

Communication partner training for SLT students: Changes in communication skills, knowledge and confidence

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ABSTRACT

This paper describes the changes in communication skills, knowledge and confidence in Speech Language Therapy (SLT) students in conversations with People With Aphasia (PWA) after Training Con-tAct, a Dutch Communication Partner Training.

Methods: On a voluntary basis, nine SLT students (2nd yr) completed Training Con-tAct, in which People With Aphasia (PWA) were involved as co-workers. A mixed method design with pre- and post-measures was used to analyze the students' communication skills, knowledge and confidence. A quantitative video analysis was used to measure changes in students' communication skills. Besides, a self-report questionnaire was used to measure the changes in students' knowledge and confidence regarding their communication with PWA. To evaluate the perspectives of the students on Training Con-tAct, additionally a focus group interview was held.

Results: Regarding students' communication skills the outcomes revealed a significantly higher score on the 'supporting' competence in students who took part in Training Con-tAct. The mean scores for the 'acknowledging' and 'checking information' competences did not improve significantly. The outcomes of the questionnaire showed students gained more knowledge and confidence regarding communication with PWA. The focus group interview provided insights into: motivation for participating in Communication Partner Training, content and structure of the training, feedback in CPT, and learning experiences.

Conclusion: The present study suggests that SLT students may benefit from Training Con-tAct as the training leads to better skills, more knowledge about aphasia and more confidence in communicating with PWA. Training Con-tAct could be a valuable addition to the curricula of all healthcare disciplines, and eventually support interprofessional collaboration, resulting in improved access to health care, which is important for communication vulnerable people. Further research with a larger sample size and a control group is required.

1. Introduction

Adults with communication disabilities (communication vulnerable people) may experience worse healthcare outcomes than those without communication disabilities (Stransky et al., 2018), report low satisfaction in healthcare (Morris et al., 2013; Morris et al., 2015; Murphy, 2006; Nordehn et al., 2006) and face greater challenges in accessing healthcare (Stransky and Morris, 2019). This is not

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solely attributable to the person with the communication disability itself, the communication disability may also be a barrier for healthcare professionals in their attempt to provide the best care possible (Carragher et al., 2020). Healthcare professionals may find it difficult to interact with communication vulnerable people, such as People With Aphasia (PWA) (Carragher et al., 2020; Stans et al., 2013). They consider the aphasia as a reason to involve the PWA less in goal formulation and therapy planning (Leach et al., 2010). As a consequence, PWA are more likely to receive inadequate care, and are even at increased risk of premature death, as a result of communication problems (Bartlett et al., 2008).

Traditionally, aphasia rehabilitation has focused mainly on decreasing the severity of the aphasia. However, nowadays more attention is paid to the communication activities of PWA in their daily environment. Communication Partner Training (CPT) can be used to achieve this, as this is “An intervention directed at people other than the person with aphasia with the intent of improving the language, communication, participation, and/or wellbeing of the person with aphasia” (Simmons-Mackie et al., 2010, p.1814). CPT can target a variety of communication partners, such as family members, friends, volunteers or healthcare providers. According to the systematic review by Simmons-Mackie et al. (2016), CPT leads to positive changes in communication activities of the PWA.

1.1. CPT for students

For future healthcare professionals it is likely that they will work with communication vulnerable people, such as PWA. Students in healthcare disciplines must, therefore, develop proper communication skills. Effective communication is paramount to meeting the healthcare needs of people (Burns et al., 2012). For a speech and language therapist, communication is both the instrument and the goal of intervention. Therefore, it is even more important that Speech Language Therapy (SLT) students develop effective interpersonal and clinical communication skills. Second year SLT students in the Netherlands are trained in different professional roles according to the Educational Profile for the Bachelor of Speech and Language Therapy (National Dutch Network of Speech and Language Therapy Education, n.d.). Communication training is part of the role of ‘communicator’. During the first and second year of the bachelor program for SLT students, part of the curriculum is focused on developing proper communication skills. In simulated interaction situations in the classroom students can train and develop their skills. Despite this training, students can lack confidence and experience anxiety when communicating with PWA (Finch et al., 2013). Healthcare professionals such as physiotherapists, occupational therapists or nurses might experience these anxieties as well, and consequently limit or avoid communication with PWA (Carragher et al., 2020). As it is important to prevent such negative consequences, future healthcare professionals should be equipped with proper communication skills during their pre-service education in order to communicate with PWA in their future career.

CPT can be used to train students in communicating with PWA. Several studies on the effects of CPT on the communication between PWA and students, report positive and promising outcomes, such as an increased confidence and experience in communicating with PWA (Cameron et al., 2018; Finch et al., 2017; Forsgren et al., 2017; Saldert et al., 2016). However, it should be noted that in the literature different forms of CPT and various methods to measure the effects of CPT are used (Cruice et al., 2018; Simmons-Mackie et al., 2010; Simmons-Mackie et al., 2016). Some studies describe CPT in terms of a combination of a theory and (conversation) practice (Cameron et al., 2018; Forsgren et al., 2017; Saldert et al., 2016) whilst others describes a CPT that is based on theoretical knowledge on the subject (Finch et al., 2017). The effects of CPT have been measured by examining the knowledge of students about communication with communication vulnerable people through a questionnaire (Forsgren et al., 2017; Saldert et al., 2016), by examining experiences of students and PWA with focus group interviews (Cameron et al., 2018), and by examining communication skills in an

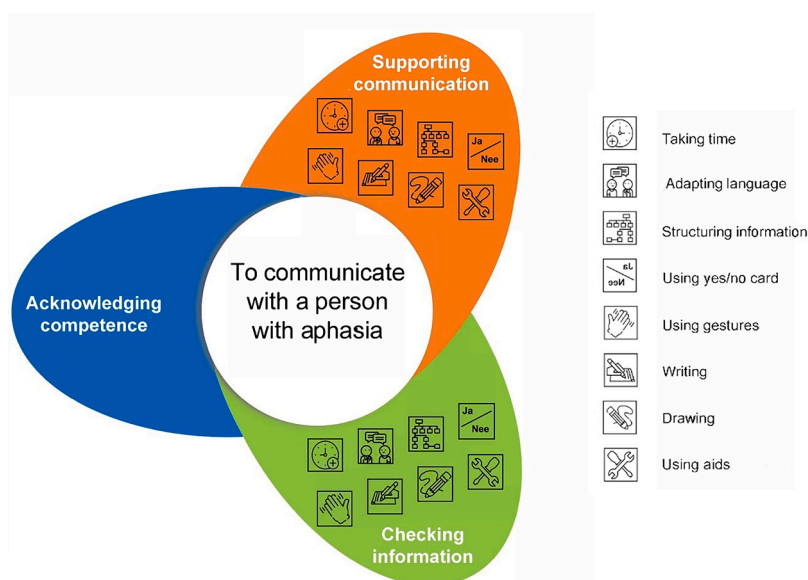


Fig. 1. Communication model of Con-tAct (Oostveen et al., 2018).

observational context by analyzing video data of conversations (Finch et al., 2017; Forsgren et al., 2017).

1.2. Training Con-tAct

Training Con-tAct is a Dutch CPT for healthcare professionals aimed at behavioural change to improve the communication between healthcare professionals and PWA (Oostveen et al., 2018). The rationale for the training is that PWA should receive the same quality of care as people without aphasia, and communication barriers seem to be the key difference between these populations (Stransky and Morris, 2019). The goal of the training is to improve both the communication skills of healthcare professionals as their sensitivity for the communicative accessibility of the healthcare setting. The structure and content of the training are based on scientific evidence on the effectiveness of adult learning methods and strategies (Dunst et al., 2010; Surma et al., 2019). For example, to increase both students' knowledge and skills, it is important that teaching methods and the learning outcomes are aligned. Active learning participation is important, including opportunities to self-assess in learning and mastering new knowledge or practice (Dunst et al., 2010; Surma et al., 2019). Dunst and colleagues (2010) found that the more actively learners are involved in mastering new knowledge or practice, the better the learner outcomes are. To achieve long-term learning, it is recommended to practice regularly (Surma et al., 2019). Training Con-tAct consists of two workshops offering self-reflection, role-playing and practical assignments, such as practicing conversations with PWA. Assignments are carried out in between the two workshops to apply in daily practice what has been learned.

Training Con-tAct is based on the communication model Con-tAct (Fig. 1). According to this model (1) acknowledgement, (2) support and (3) check are the key elements in the communication with PWA. (1) Acknowledging refers to the attitude of the communication partner to acknowledge the experienced frustration of the PWA in communication and to the awareness that both communication partners are responsible for the success of the conversation. (2) Supporting refers to the use of strategies to support the PWA in understanding and expression, and (3) checking refers to the need to check if the communication partners have understood each other. Supporting as well as checking can be done by both communication partners using strategies (see Fig. 1) such as taking time, adapting language, structuring information, using yes/no card, using gestures, writing, drawing and using aids. The use of strategies depends on preferences of both communication partners and is related to communicative possibilities, topic of conversation and circumstances in which the conversation takes place. Some aspects of Training Con-tAct are based on Supported Conversations for Adults with Aphasia (SCA) (Kagan et al., 2001), such as the emphasis on the importance of acknowledgement. More information about the training can be found on the website of Con-tAct (hr.nl/Con-tAct).

A previous mixed method study, with focus group interviews, questionnaires and a video analysis, made clear that healthcare professionals were able to communicate more successfully after Training Con-tAct. They used more supporting and checking strategies while communicating with PWA, and they felt they had become better at dealing with communication problems with PWA (Berns et al., 2019). As Training Con-tAct appears to be feasible and valuable to healthcare professionals, the next step is to evaluate the training on its value for SLT students.

1.3. Aim

The aim of the present study is to measure changes regarding students' skills, knowledge and confidence as well as to evaluate Training Con-tAct from the student's perspective. We hypothesized that Training Con-tAct has a positive effect on communication behaviour, which results in more successful conversations between SLT students and PWA.

2. Methods

A mixed method design with pre- and post-measures was applied, according to the design from Berns et al. (2019). Data was

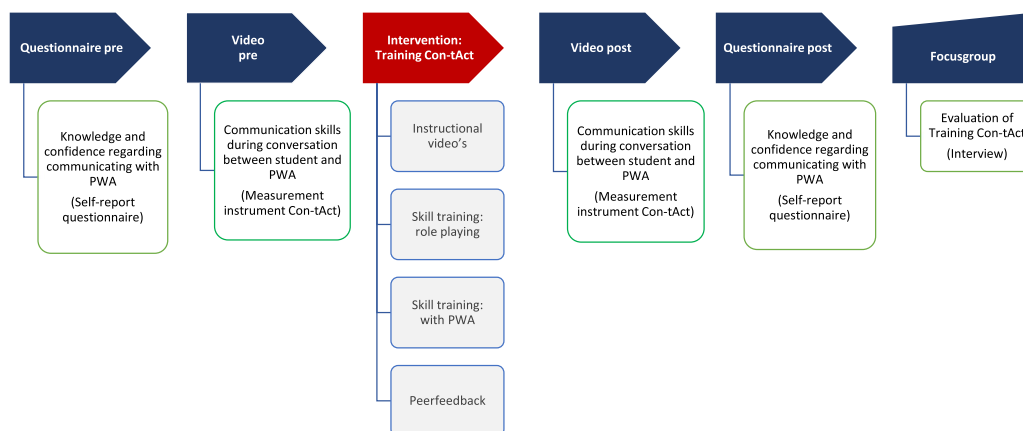


Fig. 2. Research design.

collected using three different methods. Quantitative video analysis with the measurement instrument Con-tAct (Nikkels, 2019; Appendix) was used to measure the effect of Training Con-tAct on the students' communication skills during conversations with PWA. In addition, the students' self-report on knowledge of and confidence in communicating with PWA was measured with a questionnaire, and the evaluation of Training Con-tAct was measured by a focus group interview after the training. An overview of the study design is shown in Fig. 2, including a timeline (from left to right) and the pre- and post-outcome measures and outcomes.

2.1. Participants

2.1.1. SLT students

Nine second-year SLT students of the Rotterdam University of Applied Sciences participated. All second-year SLT students (60 students) were invited to participate in this study by their lectures via e-mail. Of these, nine registered voluntarily to take part in this study. They were informed that participation would not influence their regular educational assessments.

2.1.2. Individuals with aphasia as co-trainers

Two men with aphasia (aged 57 years and 58 years) participated as co-workers in the pre- and post-measurements. They had been diagnosed with moderate aphasia in the chronic phase after stroke (>5 years post onset). They belonged to a group of volunteers with aphasia who contribute to education-related activities at the Rotterdam University of Applied Sciences. The two men have experience in assisting conversation activities for Training Con-tAct. They were recruited via email by one of the developers of Training Con-tAct.

2.2. Intervention: training Con-tAct

The participants completed two Training Con-tAct workshops – lasting three hours and two hours, respectively – offered by one of the developers and teachers of the training (P. Berns). The workshops consisted of watching instructional videos, practicing communication skills with other students and in conversations with the two PWA who participated as co-trainers. The workshops were held at an interval of two weeks, during which the students were asked to record themselves on video in a conversation with one of the PWA. The conversations were evaluated and students received peer feedback and feedback of the instructor during the second workshop. Both the knowledge about aphasia and the communication skills with PWA were learning outcome measures for the students (Fig. 2).

2.3. Video analysis of conversations between SLT students and PWA

The students' communication skills (acknowledging, supporting and checking) were measured in an observational context. Pre Training Con-tAct, every student held a general conversation with one of the two PWA involved in the training. The students and PWA were randomly matched. The students had received minimal information about hobbies and interests of the PWA. During the training, the students practiced their communication skills with the PWA they had not met pre-training. In the post-measurement, the students conversed with the same PWA as in the pre-measurement, in order to avoid PWA-related differences. The conversations were video-recorded by a peer student, who did not participate in that specific conversation.

2.3.1. Measuring the effect of Training Con-tAct on the communication skills during conversations with PWA

In a previous study, the measurement instrument Con-tAct (Nikkels, 2019) was demonstrated as a reliable instrument in measuring the effect of Training Con-tAct (Nikkels, 2019). The measurement instrument Con-tAct was developed because of the lack of valid and reliable instruments to measure the effectiveness of CPT (Croteau et al., 2018; Saldert et al., 2018).

This instrument was designed for evaluating conversations between healthcare professionals (SLT students in this study) and PWA, on different communication skills: acknowledging competence (item 1-4), supporting strategies (item 5-10) and checking information (item 11 and 12). For each item (total of twelve items), the rater decides whether the healthcare professional's behaviour (associated with that item) is appropriate for the conversation with the PWA. The appropriateness is rated on a four-point Likert scale, where 1 and 2 indicate negative/inadequate behaviour, and 3 or 4 indicate positive/adequate behaviour (see also Nikkels, 2019).

In this study, the rater was an expert aphasia therapist with more than ten years' experience in communicating with PWA who did not know the students and PWA. The rater took part in a previous Training Con-tAct, was trained to do the rating with the measurement instrument Con-tAct from video-footage, and followed the manual of the measurement instrument Con-tAct (Nikkels, 2019; Appendix).

The video fragments were rated in a random sequence, to provide that the rater did not know if the video belonged to pre or post training. A fragment of exactly five minutes was selected for assessment, as recommended by Beeke et al. (2015) and Wielaert et al. (2016). The fragment was chosen from the last part of the conversation, when the student and the PWA could be expected to be least aware of recording.

Data analysis was conducted using IBM Statistical Software for the Social Sciences (SPSS) Version 25. Due to the skewed nature of some data, non-parametric statistical analyses were employed. Differences in scores were analyzed with the Wilcoxon Signed Rank Test(s). A significance value of .05 (typically $\leq .05$) was applied to all analyses.

2.4. Self-reported knowledge and confidence of SLT students regarding communication with PWA (questionnaire)

The students' self-report on knowledge and confidence regarding communicating with PWA was measured with the Communicating with People With Aphasia questionnaire (Hoogenboom, 2018). This questionnaire was based on the Knowledge of Aphasia Questionnaire (KAQ) (Simmons-Mackie et al., 2007) and the Dutch version of the KAQ, translated by Oostveen (2016). As the questionnaire of Hoogenboom (2018) was developed and used for healthcare professionals, we had to make some adaptations to make the questions applicable for students instead of professionals.

The questionnaire comprises fourteen items. Part I consists of four items concerning background (pre- or post-questionnaire; respondent's sex, age and experience with PWA). Part II consists of eight items concerning expectations and emotions. These items are rated on either a 10-point (where 1 indicates 'not good at all' and 10 indicates 'very good') or a 5-point (where 1 indicates 'totally disagree' and 5 indicates 'totally agree') Likert Scale (Fig. 3). In addition, students described their own ability to apply supported communication strategies in conversations with PWA in two open ended questions.

2.4.1. Data analysis of the questionnaire

Part I of the questionnaire yielded descriptive data, which will be presented accordingly. As the distribution was skewed, the results of Part II were analyzed using the Wilcoxon Signed Rank Test. The level of significance was set to $p < 0.05$. The answers to the open ended questions were categorized.

2.5. Focus group interviews

Two focus group interviews, each lasting 60 minutes, were performed to collect the perspectives of SLT students on Training Con-tAct and their feelings on communicating with PWA. A topic guide for this semi-structured interviews, based on Berns et al. (2019), was developed and included the following topics: (1) content and structure of Training Con-tAct; (2) motivation for participating in Training Con-tAct; (3) experiences with Training Con-tAct; (4) Training Con-tAct in the educational curriculum; (5) Training Con-tAct as preparation for a job. The original questions as formulated in Berns et al. (2019) were adapted to make the questions applicable for students instead of professionals. Eight out of nine SLT students participated in one of the focus group interviews, on the students' preferred day. Five students took part in the first focus group interview and three students took part in the second focus group interview. The focus groups were conducted at a University of Applied Sciences in the Netherlands and mediated by two fellow SLT student-researchers (3rd yr), under supervision of the principal researcher. All focus group interviews were audio recorded and transcribed verbatim. Data from the two focus group interviews were combined and analyzed following the six phases for thematic analysis, as outlined by Clarke and Braun (2022). Student-researchers started familiarizing themselves with the data (phase I) and then they started with open coding (phase II). In open coding, the researcher is focused primarily on the text from the interviews to define concepts and categories. In the next phase (phase III) they searched for initial themes by comparing and discussing their codes with each other (phase III). The supervising researcher (AN) took part in the discussion and assisted in developing and reviewing themes (phase IV). Next, the themes were refined, defined and named (phase V) and reported (phase VI). Co-authors of the current paper participated in the process in phase V and VI. Theme structures were constantly compared with the transcripts and the initial coding structure, leading to (re)arrangement of codes, themes and relationships between codes and themes. Representative quotes were translated from Dutch to English.

How well do you think you can communicate with a person with moderate/severe aphasia? Please rate this on the scale. 1 means 'not good at all' and 10 means 'very good'.

1	2	3	4	5	6	7	8	9	10
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Not good at all

Very good

Totally agree Agree Neutral Disagree Totally disagree I don't know

I think PWA get
frustrated when they
communicate with me

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Fig. 3. Two examples of the Likert Scale questions.

2.6. Ethics

Informed consent, secure storage and reserved accessibility of the research data were applied according to the guidelines of the Research Center Innovations in Care, Rotterdam University of Applied Sciences (Research Centre Innovations in Care, 2018) and the Dutch code of conduct for research integrity (KNAW et al., 2018). The students have participated voluntarily in this study, no reward was given, and they were informed that participation would not influence their regular education assessments.

3. Results

Nine SLT students (2nd yr) of the Rotterdam University of Applied Sciences participated (Table 1). The participants were all female and most of them had not met individuals with aphasia during previous clinical internships.

3.1. Video analysis of conversations between SLT students and PWA

Post Training Con-tAct (TC), the students' supporting communication scores were significantly higher than pre-training ($Z = -1.979, p = 0.05$). The mean score for acknowledging competence was higher as well, although not significantly. The communication behaviour with regard to 'checking information' was not improved. For almost all items, the mean score post TC was higher than that pre-training; the exceptions were items 7 and 11 (Table 2).

3.2. Self-reported knowledge and confidence of SLT students regarding communication with PWA (questionnaire)

The questions with a marked asterisk (*) (Table 3) contain the option 'I do not know'. When this option is chosen, it is considered a missing value in the data analysis. The results of the questionnaire are shown in Table 3. According to the Wilcoxon Signed Rank Test, the SLT students scored post-training significantly higher than pre-training on all questions.

Two open ended questions invited the students to describe their own ability to apply supporting communication strategies in conversations with PWA. The first question asks to mention examples of skills the student uses to support communication. Pre TC, most of the students mentioned: staying calm, paraphrasing, using yes/no questions, using pictures or pictograms, or using pen and paper to write something down. One of the students wrote, "I would change my way of communicating, but I don't know how exactly". Post TC, the students had more suggestions for supporting communication strategies in terminology of Con-tAct: using gestures, writing, drawing, yes/no card, adjust speaking rate and taking time.

In the second open ended question (what can help you to improve your skills in communicating with a PWA?), pre TC all students suggested more knowledge of communication strategies, and most of the students suggested more time for conversations with PWA. Post TC, most of the students still suggested more time for conversations with PWA. Some of the students suggested more accessible communication tools.

3.3. Focus group interviews

Four themes were derived from analysis of the focus group interview data to describe participants' perspectives on TC: (1) motivation for participating in CPT, (2) content and structure of TC, (3) feedback in CPT, and (4) participants' learning experiences.

3.3.1. Motivation for participating in CPT

Most of the participants described the personal affinity with aphasia as the reason to participate in the training. In addition, participants indicated that the training gave them the opportunity to practice with real people with aphasia. During the regular lectures, they only practice role-playing with other students. For all participants, the training had raised their interest in aphasia, mainly through the conversations with the PWA during the training.

Furthermore, all participants described the training as a preparation for future internships and their further career.

Student 1. "I would love to work with people with aphasia. I think, it is very cool that I could make a start with this target group in my second

Table 1
Student demographics.

Student	Age	Experience with aphasia
1	20–25	Side job in elderly care
2	20–25	No
3	20–25	No
4	<20	Internship in year 1
5	20–25	Seminar year 1
6	20–25	Seminar year 1
7	<20	Seminar year 1
8	>25	Seminar year 1. Knows someone with aphasia
9	20–25	No

Table 2

Comparison conversation performance of SLT students pre and post Training Con-tAct (TC) rated by an expert SLT with the measurement instrument Con-tAct (Appendix).

Category	Mean pre TC ^m (M)	Mean post TC ^m (M)	Difference	p value and Z-statistics	Number of students with an improved rating post TC	Number of students with an equal score pre and post TC	Number of students with a reduced score post TC
Acknowledging competence (item 1-4)	2.89	3.33	0.44	$p = .21$ $Z = -1.263$	5	1	3
Item 1 ^a :	3.00	3.56	0.56	$p = .059$ $Z = -1.890$	4	5	0
Item 2 ^b :	2.56	3.11	0.55	$p = .13$ $Z = -1.518$	4	4	1
Item 3 ^c :	2.56	3.11	0.55	$p = .40$ $Z = -.846$	5	0	4
Item 4 ^d :	3.44	3.56	0.12	$p = .71$ $Z = -.378$	2	5	2
Supporting communication (item 5-10)	2.33	2.87	0.54	$p = .05^*$ $Z = -1.979$	8	0	1
Item 5 ^e :	2.22	3.00	0.78	$p = .02^*$ $Z = -2.333$	6	3	0
Item 6 ^f :	2.67	3.33	0.66	$p = .03^*$ $Z = -2.121$	5	4	0
Item 7 ^g :	2.56	2.56	0	$p = 1.00$ $Z = -.000$	1	7	1
Item 8 ^h :	2.00	2.44	0.44	$p = .05^*$ $Z = -2.000$	4	5	0
Item 9 ⁱ :	1.11	2.89	1.78	$p = .01^*$ $Z = -2.724$	9	0	0
Item 10 ^j :	2.78	3.44	0.66	$p = .08^*$ $Z = -1.730$	5	3	1
Checking information (item 11-12)	2.94	2.94	0	$p = 1.00$ $Z = .000$	2	5	2
Item 11 ^k :	3.89	3.44	-0.46	$p = .16$ $Z = -1.414$	0	7	2
Item 12 ^l :	2.00	2.44	0.44	$p = .16$ $Z = -1.414$	2	7	0

^a Attitude towards the PWA.

^b Speaking pitch and volume.

^c Metacommunication.

^d Acknowledging and naming frustration.

^e Structuring.

^f Taking time.

^g Adapting language.

^h Asking yes/no questions.

ⁱ Writing/drawing.

^j Gesturing/pointing.

^k Communication partner checks whether the PWA understands the message/information.

^l Communication partner checks whether he/she has understood the message from the PWA.

^m Mean scores on the 4-point scale 1-4.

* $p < 0.05$.

year and that I experienced how this is in real life, outside the practice situations of school. It is different.”

3.3.2. Content and structure Training Con-tAct

All participants evaluated the training as well planned and organized, and informative. The Con-tAct communication model was clear and the workshops were interesting. The opportunity to apply what they learned in the training in real conversations was considered the main advantage of the training. Participants reported that the training gave them insight into their own conversation actions.

Student 3. “The whole learning process, the experience. At the beginning, I made mistakes. In the first conversation I did some stupid things and later I thought, hm, that is not helpful. I learned from that. And I am sure that you will not learn this in a regular class situation.”

3.3.3. Feedback

The participants provided two suggestions for improving the training. First, several participants indicated they would like to have more time for practicing what they learned. Second, they would prefer more feedback on their conversation actions. Participants

Table 3

Self-report questionnaire: scores pre and post Training Con-tAct (TC).

Question	Scoring range	Mean score pre TC	Mean score post TC	Difference (pre versus post)	p value (Wilcoxon Signed Rank Test)
To what extent do you think you know what aphasia is?	1–10	6.33 (SD = 1.118) N = 9	8.89 (SD = 0.782) N = 9	2.56	0.007
How well do you think you can communicate with a person with a mild aphasia?	1–10	5.78 (SD = 1.302) N = 9	8.67 (SD = 0.866) N = 9	2.87	0.007
How well do you think you can communicate with a person with a severe aphasia?	1–10	3.89 (SD = 1.364) N = 9	8.00 (SD = 0.866) N = 9	4.11	0.007
I think PWA feel embarrassed to communicate with me*.	1–5	3.00 (SD = 0.632) N = 6	1.89 (SD = 0.601) N = 9	1.11	0.034
I think PWA get frustrated when communicating with me*.	1–5	2.33 (SD = 0.516) N = 6	1.56 (SD = 0.527) N = 9	0.77	0.046
I feel embarrassed when communicating with PWA*.	1–5	3.00 (SD = 0.894) N = 6	2.00 (SD = 1.000) N = 9	1.00	0.023
I get frustrated in conversations with PWA*.	1–5	1.86 (SD = 0.690) N = 7	1.33 (SD = 0.500) N = 9	0.53	0.046
When my communication with PWA is not immediately successful, I know what I can do to understand each other.	1 - 5	2.33 (SD = 0.866) N = 9	4.00 (SD = 1.323) N = 9	1.67	0.037

* This question contain the option 'I don't know'. When this option is chosen, it is considered a missing value in the data analysis.

missed specific feedback on their video recordings from the teacher and other students.

Student 4. *"I have no idea if I am doing better now. My feeling says I am doing better, but I am not sure. I think my conversation skills are improved, but I did not receive this feedback directly from the teacher."*

3.3.4. Learning experience

Several participants reported that practicing with a PWA is easier than practicing with a fellow student. This is because the conversation with a PWA feels more natural than role-playing conversations. The participants indicated that they learned to use multiple strategies to support a PWA in the conversation. Strategies such as writing, using yes/no cards and the use of different question techniques were mentioned. They also felt more skilled in how they can tune in to a client, communicate on an equal level with a client, taking time for the conversation, and identify frustrations in the conversation.

Student 3. *"Now I realize more that emotions and gestures and respect are important components. And these components make conversations. Unconsciously I knew this, but now I realize this more."*

A number of participants have received compliments from the PWA for the improvement in the communication skills post TC.

Student 1. *"I saw that they felt understood. And I think this is the best compliment I can get."*

All participants are convinced that they are now ahead of the students who did not participate in the training. Especially now they have learned and practiced the conversation strategies in conversations with persons with aphasia. The participants are convinced that their improved confidence has positive effects on their future professional contacts with PWA. It gives the participants a good start in their forthcoming internships and career paths.

Lastly, all participants reported that TC provided insight in their skills to accommodate to a client. Three participants indicated that accommodation skills are not only important when communicating with PWA, but also with other communication vulnerable people.

Student 5. *"A SLT talks to a person and not to a disorder. The disorder is just a part of that person."*

4. Discussion and conclusion

4.1. Discussion

The aim of the present study was to measure changes regarding students' skills, knowledge and confidence as well as to evaluate the perspectives of the students on Training Con-tAct. Following a mixed method-design, all measurements – video analyses, self-reported questionnaire and focus group interview - show that, post TC, the students used more supporting strategies in communication with PWA and felt more skilled and confident in communicating with PWA.

4.1.1. Communication skills

The video analyses revealed significantly higher supporting communication scores and an improvement in 'acknowledging competence' post Training Con-tAct. Most progress was seen on the 'supporting competence', especially the use of 'writing/drawing' was seen more appropriately during the communication with PWA post Training Con-tAct. These findings are in line with Forsgren et al. (2017), who found that medical students applied writing strategies significantly more often post training. One of the explanations for this finding could be that, unlike the acknowledging or checking strategies, writing and drawing are visible actions and relatively easy to apply during conversations. Nevertheless, students still need to assess which strategies are most applicable and helpful for this specific person. Despite what is often assumed, using more strategies does not necessarily lead to a better conversation. For instance, if the PWA has mild communication problems, it is not necessary to support the conversation by writing or drawing.

Other than expected, the results show that students had already a fairly high score on the acknowledging competence pre Training Con-tAct. This might imply that students already had acquired the acknowledging competence prior to the training. We hypothesized that students would have difficulties with the acknowledging competence due to a lack of experience in this matter. The students were relatively young, had only one full year of SLT education prior to the training and reported themselves as unexperienced with PWA.

However, maybe experience is not the only contributing factor as motivation and professional development might play a role in this as well. The students were highly (intrinsic) motivated as they choose voluntarily to participate in this study, during their free-time, and one might assume that these students are motivated for working with PWA or at least have an affinity with PWA. Besides, these students have already acquired some (general) professional SLT skills during their first two years of their SLT education program and might be aware of the importance of acknowledging as a SLT in general. They already could have developed a professional respect for the PWA, which results in the initial use of the acknowledging strategies.

A more in-depth analysis of the acknowledging competence shows a somewhat confusing result on the item 'metacommunication' (i.e. communicating on the communication, for example comment on own failure in understanding the PWA or praising the PWAs' effort to communicate) as the mean scores pre training were already relatively high and - post training - five students' scores improved and four students' scores decreased. As a consequence, a large variation between students is seen and - for some students - ceiling effects occurred and their possible growth in this behaviour could not be measured on this scale. An explanation could be a lack of sensitivity in the measurement instrument. Scoring the item 'metacommunication' appears to be complicated and despite the adjustments made after the former study, the interrater reliability rate proved to be low (ICC .39; Nikkels, 2019). Examination in the pre-test scores revealed that the high scores were mostly explained by the absence of metacommunication behaviour, which was labeled as 'appropriate'. This absence could indicate that either these students were aware that metacommunication behaviour was not appropriate in the specific conversation situation, or that the students were not able to show this behaviour, and were unaware that they acted appropriately. One could argue that, due to the short duration of the conversations, metacommunication behaviour could not be observed properly and that longer duration of conversation is needed to observe this behaviour. Therefore, in future application of this measurement instrument, we recommend that the scores on this item should be interpreted with caution.

The students did not improve their checking information skills. However, the mean scores of checking information were already high prior to the training, showing a ceiling effect, which suggests that they already had acquired adequate checking information skills. This 'checking behaviour' is related to the 'teach-back method', an effective method to check if a person understood the information, provided by a health professional (Talevski et al., 2020) and already fully implemented in the regular communication skills training of the SLT education program.

Both the questionnaire and the focus group results showed that the knowledge and confidence of the students on supporting communication strategies improved significantly. These findings correspond to previous studies, where medical students showed more knowledge after workshops and interactive sessions on communication support (Forsgren et al., 2017; Saldert et al., 2016).

4.1.2. Evaluation

The questionnaire and the focus group interview gave information about the perspectives of students on TC. In the questionnaire that was administered pre training Con-tAct, some students were not able to assess what kind of emotions they felt when communicating with PWA. We assume that that explains why some students choose the option 'I do not know'. In the questionnaire that was administered post training Con-tAct, no one choose this option anymore, and they were able to assess their emotions in more detail.

In general the students spoke positively about training Con-tAct. They described the training as well planned, well organized and a valuable contribution to the SLT education program. They would recommend TC to their peer SLT students. According to the students, the training would be beneficial during the second year of the SLT education program and should be incorporated as part of the general communication lessons. They highlighted the importance of practicing with PWA. This finding corresponds to the previous study of Cameron et al. (2018). Furthermore, the students consider themselves as having more knowledge about aphasia and more confidence in communication with PWA than their peer who took not part in this study. This result support the research of Forsgren et al. (2017),

where students show improvement in knowledge and confidence post-lecture/workshop.

4.1.3. Strengths and limitations

The current results are a valuable contribution to this relatively new field of interest in aphasia rehabilitation and the communication activities of PWA. Whereas [Cameron et al. \(2018\)](#), [Finch et al. \(2017\)](#) and [Saldert et al. \(2016\)](#) used a single method design, in this study three different methods were combined in order to create data triangulation, as recommended by [Saldert et al. \(2018\)](#). Furthermore, the unique use of both pre-measurements and post-measurements in this study gave more detailed information on the progress students made. Additionally, the fact that students practiced with PWA – instead of role-playing – was an added value.

Nevertheless, we acknowledge that this study had some methodological limitations. A small sample size and the lack of a control group (due to financial and general feasibility reasons) leads to caution when interpreting the results. Besides, a calculation of an interrater reliability would have been a valuable contribution to the methodological quality of our study. A control group could have provided more information on participants' behaviour when confronted with people with aphasia without having been trained prior to that contact. [Kagan et al. \(2018, p.1\)](#) noted some interesting thoughts about 'The Impact of Exposure With No Training': "it is possible that mere exposure to a communication disability, such as aphasia, could have negative impacts on communication and social interaction (what is known as a "nocebo" effect)". The researchers in this study did not expect the control participants (untrained participants) to demonstrate poorer communication after exposure to aphasia. It would be interesting to gain insight in this effect in untrained students, and investigate if the change in negative direction is associated with the exposure to PWA ([Kagan et al., 2018](#)). Another possibility is that untrained students experience more confidence and better communication skills after being exposed to PWA.

The participants in this study were possibly highly motivated to learn and practice communication skills with this target group and therefore might not be representative for a general group of second year SLT students. The students took part in the training voluntarily and had affinity with PWA. Whether or not their SLT peer students – with less or no affinity with this topic – perform in the same way, needs to be explored. Their basic conversation skills with PWA might be different, and maybe they would benefit – or not – in different ways from TC compared to the current group.

4.2. Future directions

Communication partner training, such as Training Con-tAct, provides guidance for successful communication with communication vulnerable people. Training Con-tAct can therefore be a valuable addition to the education programs of all healthcare disciplines. SLT students, after having been trained in Con-tAct, could also perform as trainers for their fellow healthcare students, which could eventually make interprofessional education as a first step to interprofessional collaboration in practice. Finally, all of the above could lead to improved access to health care, especially for communication vulnerable people.

4.3. Conclusion

The present study contributes to the growing body of evidence on the benefit of Communication Partner Training – in this case, Training Con-tAct – for SLT students. The benefits mainly concern improved communicative behaviour: especially skills in supporting techniques. Furthermore, the students evaluated the training as positive, in terms of a valuable contribution to the SLT program, well organized, and important to practice with PWA. Further research with a larger sample size and a control group is required.

CRedit authorship contribution statement

Alissa Nikkels: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Visualization, Writing – original draft. **Philine Berns:** Conceptualization, Investigation, Methodology, Supervision, Validation, Writing – review & editing. **Karin Neijenhuis:** Conceptualization, Data curation, Methodology, Project administration, Supervision, Writing – review & editing.

Declaration of Competing Interest

None.

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Appendices

Measurement instrument Con-tAct

The measurement instrument Con-tAct can be requested from Research Centre Innovations in Care at the Rotterdam University of Applied Sciences via <https://www.hogeschoolrotterdam.nl/onderzoek/projecten-en-publicaties/zorginnovatie/evidence-based-care/ondersteunde-communicatie-bij-afasie/project/#flex>

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