ImPACT: a multifaceted implementation for conversation partner training in aphasia in Dutch rehabilitation settings.

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Abstract

Purpose: Exploration of the clinical uptake of a novel conversation partner training (CPT) programme in aphasia in ten Dutch rehabilitation facilities and identification of its perceived facilitators and barriers in service providers, and the evaluation of the implementation methods used.

Method: Ten rehabilitation centres took part in a multifaceted implementation of conversation partner training over thirteen months. Each centre selected two speech and language therapists to act as knowledge brokers whose role it was to raise awareness of CPT in the team and to facilitate getting partners of people with aphasia into the programme. The implementation was evaluated using analysis of recruitment data and questionnaires, supplemented by consensus data and scrutiny of implementation plans.

Results: Successful implementation was described as 1) four dyads included during the intervention period, 2) two more dyads included after the intervention period, before the end of the study and 3) inclusion of Partners of Aphasic Clients Conversation Training (PACT) in a description of the logistics of local stroke care (stroke care pathway). Seven centres were successful in reaching the target inclusion of 6 dyads in total. Only one centre had care pathways in place. From a recruitment pool of 504 dyads, 41 dyads were recruited and 34 partners completed the implementation of PACT study (ImPACT). Observed facilitators included the motivation to engage partners in the rehabilitation process and the perceived added value of PACT. The perceived barriers focused on time limitations within current systems to discuss the consequences of PACT with relevant professionals and to establish allocated time for PACT within existing care routines.

Conclusions: The motivation of professionals to involve partners in the rehabilitation process assisted with the introduction of PACT in practice. The main barrier was time, linked to the requirement to think through integration of this innovation within existing care. Longer term evaluation would ascertain how centres sustain uptake without support.

Keywords: Implementation, conversation partner training, aphasia, speech and language therapy, partners, innovation, ImPACT.

Introduction

Over the last few decades the inclusion of family members in the treatment of stroke survivors has been advocated [1]. In line with this recommendation a programme for conversation partner training (CPT), as part of an aphasia intervention, was introduced in Dutch rehabilitation practice [2][3]. Speech and language therapists (SLTs), like other rehabilitation professionals, update their knowledge and skills to enhance their professional performance in the individual therapeutic relationship with their clients through continuing professional development (CPD [4]). When a novel method or tool is introduced into a healthcare setting that reaches beyond the boundaries of that individual therapeutic relationship, it touches on the social system and the social interactions among the different stakeholders, such as different groups of professionals, management and service users. Knowledge translation, knowledge exchange or implementation are all terms aiming to capture the complex systems approach which brings about change in these settings [5]. Greenhalgh et al. [6] highlighted the role of implementation when a service is faced with innovation, suggesting that 'a novel set of behaviours' are 'implemented by planned and coordinated actions' (p.582). The present study describes the implementation process in which the new tool for CPT was introduced in clinical practice and identifies the facilitators and barriers for uptake in service providers.

The theory of implementation has taken flight over the last two decades. Nilsen [7] distinguished three overarching aims: 1) describing and guiding the process of implementation; 2) understanding and explaining the influences on implementation outcomes and 3) evaluating implementation. In line with the first aim, process models, such as the 'Knowledge-to-action process' [5] set out to describe or guide the implementation process. Determinant frameworks assist Nilsen's second aim, by unpicking various aspects that may have acted as barriers or facilitators to implementation. The Promoting Action on Research in Health Services framework (PARiHS [8]) is an example of a determinant framework which regards successful implementation as a function of the nature of innovation or evidence to be implemented, the nature and quality of the context where the knowledge was implemented and the way this process was facilitated. Innovations are more likely to be taken up if they have attributes such as *compatibility*, *trialability* and *fuzzy boundaries* [6] (p.597). An innovation is *compatible* when it resonates with existing norms and values of the target organisation, and meets a clinical need. *Trialability* concerns the extent to which intended users can experiment with the innovation before it is fully implemented and '*fuzzy boundaries'* indicate surrounding organisational structures of an innovation that lend themselves for adaptation, while the central properties, or the 'core element' of an innovation, are preserved. When an organisation engages with an innovation a reciprocal process takes place by which the organisation adapts to the innovation and the innovation is adapted by an organisation to fit local procedures [9].

Three properties of the context enable implementation [10]: 1), motivation of the target audience; 2) the capacity of a target audience to absorb new knowledge related to existing skills and the ability to recognise the value of the innovation; 3) the capacity of the target audience to incorporate the innovation into routine practice. Grimshaw et al. [11] differentiated between a primary and a secondary target audience, depending on the nature of

the innovation. Knowledge brokers [12] [13] act as primary target audiences and collaborate with key stakeholders to facilitate the implementation of an innovation in a local organisation [14]. For example the knowledge brokers may be responsible for instructing and educating local team members and managers as well as introducing the innovation to service users. When members of the allied health professions act as knowledge brokers, they may not always be in the position to establish change outside of their professional autonomy [15] and shared agency [16] may be established by local implementation teams that include managers and rehabilitation physicians who do hold power of decision.

The process in which the implementation is facilitated, is dictated by the complexity of an innovation. A multifaceted approach to implementation is deemed appropriate when the innovation is complex [17]. This approach comprises several strategies for change, such as financial incentives, educational strategies and feedback, targeting different levels of an organisation. Grol and Grimshaw [18] distinguished different factors for change at the levels of the individual professional, the team and the system. Attitudes and routines are examples of factors for change for individual professionals, whereas at team level social influence and leadership are defining factors for bringing about change.

Another element of successful implementation concerns who introduces the innovation into clinical practice. Although the characteristics of this 'messenger' of the innovation have not been extensively researched [19], local opinion leaders and researchers who have a reputation within the field are considered credible messengers [6] [10] [19].

Finally, Nilsen [7] emphasised the need for evaluation of the implementation, selecting the appropriate evaluation based on what type of knowledge was implemented and the type of the target audience receiving it. Conceptual knowledge might change knowledge, understanding and attitudes towards that new knowledge and should be evaluated through questionnaires and interviews [20]. The evaluation measure is related to the extent to which the knowledge is

implemented. For instance when the local use of a new therapeutic tool is the goal of implementation, (as was the case in the study presented here) observational evaluation suffices, because the researcher has no control over the selection of participants or the use of a comparable control [20].

Implementation theory has previously been used in studies concerning the allied health professions, such as the implementation of a community occupational therapy programme for people with dementia and their caregivers [21]. Implementation theory has also been used in SLT research addressing communicative access in health care [12] [22] [23] [24] where professionals were targets of conversation partner training. To our knowledge this is the first implementation study addressing the introduction of a training programme which targets partners of persons with aphasia (PWA) as recipients of training in rehabilitation practice on a multi-centre scale.

Rationale for the implementation of a CPT programme

In the Netherlands, 61% of stroke survivors return home after a stay in hospital, rehabilitation centre or nursing home [25]. This figure underlines the extent of the burden of care that partners carry [26] [27]. Particularly partners who face the loss of communication abilities in their family member due to aphasia may struggle [28]. PWA are affected in language expression and /or language comprehension, both in spoken and in written language modalities, after acquired brain injury. As a consequence of this it affects a PWA's ability to engage in conversations. As everyday conversations are a collaborative venture, the aphasia also affects a conversation partner and as a consequence, conversation partner behaviour may affect the PWA's participation possibilities within those conversations. This means that intervention for aphasia at the WHO level of participation [29] should target both the PWA and the environmental factors, in this case the conversation partner [30] [31] [32]. Partner

education in aphasia in the Netherlands currently consists of information provision during therapy sessions, for which no standardised programme exists. As in other countries, the emphasis in SLT sessions in the Netherlands is on improving language functions of the PWA rather than focusing on the communicative interaction between the PWA and his or her conversation partners [33] [34] [35]. By focussing on language improvement in the PWA, the available evidence for CPT [36] is insufficiently acknowledged. A systematic review reports that partners improve their communicative skills after CPT and PWA show greater competence in conversations with trained conversation partners [36]. In order to fill the practice-evidence gap, a UK CPT package 'Supporting Partners and People with Aphasia in Relationships and Conversation' (SPPARC) [37] was adapted for Dutch clinical practice into the 'Partners of Aphasic clients Conversation Training' (PACT) [38]. The theory, structure and methods of SPPARC are reflected in PACT, though practice content (e.g. conversation behaviour examples and worksheets) was adapted to the Dutch language and culture.

PACT, as a published product, was selected for wider implementation by Revalidatie Nederland (The Netherlands Association for Medical Rehabilitation representing a national network of rehabilitation services) as it was used on a small scale and had user group interest. Subsequently, the implementation of PACT, the ImPACT study, was included in a nationwide rehabilitation-innovation programme.

This paper reports the results from the rehabilitation professionals involved in the implementation of PACT when it was widened out beyond one institution and looks at facilitators and barriers for its uptake as perceived by these service providers. A description of the characteristics of the service users who engaged with PACT and the partners' experience with this training programme has been reported elsewhere [3] [39]. Three research questions address the implementation of PACT, while the fourth research question addresses the method of implementation used:

1. What is the uptake of PACT in the ten participating centres?
2. What are the perceived facilitators to uptake of PACT?
3. What are the perceived barriers to uptake of PACT?
4. Which elements of a multifaceted approach contribute to the implementation of PACT?

Methods

This is a descriptive, observational mixed-methods study. The next sections describe the design used in ImPACT including the intervention, the participants and the multifaceted implementation process. This is followed by a section on measurement and analysis in which the different measures used in addressing the four research questions are described.

Design

Intervention

PACT provides SLTs with a structured and theory driven programme, with which they coach partners of PWA, using an experiential learning format [40]. PACT aims to raise awareness in partners of PWA about conversation styles and to enable them to learn new strategies that help them and the PWA to become more effective and comfortable in their conversations. The training of the conversation partner is based on several short video recordings of every day conversations made by the couple (dyad) in their home environment. The SLT examines the videos for conversation patterns and discusses, with the dyad, goals for training [38].

Participants

The participants in this study were the ImPACT-team, the centres and the knowledge brokers. The first three authors comprised the ImPACT-team. As professionals from the Rijndam Rehabilitation Aphasia team they were considered opinion setters and leaders in aphasia

therapy in the Netherlands. Eight rehabilitation centres were purposively sampled by the first author from the 24 national network centres offering stroke rehabilitation, representing geographical spread, centre size and centre type. Three nursing homes with rehabilitation units as part of regional stroke services allied with three of the rehabilitation centres were also recruited. Ten centres (seven rehabilitation centres and the three nursing homes) agreed to participate. One rehabilitation centre had not been able to confirm participation before the start of the study. By requirement of the study's funder, the board of directors in each centre signed consent to take part in ImPACT and approved the financial agreements within this study. Two SLTs in each centre were selected (and paid) as knowledge brokers, fulfilling a central role in the implementation strategies used. One of them took on the task of local ImPACT coordinator. Table 1 shows the ten participating centres arranged according to number of full time equivalent hours of available SLT and the experience of working with PWA of the two SLT knowledge brokers in each centre. The 20 SLT knowledge brokers, were on average experienced in working with PWA, although there was a wide range in terms of years of experience (mean number of years post qualification: 14.95 years, *SD* 10.32, range 4-40) amongst them.

Insert Table 1 about here

Implementation process

Figure 1 shows the process of implementation in ImPACT using an adaptation of Graham et al.'s model [5]. The centre funnel in Figure 1 shows how knowledge is translated from general knowledge enquiry, through knowledge synthesis (for example in a systematic review), into a practical tool (for example PACT). Following on from these three steps PACT is considered a *third generation knowledge tool* [41]. The action cycle in Figure 1 started

when PACT was introduced in centres where partner education was identified as an area for improvement by professionals involved in aphasia intervention.

The action cycle represents the ImPACT study that lasted 24 months. Centres participated in a 13-month intervention period (month 3 until month 16) in which the ImPACT team and knowledge brokers worked closely together, and dyads were recruited. The SLT knowledge brokers and the ImPACT team met up in four general meetings. During the first two general meetings, emphasis was on learning to work with PACT itself. In the final two meetings, emphasis shifted towards local implementation efforts, following the formation of local implementation teams who devised local implementation plans. Three education outreach visits, by the research coordinator (first author) or the research assistant (third author) were planned (see also implementation strategies, interactive education). As centres began to work with PACT, the product itself was adapted to fit local needs and systems by providing additional materials, such as a planning format and PACT worksheets. A follow up inventory of PACT trajectories via telephone interview took place at the end of the study, eight months after the intervention period.

Insert figure 1 about here

Implementation strategies and cascade training

So called cascade training [42] was used in which the ImPACT team educated, informed and supported the knowledge brokers, who, in turn, informed their local team and the clients. SLTs acting as knowledge brokers were the primary target audience for this study as they introduced the new tool for conversation partner training (CPT) in their own organisation and to their clients, framing these latter groups as the secondary target audience. The central role of the SLT knowledge brokers was twofold; 1) advocating PACT within their centre, raising

awareness within their multidisciplinary team, of the possibilities and consequences of using PACT in a client's care trajectory and 2) providing PACT to clients as skilled professionals, raising awareness in partners of their role in conversation as well as the possibility of engaging in CPT.

The multifaceted approach [17] was made up of five implementation strategies:

1. Financial support included payment for the local coordinators (two hours per week during the intervention period of thirteen months) and compensation cover for regular provision of care whilst the therapists were engaged in ImPACT meetings and education. Providing the PACT programme and a camera, at no cost, were also financial incentives.
2. Interactive education was organised in the four full day central meetings and three outreach visits and served both roles of the SLT knowledge brokers: skill training in PACT and support in local implementation. Figure 1 shows the timing of these meetings within the action cycle. Meeting 1 consisted of general instruction in PACT. In Meeting 2, first impressions and experiences with PACT were shared and an introduction to implementation was provided by the external implementation consultant, supplied by the funder. In meeting 3, first implementation experiences were shared and two PACT cases were discussed in depth. The final central meeting was spent on evaluation of the intervention period and was timetabled so that it took place after the final recruited dyads had finished their training. Two outreach visits of two hours each were provided by the ImPACT coordinator (first author) or the ImPACT research assistant (third author) in each centre in which individual training took place. These visits enabled local SLTs to discuss PACT analysis, goal setting and training for the first two included dyads in detail. In the next two included dyads per centre, SLT knowledge brokers took the lead in PACT analysis and goalsetting, supervised by the research team via telephone and e-mail contacts.

A third outreach visit targeted the local multidisciplinary team and manager during which the ImPACT coordinator presented PACT and issues of partner training and implementation of PACT were discussed.

3. Education materials consisted of two folders; the ImPACT folder explained the studies' procedures and consequences of aphasia on conversation; the PACT folder explained the aims and procedures of PACT. Both were in an aphasia-friendly format.
4. Feedback was another multi-component strategy, consisting of recruitment administration, telephone consultations on the training of dyads (used after the first two dyad training visits had been done) and additional feedback on implementation issues. Recruitment administration was kept for data collection on candidacy, but also served as feedback on candidacy and as a regular reminder. For this purpose, the SLT local coordinator recorded the total number of persons with aphasia referred to SLT and the number eligible for ImPACT. They also recorded their reasons for not including potentially eligible clients across six categories; no care needs, not a good candidate, does not want PACT, does not want research, quick discharge and not enough SLT capacity.
5. Reminders were used in the study through phone and e-mail contacts as well as a quarterly newsletter to ensure continued adherence to the study and resolve any emerging issues linked to participating in it.

Eligibility of dyads

Recruitment of dyads used the following eligibility criteria for clients in each centre:

- PWA to be a minimum of three months post stroke
- PWA and partner: Dutch as primary language at home
- Partner who is able to participate and assist in making the videos and take part in training
- No suspected or confirmed dementia or psychiatric disorder in PWA or partner

- No previous suspected or confirmed relationship problems that might have affected the communicative interaction of the dyad

Informed consent and ethical approval

This study was performed in accordance with the Helsinki declaration and was approved by the Medical Ethics committee of Erasmus University Medical Centre, Rotterdam. All dyads gave written consent prior to data collection. Participation in the study was voluntary and participants were able to withdraw at any time, without having to provide an explanation.

Measurement and analysis

For this clinically based, exploratory study no standardised measurements were available. The goals within ImPACT (see supplementary file 1) were leading for the four types of evaluation: 1) criteria for uptake; 2) questionnaires; 3) consensus notes of the four central meetings with the SLT knowledge brokers; 4) local implementation plans. The research questions dictated the type of evaluation. For the first research question addressing uptake, three indicators of successful implementation were formulated. The first criterion concerning recruitment and inclusion was based on the implementation strategy of education, for which both SLTs had to include two dyads, totalling four in each centre:

1. The initiation of four PACT trajectories with a partner in each centre within the intervention period of 13 months and completion of those within three months after this period.

The second criterion was derived from this criterion, taking feasibility within the available time frame into account:

2. At least another two PACT trajectories with a partner should be initiated after the intervention period and before the end of the study, showing ongoing use without the additional support from the ImPACT team.

At the time, centres committed themselves to describing the logistics of their stroke care provision in 'care pathway' documents in an effort to make their care provision more transparent for health insurers. The third indicator was chosen in line with this development.

3. The uptake of PACT in a local care pathway by the end of the study, in order to ensure sustained use of PACT in clinical care.

Recruitment numbers across the 10 centres were counted. In the final meeting with the knowledge brokers, the Nominal Group Technique [43] was used to reflect on reasons for not including clients in the ImPACT study. For this the SLT group engaged in the silent generation of ideas; round-robin sharing of ideas followed by group discussion to bring together their collective ideas. For the third indicator of uptake, the implementation plans from the centres were consulted and a telephone inventory was conducted at the end of the study.

Perceived facilitators and barriers for implementation (Research Questions 2 and 3) and an evaluation of the approach used (Research Question 4) were assessed via questionnaires which were based on the goals formulated for the ImPACT study (see supplementary file 1). Two separate questionnaires were used; one for the SLT group and one for the doctors and managers (D&M) who were part of the local implementation team. Questionnaires contained three topics: a) implementation strategy, b) aspects of content and c) aspects of organisation. Within the SLT questionnaire, the focus was on aspects of content. Within the doctors and managers questionnaire, the focus was on aspects of organisation. Descriptive statistics were used for the analysis. A 7-point Likert scale was used, in which '1' represented total disagreement and '7' represented total agreement with the statements. For analysis purposes,

scores 1, 2, 3 were joined to reflect disagreement and 5, 6, 7 were joined to reflect agreement. Score 4 was judged to reflect a neutral answer. The first author conducted a thematic content analysis of the responses to open questions were counted, grouped, coded and categorized. Codes were given to groups of responses with similar content, which were then headed under categories. The categories were subsequently matched with the levels of change as described by Grol and Grimshaw [18]. For triangulation purposes, these data were supplemented by other documents (consensus notes of general meetings; recorded feedback during outreach visits to teams) to provide a description and interpretation of the facilitators and barriers experienced by the professionals. The full text questionnaires with responses can be found in Appendices 1 and 2.

Results

Results are based on data collected from the recruitment administration, the questionnaires, consensus notes of the four central meetings with the SLT group, and the local implementation plans.

Research Question 1: What is the uptake of PACT across the 10 centres?

Table 2 shows the results for the three success indicators per centre. Seven centres were successful in implementing PACT (Centres 2, 3, 4, 5, 6, 9 and 10) in terms of referrals during and after the implementation recruitment and intervention period. In Centre 3, temporarily, aphasia referrals were low during the intervention period. As a consequence, this centre included three instead of four dyads during the intervention period. However, this rehabilitation facility continued to recruit after the intervention period and included six more candidates and is therefore regarded as successful.

During central meetings it became apparent that all but one centre were behind in their commitment to have care pathway descriptions in place, which made it impossible to use this indicator in this study. Table 2 provides a description of documents that centres used to anchor PACT within their care provision documents. In most centres PACT was included within a document describing the content of local stroke care provision (stroke care module) or plans to do so in the near future existed. From the implementation plans and the final telephone inventory it was clear that, for some centres, the inclusion of PACT in such a module was seen as a clear effort to sustain PACT use in the future. The target aspiration to incorporate PACT in a care pathway encompassed those centres which had not been successful in meeting the dyad target numbers in ImPACT.

Insert Table 2 about here

Uptake in care pathways was also discussed in detail in general meetings. The description of care modules or care pathways had not been prioritised in Centre 5, a nursing home. However, personnel were conscious of the importance of conversation partner behaviour as they were already trained in interacting with clients with dementia using 'video interaction counselling' [44] and the multidisciplinary team was enthusiastic about the additional possibilities of PACT. While Centre 2 had included PACT within a care pathway, their SLT pointed out that this was not a guarantee for the continued use of PACT because communication partner training was still, at that stage, regarded by the team as belonging to the SLT (an 'SLT-thing'), initiated and owned by the SLTs rather than the team as a whole. Three centres (1, 7 and 8) did not meet the success indicators in terms of dyad numbers at either time point. Centre 1 joined the ImPACT study six months later than the others, after the withdrawal of another centre early in the study. This late start, combined with the fact that

only one SLT worked there and aphasia referrals were low, militated against them being able to include any dyads. Centre 7 was the largest nursing home in the study with the largest number of aphasia referrals. However, the eligibility for ImPACT (21%) was by far the lowest (see also figure 2). This was due to characteristics of their client caseload which was predominantly elderly, without a partner, had severe concomitant cognitive disorders and was often made up of non-native Dutch speakers. Centre 8 was a large rehabilitation facility, which adhered to strict time periods of inpatient rehabilitation service in line with a newly introduced rehabilitation reimbursement scheme in the Netherlands (Zorgvraag Index, Care Needs Index) in which medical rehabilitation specialists estimated the total care package for a new client upon the start of rehabilitation care. The time of discharge of clients from this centre to neighbouring facilities interfered with the inclusion criterion of three months post stroke. Identified PACT candidates from this particular centre were therefore unable to engage with the ImPACT study. In contrast, centres 9 and 10 where discharge from clinical rehabilitation was also around three months post stroke, managed to include enough dyads, providing PACT in their outpatient facilities.

In the next section, a closer look at client recruitment is provided and possible reasons for excluding eligible clients are presented.

Recruitment of dyads

Recruitment potential was monitored when the SLT knowledge brokers provided monthly updates of potentially eligible candidates. During the intervention period, a total of 504 PWA were referred to the SLT departments for aphasia treatment. Of these, 263 PWA and their partners met the eligibility criteria. Of these, 41 dyads joined the study of which 34 completed the study. Figure 2 sets out, per centre, the total number of people with aphasia who were referred to SLT departments, separated into number of ineligible, eligible and included dyads.

Thirty six of the initial 41 recruited dyads, were from the SLT knowledge brokers own caseloads.

Insert figure 2 about here

Reasons for non-inclusion of eligible participants

According to the recruitment administration forms, there were 222 potentially eligible partners who might have been given this intervention. Sixteen percent of those not included were clearly linked to the dyads deciding they did not want to take part in PACT or did not want to participate in research. Fifteen percent of those not included were partners who were not considered good candidates by the SLT when they showed signs of excess burden, as judged by the SLT or other team members, although no independent measures of caregiver burden were available from regular care to back up this impression. Other partner characteristics touched on the exclusion criteria, such as premorbid mental health problems, where SLTs doubted a partner's ability to engage actively with the training, again without supplying concrete evidence to support their intuitions on this.

The majority of those not included fell into the category of 'no care needs in communication' (47%) and this high number was explored during the last general meeting, using the Nominal Group Technique (NGT) [43]. In retrospect the SLTs discriminated three separate partner properties within this 'no care needs' category, ranging from 'no help needed', through 'current satisfaction with communication' to showing 'no motivation for training'. A fourth NGT parameter reflected on the SLTs' behaviour; 9 of the 12 SLTs present during this meeting mentioned that their partner interviews may have fallen short of the necessary rigour to fully explore the partners' communication needs. SLT knowledge brokers were themselves on a learning curve when discussing care needs and motivating partners for PACT and

sometimes a colleague who was not familiar with PACT conducted the interview. When partners showed little awareness of their own role within conversations, SLTs needed to explain this role and what the intervention could offer to help.

Research Question 2: What are perceived facilitators for uptake?

The questionnaire response rates were high; 18 of the 20 SLTs (90%) and 14 of the 23 D&M (61%) completed the questionnaire (total response rate *N*=32, 74%). There were some missing data throughout the questionnaires. Table 3 represents the 50 responses in total to the open question about facilitators for PACT uptake, from both the SLTs and the D&M group. These responses were grouped, categorized and matched to the level of change. Facilitators were mainly at the level of the individual professional, in the attitudinal domain. Many respondents reported a positive attitude towards PACT from doctors, other SLTs and other team members, reaffirming the desire to provide better education for partners in stroke care. This positive attitude towards partner training was reiterated during the four central meetings. At the team level managers were also reported to have a positive attitude towards PACT. In particular, SLTs mentioned that good internal communication and collaboration with other disciplines, such as social work facilitated uptake.

Insert table 3 about here

Thirteen (out of 14) doctors and managers agreed that PACT fitted into the care protocols or modules that were used in their centre and 11 agreed that PACT fitted their centres' policy. Seventeen (out of 18) SLTs regarded PACT as an 'indispensable addition' to their treatment regimen. Both SLTs and D&M valued PACT as an addition to what was already offered to partners, such as partner group courses focussing on information, coping and individual

support; 11 agreed that there was sufficient FTE-SLT to enable uptake in regular care. The SLTs were also positive about the organisational and policy implications of PACT. Seventeen (of the 18) SLTs agreed that PACT fitted their centres' policy. Sixteen SLTs agreed that their FTE was sufficient for uptake of PACT in regular care though this high number does not concord with reservations expressed during the last evaluation and in recruitment administration about the adequacy of FTE-SLT.

The nature of the innovation as a facilitator

Sixteen out of 17 SLTs indicated that their conception around the interactive nature of communication had been changed by PACT. Watching the videos also made SLTs aware of the difference in conversation dyads had in their home environment. Seventeen out of 18 SLTs agreed that the videos supplied relevant information which they would not have obtained from their clinical observations, linked directly to the essential role played by the conversation partner which they had previously not taken into consideration when devising therapy. The SLT knowledge brokers reported they were involving partners more and earlier on in the care trajectory than they had done previously and they explained the necessity of equality within the dyad when having a conversation.

SLTS were asked to judge the difference in the conversations of their clients on the videos against what they had anticipated from clinical observations alone (Question 23 of the SLT questionnaire). Based on the pre-PACT video recordings of 35 of the 41 included dyads, SLTs perceived in 27 (77%) of them, that the videos presented in a way which was different from what they had expected.

Videos were not found to be suitable for everyone. Nine SLTs agreed that clients found it hard to supply useful video data. However, even when videoing had been challenging to do, its usefulness was upheld once a dyad was committed to it.

Seventeen SLTs judged PACT to be user friendly and an invaluable addition to SLT treatment, providing knowledge and training opportunities for partners who were not yet used to their new way of communicating.

During the implementation additional material was developed in collaboration with the SLTs, which fits within the concept of adjusting the 'fuzzy boundaries' of a new tool to adapt it to local needs and circumstances. For example a PACT partner interview was developed (see supplementary file 2), as well as extra worksheets for partners that met their needs more specifically.

Research Question 3: What are perceived barriers for uptake?

Table 4 collates the barriers for uptake of PACT, according to SLTs and D&M, taken from the open questions on this topic. The 41 responses in total were mostly at the systems level within the domain of organisation, and concern time management, especially in relation to planning procedures and financial insecurities. These barriers were also discussed as a recurring theme during the central meetings.

Insert table 4 about here

A low number of PWA present in a centre was also considered a barrier as this prevented SLTs from being able to build up enough expertise. There were also assumptions about partners not being able or willing to commit to training because of practical reasons such as work, travel distance or the use of video. SLTs from three centres mentioned other projects taking place at the same time, competing for their input and that they had not received enough guidance from their management about which projects to prioritise.

The main barriers expressed were in time management and involved local planning procedures in rehabilitation centres. There were four factors; firstly the introduction of the Care Needs Index. This index is associated with a 'Diagnosis-treatment-combination' (DTC) structure [NZA][45] and doctors needed to estimate whether a client's environment (which included partners) was likely to be inhibitory, neutral or facilitative to the rehabilitation process. Secondly, central planning departments in the rehabilitation centres, who plan patient programmes one or two weeks ahead, initially struggled to fit in the one hour sessions with a partner. The Centres therefore experimented with a planning format called 'PACT building blocks', specifically devised to overcome these problems, (another example of an additional material to facilitate local adaptation). Thirdly, the cascade method for implementing partner training required time to educate all multidisciplinary team members and project funding did not cover time spent and expenditure involved in local training activities by the SLT knowledge brokers. Fourthly, the time needed for video analysis was covered financially within regular rehabilitation services, but it did not fit the accepted belief that assessment and treatment usually require the client to be present. Especially in the beginning, when SLTs were learning to work with PACT, video analysis sometimes took up to two hours. As SLTs became more proficient, video analysis usually took 30 to 60 minutes.

This fourth factor of time management tied in with financial uncertainties, which provided another barrier. Especially for nursing homes, where a different financial system is operated and nursing homes providing community care were not allowed to claim expenses for partner training. In addition, Nursing Home care had suffered severe budget cuts, in accordance with Dutch National Healthcare Policy [46], laying off personnel including managers and health care professionals.

Research question 4: Which elements of a multifaceted approach contributed to implementation of PACT?

Financial support was judged as an important facilitator for the implementation of PACT according to the SLTs, of whom 13 agreed this would not have been possible without it. They were clear that the time spent on their own PACT education, attending four central ImPACT meetings, discussing PACT with colleagues and meeting other project requirements would not have been possible within regular care. Education was another key facilitator and competency in delivering PACT grew with each training session, especially after the individual sessions during the two outreach visits. Sixteen SLTs felt they were able to deliver PACT independently at the end of ImPACT. The number of telephone consultations for the third and fourth dyads included in each centre was not systematically recorded and happened only occasionally. The impact of the presentation by the Research coordinator, which was a general introduction to PACT, was judged stronger than the local presentations by the SLT knowledge brokers. The local presentations in which SLTs discussed local consequences of PACT use were scheduled after the general presentation. Only six SLTs and five D&M agreed that PACT awareness had increased after local presentations.

Discussion

The results within a complex, clinical implementation study are subject to a myriad of factors. Implementation studies have evolved from continuing professional development [4] [6], acknowledging that a systems approach is needed when new knowledge exceeds the boundaries of one profession and requires organisational support [5] [8] [11] [17] [18]. As a consequence innovators, bringing new knowledge to practice, are involved in this process, which may introduce bias that would be problematic in hypothesis testing studies. In this study the goal of the implementation was the introduction of a new method including partners

of PWA in training, for which no alternative existed against which it could be tested. In such cases sometimes 'an element of artistry' [17, p. E85] is involved and the goals of the study direct the methods [17]. For exploratory, descriptive studies observational evaluation methods such as questionnaires and consensus notes from central participant meetings are justified [20]. Some care needs to be exerted in the interpretation of the questionnaire results, as a group of participating professionals that is motivated to bring about change may potentially be more inclined to respond positively in those questionnaires.

Nonetheless, this study included ten centres across the Netherlands and considered seven of these centres to be successful in introducing PACT, based on the pre-set indicator of a minimum of six dyads referred to the study. Most centres had not yet put care pathways in place therefore this indicator was dropped. Instead, the description of PACT in a 'stroke care module' was provided and was regarded as a precursor to care pathway inclusion. However, in the four central meetings, SLTs questioned the status of care pathways for actual use of PACT in clinical care. It was the researchers' impression that SLTs were less concerned about care pathway inclusion, firstly, because it was not prioritised in their centre. Secondly, SLTs may be aware of the importance of inclusion in such a document for securing sustained use, which could be compromised when this relied on individual expertise. However, these instruments of care provision description at the managerial level, may have been beyond their everyday clinical scope. The focus of SLT knowledge brokers within the ImPACT study was to become aware themselves and to raise awareness in their teams, of the novel approach of working with partners as targets for training, changing their conversation behaviours, from which both the partner and the PWA benefitted in everyday conversations.

The number of 41 inclusions from 263 eligible clients (16%) was lower than expected, based on perceived needs previously outlined by partners [47] [48]. This may be due to several factors including attitudinal factors from both service providers and service users as well as

organisational factors such as SLT staffing. Firstly, this study aimed for four inclusions per centre for educational and implementation purposes. Centres signed up for this number to meet the requirements of the study, rather than taking the opportunity to experiment with candidacy from their own perspective. Secondly, as an innovative tool, PACT was additional to regular care in the first instance. ImPACT provided an opportunity to become acquainted with PACT but there was not sufficient SLT staffing in all centres to meet demands beyond this number of dyads. Thirdly, eligibility criteria may have influenced the provision of PACT in some centres. Because of the three month post onset criterion, some dyads in some centres may have been lost to the ImPACT study due to local inpatient treatment duration and locally agreed referral agreements. Additionally, within two of the nursing homes, many clients were ineligible for this study because of the high incidence of (severe) concomitant cognitive problems. Within the scope of this study, the exclusion criterion of severe cognitive problems was chosen because they were not considered optimal candidates for familiarising professionals with this new method. At this point, it is not clear whether some of these clients and their partners might have benefitted from PACT or another form of CPT. In some cases other methods of conversation partner training might be more suitable, for example Conversational Coaching [49], which does not require the use of self-made videos and is more directive in its learning paradigm. However, as this study explored the implementation of one type of CPT (PACT) in Dutch rehabilitation centres where no standardised programme for conversation training currently exists, it is hard to draw parallels to other types of CPT or to describe differences.

And, last but not least, the introduction of a new concept in treatment (in particular the social model of aphasia within which PACT is rooted), touched on existing attitudes and expectations about aphasia treatment in service providers as well as service users. This study found 36 of the 41 included dyads were from the knowledge brokers own caseloads. During

the NGT-procedure at the last meeting the SLTs themselves suggested that the novelty of the approach itself may have been an impeding factor. They had not had the time to share their knowledge with SLT colleagues and some colleagues may not have felt comfortable with this new approach. This is in keeping with the findings from a survey of Swedish SLTs [34] which found that SLTs recognised the value of training family members in communication strategies. However, in clinical practice, this family member training was limited because of time restrictions and lack of therapist skill. To help therapists unfamiliar with PACT assist partners in their decisions as to whether to engage in training, the current study developed an interview format which will provide the partners with clearer information about the interactive nature of conversations and the support available in the future. This additional initiative was in line with the ideas of Young et al. [50], who have argued for a comprehensive assessment of partners and/or family caregivers in order to better prepare them for their task ahead.

PACT might also not have resonated easily with some partners, particularly at the three months post onset mark when they were recruited. A review on education needs of relatives of PWA [51] found that relatives were clear about their need for accurate information at all stages of recovery and treatment, but the need for skills training for themselves was less clear. The high number of partners who presented with no care needs in this study is in line with this finding. Two elements might play a role here; a ‘timing’-element and a ‘modelling’-element. Early in the recovery process, the emphasis is on improving language and communication skills, in accordance with evidence for language treatment in aphasia. Partners are sharing the hope for recovery and want to contribute to this improvement by promoting this treatment or even by becoming co-therapists. Hallé and Le Dorze [33] concluded that partners who were interviewed around three months post stroke, were seeking information to satisfy their caregiver needs, but disregarded their personal needs or relational needs, such as good

communication with their aphasic partner. Interestingly, the partners recruited in our study had been living with someone with aphasia for an average of 11.5 months and their perspective had changed. The 'modelling'-element evolves from the way partners have traditionally been invited to regular therapy sessions to observe the SLT-PWA conversation. This interaction is very different from informal partner interaction and it models a pedagogic style rather than 'equal conversation partners' behaviour. Introducing a new treatment method and explaining the importance of a trained conversation partner for a PWA but, at the same time providing classical language treatment, was in fact sending out a double, perhaps contradictory message to partners and feeding the ever present hope for further recovery [52]. Facilitators and barriers for uptake of PACT were derived from questionnaire responses. These perceived facilitators for uptake were predominantly at the level of the individual professionals and team members involved in this study, and as such were interpreted as attitudinal factors. Motivation of professionals has been identified as a facilitator to implementation in other conversation partner studies [22] [23]. In this study it was the current intention of all professional stakeholders to involve partners in rehabilitation care that was compatible with PACT. The motivation behind this acknowledged the growing, important role of partners in the light of early discharge policies and national policies of cutting healthcare costs and sharing care responsibilities with non-professional carers. PACT was judged as an indispensable addition to current treatment protocols by SLTs and doctors and managers bringing new and relevant information to treatment protocols and was judged user-friendly by the participating SLTs. It brought skills and competencies to the SLT whose perceptions on the skills and needs of the dyad itself were changed.

Perceived barriers for uptake of PACT were predominantly interpreted as organisational factors at the systems level, mostly concerning the allocation of time needed for the introduction of PACT. Time constraints are a recurring theme in implementation projects [13]

[22] [23] [24] [53] and were described as a common barrier in many implementation efforts within the 'Revalidatie Nederland Innovation Programme' [54]. Centres underestimated the time required to get acquainted with the new method and for all team members to fully think through the consequences of a new approach and how this related to current choices and procedures.

The knowledge brokers, as the primary target audience, had enough time to think through the new intervention; those who came second in line for the training had far less time to make sense of the innovation. The time required for discussing the consequences of PACT for a client's care trajectory and how PACT related to other treatments, was often lacking. For instance, a psychologist or social worker who also worked with family members, needed to be aware of the possibilities and the limitations of PACT. When knowledge remains available to only a few professionals, it is more vulnerable for sustained use. Although using knowledge brokers has become a regular method in implementation [13] the evidence of knowledge brokers' contributions to implementation needs more research [14]. The choice for SLTs as knowledge brokers in this case was based on the contents of the new treatment. However, allied health professionals cannot easily change their professional practice to align with an innovation, because they work in a complex organisational structure as members of interdisciplinary professional teams and behaviour change is complex due to competing factors, often beyond their control [15]. Therefore the local implementation teams also included a doctor and a manager in order to engage those with managerial power to take decisions and to promote shared agency. However, the question still arose as to how authoritative SLTs were in their role as knowledge brokers, in particular in their ability to ensure allocated time to share the newly acquired knowledge with their wider team members. Another consequence of not having been able to discuss the place of PACT within existing care routines was that PACT as a new product, was regarded as complementary to the main

body of rehabilitation and it was often an addition to the current care on offer, resulting in expansion of services, for which no financial means were available. As costing was not explored within this study, potential financial consequences of PACT might have given rise to speculations about costs a priori. PACT trajectories were relatively short (5.6 hours on average) in comparison to other aphasia therapy recommendations such as those which suggest that up to 105 hours of therapy over a period of three months is key to success [55] [56]. Regular aphasia rehabilitation services in the Netherlands may not always reach this level of intensity, yet a PACT trajectory remains relatively short in comparison.

As for the method of implementation, the multifaceted approach, using financial support, education and frequent reminders, allowed the participating centres to experiment with the innovation whilst being in close contact with the research team, who were opinion leaders in the field of aphasia. Involvement in the adaptation of a new tool has been found to assist implementation [6] [22] [57]. Centres experimented with the programme itself (number of sessions, the choice of worksheets, local planning procedures; adding new worksheets in collaboration with the researchers) with different clients. These experiments can be seen as variations around the 'core' element of the PACT programme itself, representing attributes of trialability and 'fuzzy boundaries' [6]. Implementation is a reciprocal process [12] in which an organisation changes an innovation to meet local standards whilst the innovation also changes existing procedures [9]. This was also witnessed in ImPACT where SLTs reported on their changed approach to partners in general, with whom they reported to engage earlier than before and focussed on the collaborative nature of conversations rather than framing partners as co-therapists in language tasks.

Due to the exploratory, observational nature of this study, caution should be exerted in generalising its results. The main findings in this study were based on questionnaire responses which carry with them, the danger of bias and socially desired responses. Nonetheless, the

type of study justified the use of questionnaires [20] and our findings resonate well with findings from other implementation efforts [13] [22] [23] [24], in which the contrast between positive attitudes and organisational (financial) barriers is described. The three features of successful implementation as set out by the 'Promoting Action on Research in Health Services' framework (PARiHS [8]) fit our conclusions. Firstly, the nature of PACT suited current needs to engage those in the environment in rehabilitation. Secondly, the organisational context was found to be positive, as indicated by the eagerness to participate in this study as well as the enthusiasm with which PACT was met. And thirdly, the method of implementation used here, focussed on interactive education and ongoing support was highly appreciated. Whether centres will be able to sustain or expand their services for partners, without the support of an (externally funded) research group remains to be seen. Studies that allow for an evaluation in the longer term will be better able to see if centres are able to sustain the uptake of new knowledge when they are facing its continued implementation alone. As one of the SLT participants in ImPACT concluded during the last central meeting: 'this is where the true implementation of PACT starts'.

Conclusions

This study observed a positive uptake of one type of CPT in a country where no standardised arrangements for conversation partner training existed. The attitude of professionals was a strong facilitator in the implementation process; they were motivated to engage partners actively in training in order to better prepare them for the consequences of aphasia in their life in the longer term. A key element within the implementation strategies was interactive, individual education, which in turn was facilitated by financial support. This provided the necessary time and means for the SLT knowledge brokers, who were the primary target audience for implementation, to experiment with the new method within the work place,

familiarising oneself with it, whilst being given graded support from the easily accessible ImPACT team. This study's timeframe allowed for raised awareness of PACT at an organisational level, but did not allow for those second in line of the implementation to fully appreciate the innovation in order to integrate it in everyday practice.

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Table 1 Characteristics of centres and speech and language therapists (SLT)

RC = Rehabilitation centre, NH = Nursing home, FTE = full time equivalent, *M* = Mean, *SD* = Standard Deviation, *R* = range

[1] columns presenting number of years of work experience in aphasia for the two SLT knowledge brokers. Centre 1 had only one SLT.

Centre	**Type**	**Total FTE SLT**	**Total nr of SLTs per centre**	**Work experience of SLT 1 (years)[1]**	**Work experience of SLT 2 (years)[1]**
1	RC	0.88	1	4	-
2	NH	1.56	2	20	13
3	RC	1.80	3	10	9
4	RC	2.11	3	6	4
5	NH	3.86	6	13	4.5
6	RC	4.04	6	23	30
7	NH	4.16	6	30	20
8	RC	4.43	8	12.5	35
9	RC	5.38	9	4.5	1.5
10	RC	5.41	8	18	11
M (SD) R	-			15.5 (10.3) 3-40	11.9 (9.3) 1.5-35

Table 2 Results on the three indicators of successful implementation of PACT across the 10 centres

Centre	**Nr of dyads during intervention (target = 4)**	**Nr of dyads 8 months after intervention (target = 2)**	**PACT in care pathway? 8 months after intervention**
1	0	0	No
2	5	2	In care pathway
3	3	6	In care module
4	5	4	Care module in near future
5	6	4	No
6	6	6	In care module
7	3	0	Care module in near future
8	2	0	No
9	5	2	In care module
10	6	4	In care module

Table 3 Categorisation of responses from SLTs and D&M about facilitators for PACT uptake

SLT = speech and language therapist, D&M = doctor and manager, NH = nursing homes, (3) = Numbers within parenthesis refer to number of responses under the code

Level of change	**Category**	**Code**	**Examples of responses**
Individual professional	Attitudes	Positive attitude (3)	- SLTs are committed to PACT and they are main providers - Positive attitude in nursing staff
		Motivation for PACT (12)	- Motivated SLTs - Motivated rehabilitation physicians & other team members - Importance of partner inclusion and education
	Skills	Positive and skilled SLT (2)	- Skilled SLT
	Ambitions	Positive attitude towards innovation in general (2)	- Doctors and managers are open to innovation in general
		Wish to improve ourselves (1)	- Intention to improve support for partner
Team	Leadership	Positive leadership (8)	- Support from management
		Centres ambitions (4)	- Centre aims to be expert centre

System	Communication	Collaboration (2)	- Opportunity for future collaboration in stroke service
		Internal communication (6)	- Good communication between SLT/ D&M / planning - Local PACT folder coming out soon
		Care module (3)	- Care pathway in the making - Doctor mentions PACT as a standard at control appointments
	Time management	Planning freedom (4)	- Sufficient time to plan and promote PACT (in NH)
Context	Clientele	Satisfied clients (2)	- Positive experiences with PACT so far
		Partners available during working hours (1)	- Partners available during working hours in elderly care

Table 4 Categorisation of responses from SLTs and D&M about barriers for PACT uptake

SLT = speech and language therapist, D&M = doctor and manager, NH = nursing homes, DTC = Diagnosis-treatment-combination, (2) = Numbers within parenthesis refer to number of responses under the code

Level of change	Category	Code	Examples of responses
Individual professional	Assumption about others	Assumptions about colleagues (2)	- Initiative for PACT remains with SLT
		Assumptions about partners (3)	- Partners who do not like use of video
Team	Communication	Big organisation	- Large, inefficient organisation
	Missing leadership	Changing D&M personnel (2)	- Frequent changes in management
System	Time management	Planning (5)	- Problems fitting in PACT module in planning structure of stroke pathway - PACT module makes planning less flexible next to other group therapies
		DTC structure (4)	- DTC needs to be adapted - In DTC patients are discharged after 3 months, too late for PACT
		Time investment (6)	- Big time investment in PACT - Doing PACT is at cost of treatments of other patients
		Other projects (3)	- Many (competing) projects in our centre, no prioritisation by management
	Financial	Financial	- Financial arrangements still unclear

		uncertainty (8)	- No reimbursement for outpatient care in nursing homes
		Budget cuts (2)	- Budget cuts will enforce prioritisations in intervention type
		FTE-SLT (3)	- Too little FTE SLT at this location
		Technical resources (1)	- Technical equipment and support (video, data management)
Context	Clientele	Unavailable clients (2)	- Too few clients with aphasia referred

Appendix 1 Speech and Language Therapist ImPACT-end questionnaire

Speech and Language Therapist end questionnaire N=18	Number of responses			
	Not agree	Neutral	Agree	Response per question
1 I had sufficient insight to apply PACT after general training (analyse, make plan, deliver training)	8	2	7	17
2 I had sufficient insight to apply PACT after 1st individual training (analyse, make plan, deliver training)	1	2	14	17
3 After 2nd individual training sessions I was able to carry out analysis and deliver training independently	0	1	13	14
4 Other consultations with ImPACT team contributed to my insight	2	0	12	14
5 Assistance in planning was necessary in first two dyads	6	0	9	15
6 By keeping recruitment records I was sure not to miss PACT candidates	1	1	13	15
7 Reminders from The ImPACT team kept me alert for PACT candidates	2	3	13	18
8 Our own PACT presentation put PACT on the map in our centre	4	2	6	12
9 The presentation by the coordinator put PACT on the map in our centre	1	3	11	15
10 Without financial support, implementing PACT would not have been possible.	1	3	13	17
11 What are possible facilitators for implementing PACT in your centre?	open			
12 What are possible barriers for implementing PACT in your centre?				
13 My conception of conversation between client and partner has been changed by PACT	1	0	16	17
14 When your conception has changed, how does this affect your approach to partners and partner education in general?	open			
15 I recognise potential PACT candidates by their communicative behaviour and their care needs	0	2	14	16
16 After ImPACT I am capable for listing partner care needs	0	0	17	17
17 The PACT partner interview is useful for listing partner care needs	0	1	12	13
18 I am currently not able to do PACT independently (*reversed*)	16	0	1	17
19 Doing PACT is fun	1	0	15	16
20 PACT is an indispensible addition to SLT treatment	0	1	17	18
21 Clients are finding it hard to supply useful video data	6	2	9	17
22 The videos supply relevant information I cannot obtain from clinical observation	0	1	17	18
23 In which dyads did the videos present a different view of their conversations than that which you had anticipated from clinical observations?	Per dyad: Little different / different / very different			
24 PACT is user friendly	0	0	17	17

25 PACT worksheets are useful for all types of clients	5	4	6	15
26 PACT worksheets are best used in …..(choices of types and severities of aphasia)	open			
27 Possible advantages of PACT are: ...				
28 Possible disadvantages of PACT are: …				
29 Possible points for improvement are: . ..				
30 Doctors are aware of partner training by SLT	3	1	13	17
31 Management is aware of partner training by SLT	0	1	17	18
32 Other team members are aware of partner training by SLT	0	0	17	17
33 Doctors are aware of the difference between a conversation between equals and a conversation between client and professional	3	1	11	15
34 Doctors and managers support the notion that the PWA benefits from supported conversation training	0	1	14	15
35 number of referrals for PACT by team members is insufficient (*reversed*)	6	3	8	17
36 The ratio of direct to indirect time for PACT is problematic in our centre*(reversed*)	13	1	12	16
37 Planning a PACT trajectory by our planning department runs smoothly	3	0	9	12
38 FTE SLT is sufficient for doing ImPACT	0	0	17	17
39 FTE SLT is sufficient to incorporate PACT in our care	1	0	16	17
40 PACT fits our care policy well	0	0	17	17
41 Clients are able to use the camera after instructions	0	1	14	17
42 Technical support is sufficient in our centre	0	0	17	17
43 Do you have any suggestions about this implementation project that we can report to Revalidatie Nederland?	Open			

PACT = Partners of Aphasic clients Conversation Training; SLT = Speech and Language Therapist; FTE = Full Time equivalent

Appendix 2 Doctor & manager ImPACT-end questionnaire

Doctor & manager end questionnaire N=14	Number of responses			
	Not agree	Neutral	Agree	Response per question
1 We have policies regarding innovations in our centre	0	4	9	13
2 I appreciate it when we take part in innovation projects	0	0	14	14
3 Our therapists accept the use of innovations in rehabilitation practice	0	0	14	14
4 Participating in ImPACT drew heavily on our SLT department resource *(reversed*)	6	4	3	13
5 Without financial support the implementation of PACT would not have been possible	4	3	3	10
6 The presentation by the ImPACT coordinator contributed to the awareness of the importance of partner education	1	1	8	10
7 The presentation by our own SLT contributed to awareness of the importance of partner education in our team	0	0	5	5
8 What are possible facilitators for implementing PACT in your centre?	open			
9 What are possible barriers for implementing PACT in your centre?				
10 I am familiar (globally) with the PACT procedure	0	1	13	14
11 As manager, I have some hesitancy about the use of PACT in our care *(reversed)*	10	1	3	14
12 I appreciate the fact that clients with aphasia benefit from a trained partner	0	0	14	14
13 The differences in communication between professionals & PWA and partners & PWA is clear to me	0	0	14	14
14 I would like to introduce PACT in the future as:	Choice from: not; addition to current supply; partial or whole replacement of individual SLT; other, ….			
15 Possible advantages of PACT are ….	open			
16 Possible disadvantages of PACT are ….				
17 Possible points for improvement are ….				
18 In our centre we use protocols / care pathways / care modules	0	2	12	14
19 PACT fits these protocols / pathways	0	1	13	14
20 Our centre has a policy regarding partner support and partner education	1	1	11	13
21 PACT fits this policy	1	0	11	12
22We currently offer structurally:	Choice from: partner course, informative; partner course, coping; partner course,			

	communication; individual support by different disciplines; other ….			
23 FTE SLT is sufficient to implement PACT within our care pathway	1	1	11	13
24 Costs and benefits of PACT are well balanced	3	1	4	8
25 I have (global) insight in the costs of PACT	6	1	4	11
26 The planning department is well aware of the PACT planning structure	2	0	9	11
27 Technical support is safeguarded in our centre	2	1	9	12
28 Do you have any suggestions about this implementation project that we can report to Revalidatie Nederland?	open			

PACT = Partners of Aphasic clients Conversation Training; SLT = Speech and Language Therapist; FTE = Full Time equivalent

Separate uploads:

Figure 1 ImPACT implementation process, based on the 'knowledge to action process' model by Graham et al., p.19 [5].

(Tiff file, Source = Powerpoint PC)

Figure 2 Number of ineligible and eligible dyads and inclusions in ImPACT per centre

(Word file)

Supplemental file 1 Goals in Impact

Supplemental file 2 PACT partner interview