearly labelled in all reporting, so that it has a recognisable identity

2. essential elements are identified a priori, with specific goals, rationales and theoretical underpinning of why and how they provoke behaviour change

3. CPT materials and procedures consider more the active engagement of participants in the intervention through goal setting, self-evaluation/ review, expectation setting, and features that support transfer/ generalisation to intended environments

4. location of CPT delivery is considered particularly in relation to salience of the learning environment, and generalisation potential

5. CPT development and delivery consider

   a. the value of involving a broader range of service providers and intervention recipients, including PWA and other professionals

   b. optimal dose and scheduling based on existing evidence from a range of fields e.g. neuroplasticity and learning theory, with increased consideration of earlier time post-onset CPT (<6 months)

   c. alternative modes of delivery such as online training (see Heard, O'Halloran, & McKinley, 2017) and more telephone/ email support

6. CPT adherence/ fidelity is adequately planned for and evaluated alongside outcomes for CPs and PWA, and may include practitioner training, manualisation, scripted intervention protocols, session monitoring (live or via video-recordings), and log/checklist completion by practitioner (Kaderavek & Justice, 2010)

Limitations of this study

There are a number of limitations that refer to study reporting and inclusion, and the application of the TIDieR checklist. Firstly, all 56 studies from the two former systematic

reviews were reviewed, however this figure includes papers that report on the *same* CPT

(with variable intervention detail reported in *all* papers) thereby influencing findings. An

example is the four studies of Rautakoski (2011a; 2011b, 2012, 2014) which all refer to the

same intervention, however CPT details are mainly described in one study only (Rautakoski,

2011b). Secondly, some papers scored low on the TIDieR checklist (e.g. McMenamin et al.,

2015); such papers did not set out to report CPT intervention findings per se, but instead

report on other processes. However, to be consistent with the already published two

systematic reviews of CPT, all 56 papers were reviewed. Thirdly, there are a number of

important considerations relating to the TIDieR checklist and process: (1) Authors

independently reviewed, scored, and subsequently discussed articles until consensus was

reached amongst the team on each checklist item for each paper (see Methods).

Disagreements were initially noted, however through discussion, clearer interpretation of

checklist items emerged. Authors acknowledge the subjectivity of this process, and in some

items, this was particularly noted (e.g. in the extent to which interventions were sufficiently

described for replicability). (2) In addition, we had some difficulties applying the TIDieR

checklist to CPT interventions. For example, "goals, rationales *or* theories" in item 2 are

believed to be different concepts, and the authors suggest that goals, rationales *and* theories

should *all* be provided in CPT intervention descriptions. We also felt a need to separate the

goal, rationale, and theory of an *intervention*, from the goal, rationale, and theory of *essential*

elements. (3) Some items were scored as reported, however the degree of reporting ranged on

a continuum from explicit but brief description through to detailed description. Finally (4) the

tailoring of CPT interventions (TIDieR item 9) was subject for discussion. Tailoring or

personalisation of intervention is inherent in many CPT interventions, especially when

provided to dyads. Authors thus marked the majority of the included studies as tailored if e.g.

different communication strategies were suggested by the intervener to different dyads;

however this is likely to differ from Hoffman et al's (2014) intention, which was tailoring to research participants in the context of a randomised controlled trial.

CONCLUSION

This synthesis highlights the complexity of CPT, with variably reported aims, goals, and rationales; shared and different procedures and materials; and delivered to a range of treatment recipients. Overall, CPTs are under-reported, and even when reported, often the detail provided is insufficient for replication research studies or for implementation in clinical settings. The increase of reported details in intervention descriptions even started to decrease around 2010. The positive trend of reporting more details must be resumed. More research is needed to begin to identify and subsequently test the essential elements/ active ingredients in CPTs. Whilst the TIDieR checklist is not without limitation, particularly in the context of application to non-RCT studies, it provides an excellent orienting tool for intervention description and review.

References

Barnett-Page, E., & Thomas, J. (2009). Methods for the synthesis of qualitative research: a critical review. *BMC Medical Research Methodology*, 9. doi: 10.1186/1471-2288-9-59

Beckley, F., Best, W., Johnson, F., Edwards, S., Maxim, J., & Beeke, S. (2013). Conversation therapy for agrammatism: exploring the therapeutic process of engagement and learning by a person with aphasia. *International Journal of Language & Communication Disorders, 48*(2), 220-239.

Beeke, A., Johnson, F., Beckley, F, Heilemann, C, Edwards, S, Maxim, J, & Best, W. (2014). Enabling Better Conversations Between a Man With Aphasia and His Conversation Partner: Incorporating Writing Into Turn Taking. *Research on Language & Social Interaction, 47*, 292-305. doi: 10.1080/08351813.2014.925667

Beeke, S., Beckley, F., Johnson, F., Heilemann, C., Edwards, S., Maxim, F., & Best, W. (2015). Conversation focused aphasia therapy: investigating the adoption of strategies by people with agrammatism. *Aphasiology, 29*(3), 355-377.

Beeke, S., Maxim, J., & Wilkinson, R. (2007). Using conversation analysis to assess and treat people with aphasia. *Semin Speech Lang 28*, 136-147.

Bevington, L. (1985). The effect of a structured education programme on relatives' knowledge of communication with stroke patients. *Aust J Human Commun Disord 13*, 117-121.

Blom Johansson, M., Carlsson, M., Östberg, P., & Sonnander, K. (2013). A multiple-case study of a family-oriented intervention practice in the early rehabilitation phase of

persons with aphasia. *Aphasiology, 27*(2), 201-226. doi:
10.1080/02687038.2012.744808

Boles, L. (1997). Conversation analysis as a dependent measure in communication therapy with four individuals with aphasia. *Asia Pacific journal of speech, language and hearing, 2*( ), 43-61.

Boles, L. (1998). Conversational discourse analysis as a method for evaluating progress in aphasia: a case report. *Journal of Communication Disorders, 31*, 261-274.

Boles, L. (2000). Aphasia therapy in a bilingual speaker: treatment in language one with spousal support in language two. *Asia Pacific J Speech Lang Hear 5*, 137-142.

Boles, L. (2015). Establishing alignment in aphasia couples therapy in a woman with Wernicke's aphasia: A Case Study. *Communication Disorders Quarterly 36*, 219-230.

Boles, L., & Lewis, M. (2003). Working with couples: Solution focused aphasia therapy. *Asia Pacific J Speech Lang Hear 8*, 153-159.

Booth, S., & Swabey, D. (1999). Group training in communication skills for carers of adults with aphasia. *International Journal of Language & Communication Disorders, 34*(3), 291-309.

Booth, S., & Perkins, L. (1999). The use of conversation analysis to guide individualized advice to carers and evaluate change in aphasia: a case study. *Aphasiology, 13*(4), 283-303.

Borenstein, P., Linell, S, & Währborg, P. (1987). An innovative therapeutic program för aphasia patients and their relatives. *Scandinavian Journal of Rehabilitation Medicine, 19*, 51-56.

Brown, G., & Yule, G. (1983). *Discourse analysis*. Cambridge: Cambridge University Press.

Byng, S, Pound, C, & Parr, S. (2000). Living with aphasia: A framework for therapy interventions. In I. Papathanasiou (Ed.), *Acquired neurogenic communication disorders*. London: Whurr Publishers.

Cameron, A., McPhail, S., Hudson, K., Fleming, J., Lethlean, J., & Finch, E. (2015). Increasing the confidence and knowledge of occupational therapy and physiotherapy students when communicating with people with aphasia: A pre–post intervention study. *Speech, Language and Hearing, 18*(3), 148-155.

Carragher, M., Sage, K., & Conroy, P. . (2015). Preliminary analysis from a novel treatment targeting the exchange of new information within storytelling for people with nonfluent aphasia and their partners. *Aphasiology, 29*(11), 1383-1408.

Chan, A-W. et al. (2013). SPIRIT 2013 Statement: Defining Standard Protocol Items for Clinical Trials. *Annals of internal medicine, 158*. doi: 10.7326/0003-4819-158-3-201302050-00583

Chapey, R., Duchan, J., Elman, R., Garcia, L., Kagan, A., Lyon, J., & Mackie, N. (2000). Life participation approach to aphasia: A statement of values for the future. *ASHA Leader, 5*, 4-6.

Cherney, L R., Simmons-Mackie, N., Raymer, A., Armstrong, E., & Holland, A. (2013). Systematic review of communication partner training in aphasia: Methodological quality. *International Journal of Speech Language Pathology, 15*, 535-545. doi: 10.3109/17549507.2013.763289

Coster, W.J. (2013). Making the best match: Selecting outcome measures for clinical trials and outcome studies. *The American Journal of Occupational Therapy, 67*(2), 162-170. doi:10.5014/ajot.2013.006015

CONSORT (2010). CONSORT 2010 Statement: updated guidelines for reporting parallel group randomised trials. *BMJ, 340*. doi: 10.1136/bmj.c332

Craig P., Dieppe P., Macintyre S., et al. (2008). Developing and evaluating complex interventions: the new Medical Research Council guidance. BMJ, **337**:a1655. doi:10.1136/bmj.a1655

Cunningham, R., & Ward, C D. (2003). Evaluation of a training programme to facilitate conversation between people with aphasia and their partners. *Aphasiology, 17*(8), 687-707.

Draper, B., Bowring, G., Thompson, C., Van Heyst, J., Conroy, P., & Thompson, J. (2007). Stress in caregivers of aphasic stroke patients: a randomized controlled trial. *Clin Rehabil, 21*(2), 122-130. doi: 10.1177/0269215506071251

Fisher-Brillinger, M. (1990). Helping adult to learn. *Journal of Human Lactation, 6*(4), 171-176.

Fox, L., Poulsen, S., Bawden, K C., & Packard, D. (2004). Critical elements and outcomes of a residential family-based intervention for aphasia caregivers. *Aphasiology, 18*(12), 1177 - 1199.

Fox, S., Armstrong, E., & Boles, L. (2009). Conversational treatment in mild aphasia: A case study. *Aphasiology, 23*(7), 951 - 964.

Grice, H. P. (1975). Logic and conversation. In P. Cole & J. L. Morgan (Eds.), *Syntax and Semantics, Volume 3: Speech Acts* (pp. 41-58). New York: Academic Press.

Griffin, V. R.(1994). Holistic learning/teaching in adult education: Would you play a one-string guitar? In: T. Barer-Stein and J. A. Draper (Eds.), *The craft of teaching adults*. Malabar, FL: Krieger Publishing Company.

Hagge, D. (2014). Alternative Service Delivery Model: A Group Communication Training Series for Partners of Persons with Aphasia. *Perspectives on Neurophysiology & Neurogenic Speech & Language Disorders, 24*(3), 114-117.

Heard, R., O'Halloran, R., & McKinley, K. (2017). Communication partner training for health care professionals in an inpatient rehabilitation setting: A parallel randomised trial. *International Journal of Speech-Language Pathology, 19*(3), 277-286. doi: 10.1080/17549507.2017.1290137

Herbert, R., Moseley, A., & Sherrington, C. (1998). PEDro: A database of RCTs in physiotherapy. *Health Information Management*, *28*, 186-188.

Hickey, E M., Bourgeois, M S., & Olswang, L B. (2004). Effects of training volunteers to converse with nursing home residents with aphasia. *Aphasiology, 18*(5/6/7), 625-637.

Hinckley, J., Packard, M., & Bardach, L. (1995). Alternative family education programming for adults with chronic aphasia. *Top Stroke Rehabil 2*, 53-63.

Hinckley, J J, & Packard, M E W. (2001). Family education seminars and social functioning of adults with chronic aphasia. *Journal of Communication Disorders, 34*(3), 241-254.

Hoffmann, T.C., Glasziou, P.P., Boutron, I., Milne, R., Perera, R., Moher, D., . . . Michie, S. (2014). Better reporting of interventions: template for intervention description and

replication (TIDieR) checklist and guide. *BMJ : British Medical Journal, 348*. doi: 10.1136/bmj.g1687

Hopper, T., Holland, A., & Rewega, M. (2002). Conversational coaching: Treatment outcomes and future directions. *Aphasiology, 16*(7), 745-761.

Horton, S., Clark, A., Barton, G., Lane, K., & Pomeroy, V. M. (2016a). Methodological issues in the design and evaluation of supported communication for aphasia training: a cluster-controlled feasibility study. *BMJ Open, 6*. doi: 10.1136/bmjopen-2016-011207

Horton, S., Lane, K., & Shiggins, C. (2016b). Supporting communication for people with aphasia in stroke rehabilitation: transfer of training in a multidisciplinary stroke team. *Aphasiology, 30*(5), 629-656. doi: 10.1080/02687038.2014.1000819

Howe, T. J., Worrall, L. E., & Hickson, L. M. (2008a). Interviews with people with aphasia: Environmental factors that influence their community participation. *Aphasiology, 22*, 1-29. doi: 10.1080/02687030701640941

Howe, T. J., Worrall, L. E., & Hickson, L. M. (2008b). Observing people with aphasia: Environmental factors that influence their community participation. *Aphasiology, 22*(6), 618-643. doi: 10.1080/02687030701536024

Jensen, L., Løvholt, A., Sørensen, I., Blüdnikow, A., Iversen, H., Hougaard, A., . . . Forchhammer, H. (2015). Implementation of supported conversation for communication between nursing staff and in-hospital patients with aphasia. *Aphasiology, 29*(1), 57-80.

Johnson, F M., Best, W., Beckley, F C., Maxim, J., & Beeke, S. (2017). Identifying mechanisms of change in a conversation therapy for aphasia using behaviour change

theory and qualitative methods. *International Journal of Language & Communication Disorders, 52*(3), 374-387. doi: 10.1111/1460-6984.12279

Kaderavek, J., & Justice, L. (2010). Fidelity: An essential component of evidence-based practice in speech-language pathology. *American Journal of Speech-Language Pathology, 19*, 369-379.

Kagan, A., Black, S E., Duchan, J F., Simmons-Mackie, N., & Square, P. (2001). Training volunteers as conversation partners using "Supported conversation for adults with aphasia™" (SCA™): a controlled trial. *Journal of Speech, Language and Hearing Research, 44*, 624-638.

Kagan, A., Simmons-Mackie, N., Rowland, A., Huijbregts, M., Shumway, E., McEwen, S., . . . Sharp, S. (2008). Counting what counts: A framework for capturing real-life outcomes of aphasia intervention. *Aphasiology, 22*, 258 - 280. doi: 10.1080/02687030701282595

Kolb, D. A. (1984). Experiential Learning: Experience as the Source of Learning and Development. Upper Saddle River, NJ: Prentice Hall.

Le Dorze, G., Salois-Bellerose, E., Alepins, M., Croteau, C., & Halle, M-C. (2014). A description of the personal and environmental determinants of participation several years post-stroke according to the views of people who have aphasia. *Aphasiology, 28*, 421-439. doi: 10.1080/02687038.2013.869305

Legg, C., Young, L., & Bryer, A. (2005). Training sixth-year medical students in obtaining case-history information from adults with aphasia. *Aphasiology, 19*(6), 559 - 575.

Lesser, R., & Algar, L. (1995). Towards combining the cognitive neuropsychological and the pragmatic in aphasia therapy. *Neuropsychological rehabilitation, 5*(1/2), 67-92. doi: 10.1080/09602019508520176

Lock, S., Wilkinson, R. & Bryan, K. (2001). Supporting Partners of People with Aphasia in Relationships and Conversation (SPPARC): A Ressource Pack. Bicester: Speechmark.

Ludemann, A., Power, E., & Hoffmann, T. (2017). Investigating the adequacy of intervention descriptions in recent speech-language pathology literature: Is evidence from randomized trials useable? *American Journal of Speech-Language Pathology, 26*, 443-455. doi:10.1044/2016_AJSLP-16-0035

Lyon, J G., Cariski, D., Keisler, L., Rosenbek, J., Levine, R., Kumpula, J., . . . Blanc, M. (1997). Communication Partners: Enhancing participation in life and communication for adults with aphasia in natural settings. *Aphasiology, 11*(7), 693-708.

Mays, N., Pope, C., & Popay, J. (2005). Systematically reviewing qualitative and quantitative evidence to inform management and policy-making in the health field. *Journal of Health Services Research* Policy, 10, S1:6 – S1:20.

McGilton K.S. (2004). Relating well to persons with dementia: a variable influencing staffing and quality of care outcomes. *Alzheimer Care Quarterly 5*, 63–72.

McGilton, K., Sorin-Peters, R., Sidani, S., Rochon, R., Boscart, V., & Fox, M. (2011). Focus on communication: increasing the opportunity for successful staff-patient interactions. *International journal of Older People Nursing, 6*(13-24).

McMenamin, R., Tierney, E., & Mac Farlane, A. (2015). Addressing the long-term impacts of aphasia: how far does the Conversation Partner Programme go? *Aphasiology, 29*, 889-913. doi: 10.1080/02687038.2015.1004155

McVicker, S., Parr, S., Pound, C., & Duchan, J. (2009). The Communication Partner Scheme: A project to develop long-term, low-cost access to conversation for people living with aphasia. *Aphasiology, 23*(1), 52 - 71.

Medical Research Council. (2000). A framework for development and evaluation of RCTs for complex interventions to improve health.

Medical Research Council. (2008). Developing and evaluating complex interventions: New guidance. Retrieved from: www.mrc.ac.uk/complexinterventionsguidance

Nichols, F., Varchevker, A., & Pring, T. (1996). Working with people with aphasia and their families: an exploration of the use of family therapy techniques. *Aphasiology, 10*(8), 767-781. doi: 10.1080/02687039608248449

Nykänen, A., Nyrkkö, H., Nykänen, M., Brunou, R., & Rautakoski, P. (2013). Communication therapy for people with aphasia and their partners (APPUTE). *Aphasiology, 27*(10), 1159-1179.

O'Halloran, R., Shan Lee, Y., Rose, M., & Liamputtong, P. (2014). Creating communicatively accessible healthcare environments: Perceptions of speech-language pathologists. *International Journal of Speech-Language Pathology, 16*, 603-614. doi: 10.3109/17549507.2014.894125

O'Halloran, R., Grohn, B., & Worrall, L. (2012). Environmental factors that influence communication for patients with a communication disability in acute hospital stroke

units: a quailitative metasynthesis. *Archives of Physical and Medical Rehabilitation, 93*, S77-85. doi: 10.1016/j.apmr.2011.06.039

O'Halloran, R., Hickson, L., & Worrall, L. (2008). Environmental factors that influence communication between people with communication disability and their healthcare providers in hospital: a review of the literature within the International Classification of Functioning, Disability and Health (ICF) framework. *International Journal of Language & Communication Disorders, 43*(6), 601-632. doi: 10.1080/13682820701861832

O'Halloran, R., Worrall, L., & Hickson, L. (2011). Environmental factors that influence communication between patients and their healthcare providers in acute hospital stroke units: an observational study. *International Journal of Language & Communication Disorders, 46*, 30-47. doi: doi:10.3109/13682821003660380

Pound, C., Parr, S., & Duchan, J. (2001). Using partners' autobiographical reports to develop, deliver, and evaluate services in aphasia. *Aphasiology, 15*, 477-493.

Power, E., Thomas, E., Worrall, L., Rose, M., Togher, L., Nickels, L., … Clarke, K. (2015). Development and validation of Australian aphasia rehabilitation best practice statements using the RAND/UCLA appropriateness method. *BMJ Open*, 5, 1-15.

Purdy, M., & Hindenlang, J. (2005). Educating and training caregivers of persons with aphasia. *Aphasiology, 19*(3), 377 - 388.

Rautakosk., P. (2011a). Partners' self-perceptions of the use of different communication strategies during total communication intervention. *Aphasiology, 25*(12), 1523-1542.

Rautakoski, P. (2011b). Training total communication. *Aphasiology, 25*(3), 344-365.

Rautakoski, P. (2012). Self-perceptions of functional communication performance during total communication intervention. *Aphasiology, 26*, 826-846. doi: 10.1080/02687038.2011.651710

Rautakoski, P. (2014). Communication style before and after aphasia: A study among Finnish population. *Aphasiology, 28*, 359-376. doi: 10.1080/02687038.2013.866211

Rayner, H., & Marshall, J. (2003). Training volunteers as conversation partners for people with aphasia. *International Journal of Language & Communication Disorders, 38*(2), 149-164.

Rice, B., Paull, A., & Müller, D J. (1987). An evaluation of a social support group for spouses of aphasic partners. *Aphasiology, 1*(3), 247-256.

Rose, M., Ferguson, A., Power, E., Togher, L., & Worrall, L. (2014). Aphasia rehabilitation in Australia: Current practices, challenges and future directions. *International Journal of Speech Language Pathology, 16*, 169-180. doi: 10.3109/17549507.2013.794474

Royal College of Physicians Intercollegiate Stroke Working Party (2016). National clinical guideline for stroke (5th Ed.).

Sacks, H., Schegloff, E. A., & Jefferson, G. (1974). A simplest systematics for the organization of turn-taking for conversation. *Language 50*(4), 696-735.

Saldert, C., Johansson, C., & Wilkinson, R. (2015). An interaction-focused intervention approach to training everyday communication partners: a single case study. *Aphasiology, 29*(3), 378-399.

Saldert, C., Backman, E., & Hartelius, L. (2013). Conversation partner training with spouses of persons with aphasia: A pilot study using a protocol to trace relevant characteristics. *Aphasiology, 27*(3), 271-292. doi: 10.1080/02687038.2012.710317

Schegloff, E. A. (1987). Analyzing single episodes of interaction: An exercise in conversation analysis. *Social Psychology Quarterly, 50,* 101–114.

Schiffrin, D. (1988). Conversation analysis. In F. L. Neumayer (Ed.), *Linguistics: The Cambridge survey IV. Language: The sociocultural context* (pp. 251–276). Cambridge, U.K.: Cambridge University Press.

Schreier, M. (2014). Qualitative content analysis. In U. Flick (Ed.), *The SAGE Handbook of Qualitative Data analysis* (pp. 170-183).

Simmons-Mackie, N., & Kagan, A. (2007). Application of the ICF in aphasia. *Seminars in Speech and Language, 28*, 244-253.

Simmons-Mackie, N N., Kagan, A, Christie, C O'Neill, Huijbregts, M, McEwen, S, & Willems, J. (2007). Communicative access and decision making for people with aphasia: Implementing sustainable healthcare systems change. *Aphasiology, 21*(1), 39 - 66.

Simmons-Mackie, N., Kearns, K., & Potechin, G. (2005). Treatment of aphasia through family member training. *Aphasiology, 19*(6), 583 - 593.

Simmons-Mackie, N., Raymer, A., Armstrong, E., Holland, A.L., & Cherney, L.R. (2010). Communication partner training in aphasia: a systematic review. *Archives of Physical Medicine and Rehabilitation, 91*, 1814-1837. doi: 10.1016/j.apmr.2010.08.026

Simmons-Mackie, N., Raymer, A., & Cherney, L.R. (2016). Communication Partner Training in Aphasia: An Updated Systematic Review. *Archives of Physical Medicine and Rehabilitation, 97*, 2202-2221.e8. doi: https://doi.org/10.1016/j.apmr.2016.03.023

Sirman, N., Beeke, S., & Cruice, M. (2017). Professionals' perspectives on delivering conversation therapy in clinical practice. *Aphasiology, 31*, 465-494. doi: 10.1080/02687038.2017.1278739

Sorin-Peters, R. (2004). The evaluation of a learner-centred training programme for spouses of adults with chronic aphasia using qualitative case study methodology. *Aphasiology, 18*(10), 951-975.

Sorin-Peters, R., McGilton, K. S., & Rochon, E. (2010). The development and evaluation of a training programme for nurses working with persons with communication disorders in a complex continuing care facility. *Aphasiology, 24*(12), 1511 - 1536.

Sorin-Peters, R., & Patterson, R. (2014). The implementation of a learner-centred conversation training programme for spouses of adults with aphasia in a community setting. *Aphasiology, 28*(6), 731-749. doi: 10.1080/02687038.2014.891094

Tate, R., McDonald, S., Perdices, M., Togher, L., Schultz, R., & Savage, S. (2008). Rating the methodological quality of singlesubject designs and n-of-1 trials: Introducing the Single-Case Experimental Design (SCED) Scale. *Neuropsychological Rehabilitation*, *18*, 385 – 401. doi: 10.1080/09602010802009201

Turkstra, L, Norman, R, Whyte, J, Dijkers, M, & Hart, T. (2016). Knowing what we're doing: Why specification of treatment methods is critical for evidence-based practice in speech-language pathology. *American Journal of Speech-Language Pathology, 25*, 164-171. doi:10.1044/2015_AJSLP-15-0060

Turner, S., & Whitworth, A. (2006). Clinicians' perceptions of candidacy for conversation partner training in aphasia: How do we select candidates for therapy and do we get it right? *Aphasiology, 20*(7), 616-643.

Wallace, S., Worrall, L., Rose, T., & Le Dorze, G. (2017a). Which treatment outcomes are most important to aphasia clinicians and managers? An international e-Delphi consensus study. *Aphasiology, 31*, 643-673. doi:10.1080/02687038.2016.1186265

Wallace, S J., Worrall, L., Rose, T., Le Dorze, G., Cruice, M., Isaksen, J., . . . Gauvreau, C A. (2017b). Which outcomes are most important to people with aphasia and their families? an international nominal group technique study framed within the ICF. *Disability and rehabilitation, 39*, 1364-1379. doi: 10.1080/09638288.2016.1194899

Welsh, J., & Szabo, G. (2011). Teaching nursing assistant students about aphasia and communication. *Seminars in Speech and Language, 32*(3), 243-255.

WHO (2001). International Classification of Functioning, Disability and Health. Geneva.

Wilkinson, R., Bryan, K., Lock, S., Bayley, K., Maxim, J., Bruce, C., . . . Moir, D. (1998). Therapy using conversation analysis: helping couples adapt to aphasia in conversation. *International Journal of Language and Communication Disorders, 33*(suppl), 144-149.

Wilkinson, R., Bryan, K., Lock, S., & Sage, K. (2010). Implementing and evaluating aphasia therapy targeted at couples' conversations: A single case study. *Aphasiology, 24*(6-8), 869-886. doi: 10.1080/02687030903501958

Wilkinson, R., Lock, S., Bryan, K., & Sage, K. (2011). Interaction-focused intervention for acquired language disorders: Facilitating mutual adaptation in couples where one

partner has aphasia. *International Journal of Speech-Language Pathology, 13*(1), 74-87. doi: 10.3109/17549507.2011.551140

Währborg, P., & Borenstein, P. (1989). Family therapy in families with an aphasic member. *Aphasiology, 3*(1), 93-98. doi: 10.1080/02687038908248978

Yamato, T., Maher, C., Saragiotto, B., Hoffmann, T., & Moseley, A. (2016). How completely are physiotherapy interventions described in reports of randomised trials? *Physiotherapy Research International, 102*, 121-126. doi: 10.1016/j.physio.2016.03.00

Appendix

The TIDieR (Template for Intervention Description and Replication) Checklist
Information to include when describing an intervention and the location of the information

Reference of paper being reviewed:				
Reviewed by (delete as appropriate): Simon, Monica, Jytte, Madeline				

TIDieR Item	YES/ NO	Where located in paper		Description
		Primary paper (page number)	**Other e.g. suppl.**	
1. Brief Name Provide the name or a phrase that describes the intervention.				
2. Why Describe any rationale, theory, or goal of the elements essential to the intervention.				Essential elements
				Rationale/Theory/Goal for essential elements
3. What Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (e.g. online appendix, URL).				
4. What Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities.				*(please report if replication is possible after the procedures description)*
5. Who provided				

For each category of intervention provider (e.g. psychologist, nursing assistant), describe their expertise, background and any specific training given.				
6. How Describe the modes of delivery (e.g. face-to-face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group.				
7. Where Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features.				
8. When and how much Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity or dose.				
9. Tailoring If the intervention was planned to be personalized, titrated or adapted, then describe what, why, when, and how.				
10. Modifications If the intervention was modified during the course of the study, describe the changes (what, why, when, and how).				
11. How well Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them.				
12. How well Actual: If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned.				