

ORIGINAL ARTICLE

Communication partner training for workplace accommodation for people with acquired brain injury: Non-randomized controlled trial in university students

Kayo MATSUO,^{1,2} Tomoko TSUCHIYA,³ Mayumi HINO,⁴ Aki AKAMINE,⁵ Yuichiro HARUNA⁴

¹Faculty of Rehabilitation, Osaka Kawasaki Rehabilitation University, ²Keio University Global Research Institute (KGRI), ³National vocational rehabilitation center for persons with disabilities, ⁴National Institute of Vocational Rehabilitation, ⁵Nagoya University of Arts and Sciences, School of Human Care Studies

Correspondence: Kayo Matsuo, PhD, Faculty of Rehabilitation, Osaka Kawasaki Rehabilitation University, 158 Mizuma, Kaizuka, Osaka 597-0104, Japan. E-mail: matsuok@kawasakigakuen.ac.jp

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Abstract

This study aims to evaluate the effectiveness of communication partner training (CPT) for workplace communication with people with communication disorder due to acquired brain injury. A one-day CPT program comprising lectures, discussion, and role-playing was conducted for a total of 31 university students in a wait-list control design. Before and after the CPT program for participants in the intervention condition, all participants watched two types of video depicting workplace communication between persons with communication disorder caused by acquired brain injury and their supervisor. For the assessment of the knowledge of participants regarding communication skills, they pointed out the inappropriate manners of the supervisor in the conversation. They also answered their interest, confidence, and willingness to communicate with people with communication disorder caused by acquired brain injury. Results showed a significant interaction on knowledge that participants in the intervention condition increased their knowledge after taking the CPT program, whereas those in the delayed condition remained the same. There was also a marginally significant interaction on interest. The results suggest that the CPT program is effective in improving the knowledge of communication and interest regarding communication with people with communication disorder.

People with acquired brain injury may have some types of communication disorders that derive from the impairments of language (i.e., aphasia) and cognitive functions (e.g., attention and memory) (Tanemura, 2018). In relation to the communication disorders, there are two approaches to help their communication: one is to focus on the person with the disability (e.g., Savage, 2014; McDonald, 2008), and the other is to focus on people around the person with the disability (e.g., Kagan, 2001; Togher, 2004). The latter approach is generally called communication partner training (CPT) (e.g., O'Rourke, 2018; Simmons-Mackie, 2016). The CPT is based on the idea that the problems and their solutions do not lie solely in people with disability, and this concept appears to be in line with the emphasis placed by the International Classification of Functioning, Disability and Health (World Health Organization, 2001; Ylvisaker, 2005).

The main targets of the CPT in the area of aphasia are usually close relatives, such as family members, and the target group has been expanded, including health-care professionals and medical students who

deal with people with aphasia (Simmons-Mackie, 2010, 2016). For the communication with people with traumatic brain injury, some studies have conducted the CPT for police officers (Togher, 2004), institutional care workers (Behn, 2012), and store clerks (Goldblum, 2009) and have affirmed that participants improved their skills for communication with people with traumatic brain injury. The evaluation of the CPT varies from study to study, including the changes in the knowledge, attitudes, and behaviors of participants, as well as the changes in their social participation and behaviors of people with acquired brain injury (Saldert, 2018).

It has been highlighted that the communication disorders of people with acquired brain injury have a negative effect on social participation, which includes employment (Douglas, 2016; Graham, 2011; Heweston, 2018). Thus, supporting communication as they engage in social activities, especially at the workplace, is important. Supervisors and colleagues in the workplace need knowledge and skills in communication with people with acquired brain injury so that they

can help them adapt and work smoothly. Although the CPT for people with acquired brain injury is vital and potentially an essential support for them in the workplace, there are only a few studies in the area of traumatic brain injury (Wiltshire, 2014), and no CPT study seems to be available for workplace communication. Moreover, it seems that past CPT studies have only covered either aphasia or cognitive communication disorders and that no studies have covered both impairments simultaneously in a program. Nonetheless, people with acquired brain injury may have various impairments, and some techniques for communicating with those people are common (e.g., writing down the main points while speaking) (Hirozane, 2008). Hence, learning the communication skills for both types of disorders in one program would be effective.

This study developed a CPT program in the workplace communication for aphasia and cognitive communication disorders and investigated the effects of the program. The effects of the CPT were measured by the changes in knowledge (being able to identify inappropriate communicative behaviors and give alternative appropriate behaviors). Approval from the Ethics Review Committee of the National institute of vocational rehabilitation was obtained to conduct this study.

METHODS

Participants

Thirty-eight undergraduate students participated in the study. Participants (four males and 34 females) were 18–22 years old ($M = 19.34$ years), majoring in psychology, education, or childcare. They had no professional knowledge or specific experiences of brain injury and were presumed to be similar to the general public in this respect.

Design

A nonrandomized controlled trial with a delayed intervention condition was adopted. Participants were divided into two groups with equal age, gender, and major as much as possible, and one group was designated as the intervention condition (20 participants) and the other as the delayed condition (18 participants).

Program

Tips for communicating with people with acquired brain injury were searched and gathered from previous literature written in English or Japanese, and they were organized into 15 major items and 27 subitems (Table 1). Only specific behaviors were included in the list, and considerations for atmosphere and attitude,

Table 1. Tips for communication organized from literature

| | Major items (15) | | Subitems (27) |
|----|--|-------------------|---|
| 1 | Create an environment where your partner can focus on the conversation | 1A 1B | Create an environment that helps your partner focus on the conversation Take enough time |
| 2 | Choose words that are easy to understand | 2A 2B | Use plain, specific language Rephrase when your partner does not understand |
| 3 | Organize your speech | 3A 3B | Organize and sequence your speech Eliminate unnecessary information |
| 4 | Emphasize important points | 4A 4B | Emphasize important points Repeat important points |
| 5 | Speak in concise sentences | 5A 5B 5C | Speak in concise sentences Tell one thing at a time Ask one question at a time |
| 6 | Get attention of your partner before you speak | 6A 6B | Get attention of your partner before you speak Be in a position to see each other's faces |
| 7 | Speak slowly | 7 | Speak slowly |
| 8 | Watch your partner carefully | 8A 8B | Make sure your partner understands what you are saying Pay attention to nonverbal expressions |
| 9 | Wait slowly for a reply | 9 | Wait slowly for a reply |
| 10 | Use visual information | 10A 10B 10C | Use letters Use of nonverbal information (pictures and objects) Encourage nonverbal expressions |
| 11 | Guess and check | 11A 11B | Present options Dig into the content |
| 12 | Do not pretend that you understand | 12 | Do not pretend that you understand |
| 13 | Do not change the subject abruptly | 13 | Do not change the subject abruptly |
| 14 | Do not ask questions to test | 14 | Do not ask questions to test |
| 15 | Do not point out nonessential errors | 15 | Do not point out nonessential errors |

such as “to make a relaxed atmosphere” or “respect their personality,” were excluded. Considerations inappropriate in workplace situations, such as “choosing pleasant topics,” were also excluded. Based on the list, a 7-hour CPT program consisting of lectures and exercises was developed. The lectures covered the basic knowledge regarding acquired brain injury and the 15 tips with specific examples, and the exercises included group discussions and role-playing (Table 2).

Video

(1) For the measurement

Two videos were created to measure the knowledge of participants regarding communicating with people with acquired brain injury. The videos depicted conversations between a supervisor and a worker with attention and memory disorders (Video 1) and between a supervisor and a worker with aphasia (Video 2). Each video lasted roughly 2 minutes. The supervisor demonstrated 15 points of inappropriate behaviors in the communication with the workers in each video, which were reversed behaviors of the 27 items in Table 1. Table 3 exhibits each inappropriate communication behavior.

(2) For the program

Two other videos were also created for use in the

CPT program, and they presented the conversations between another supervisor and the workers described above. Although the supervisor exhibited inappropriate communication behaviors in the videos, the contents of the conversations were different from those for the measurement.

Measurements and procedure

Knowledge regarding communication with people with acquired brain injury was measured. All participants watched the videos thrice each and indicated the inappropriate behaviors of the supervisor before the CPT was conducted for the intervention condition (T1). Additionally, participants indicated their levels of interest, confidence, and motivation in communicating with people with acquired brain injury on an 11-point Likert scale. Two days after the intervention condition received the CPT (T2), all participants watched the same videos again and highlighted the inappropriate behaviors and their levels of interest, confidence, and motivation in communicating with people with brain injury in the same way as T1. The delayed condition underwent the same CPT after the T2 measurement. In addition, participants answered their prior knowledge regarding brain injury (T1 only) and their impressions of the CPT (after they received the CPT).

Table 2. Programs of the CPT

| | Minutes | Contents/Theme |
|------------|---------|---|
| – | 5 | Orientation |
| Lecture | 15 | Basic knowledge of brain injury |
| Lecture | 10 | Cognitive functions to support communication |
| – | 10 | Game (ice breaker) |
| Exercise 1 | 10 | Discussion about the video (Part 1) |
| Lecture | 50 | 15 skills for good communication (the major items in Table 1 were designated as the “15 skills”) |
| Lecture | 25 | Explanation of the video (Part 1) |
| Exercise 2 | 20 | Skill 2 |
| Exercise 3 | 20 | Skill 5 |
| Exercise 4 | 10 | Discussion about the video (Part 2) |
| Lecture | 30 | Explanation of the video (Part 2) |
| Exercise 5 | 20 | Skill 3 |
| Exercise 6 | 30 | Skills 7 and 10 |
| Exercise 7 | 30 | Skills 4 and 6 |
| Exercise 8 | 20 | Skills 8 and 9 |
| Exercise 9 | 30 | Skill 11 |
| – | 10 | Reflection and summary |

Table 3. Inappropriate communication behaviors

| | |
|-----|--|
| 1A | Environment with many distractions |
| 1B | Insufficient time |
| 2A | Use of abstract or uncommon words |
| 2B | Repeat the same expression when it is not understood |
| 3A | Jump from one topic to another |
| 3B | Insert unnecessary information |
| 4A | Use the same tone for important information |
| 4B | Say the most important thing only once |
| 5A | Speak in long or grammatically complex sentences |
| 5B | Talk in succession |
| 5C | Ask more than one question at a time |
| 6A | Speak without drawing partner’s attention |
| 6B | Be in a position where faces cannot see each other |
| 7 | Talk fast |
| 8A | Speak regardless of partner’s understanding |
| 8B | Ignore nonverbal expressions |
| 9 | Rush for answer and interrupt speech |
| 10A | Try to communicate only verbally |
| 10B | Try to communicate only verbally (same as 10A) |
| 10C | Do not encourage nonverbal expressions |
| 11A | Ask only open questions even partner cannot answer |
| 11B | Make assumptions without checking |
| 12 | Pretend to understand |
| 13 | Change the subject abruptly |
| 14 | Ask questions to test understanding and memory of partner |
| 15 | Point out nonessential errors and make partner rephrase them |

Coding

Two researchers individually scored all responses for the videos according to a coding list, which was prepared in advance. The same response was scored only once, and any discrepancies in scoring were checked and confirmed by the second author.

RESULTS

Of 38 participants, 31 (13 in the intervention condition and 18 in the delayed condition) who completed the measurements at T1 and T2 were included in the analysis. The *t*-tests showed no significant differences between the conditions in terms of age, gender, major, or previous exposure to information regarding brain injury (Table 4).

The inter-rater agreement for the knowledge scores were 94.2% and 94.8% for Videos 1 and 2, respectively. Analyses of variance (ANOVA) demonstrated interactions for knowledge on Videos 1 and 2 (Video 1: $F(1, 26) = 42.70, p < .001, \eta^2 = 0.59$; Video 2: $F(1, 29) = 26.35, p < .001, \eta^2 = 0.48$). The mean scores for Video 1 were 5.66 ($SD = 1.97$) at T1 and 9.50 ($SD = 1.45$) at T2 in the intervention condition and 6.13 ($SD = 1.59$) at T1 and 6.00 ($SD = 1.67$) at T2 in the delayed condition. The mean scores for Video 2 were 5.54 ($SD = 1.98$) at T1 and 9.31 ($SD = 1.70$) at T2 in

the intervention condition and 5.67 ($SD = 1.78$) at T1 and 6.17 ($SD = 1.76$) at T2 in the delayed condition (Table 5).

Regarding interest, the ANOVA showed a marginally significant for an interaction ($F(1, 28) = 4.08, p = .05, \eta^2 = 0.13$). The mean interest scores were 69.17 ($SD = 6.69$) for T1 and 80.00 ($SD = 8.53$) for T2 in the intervention condition and 70.00 ($SD = 19.70$) for T1 and 71.11 ($SD = 14.91$) for T2 in the delayed intervention condition. There were no interactions on confidence ($F(1, 29) = 1.80, p = .19$; intervention condition: T1 $M = 40.77, SD = 18.91$; T2 $M = 55.38, SD = 16.13$; delayed condition: T1 $M = 35.00, SD = 22.29$; T2 $M = 38.33, SD = 19.48$) and motivation ($F(1, 29) = 1.60, p = .21$; intervention condition: T1 $M = 73.08, SD = 9.47$; T2 $M = 76.92, SD = 9.47$; and delayed intervention condition: T1 $M = 73.33, SD = 16.45$; T2 $M = 71.67, SD = 14.25$) (Table 5).

DISCUSSION

The present study developed the CPT program in workplace communication for cognitive communication disorders and aphasia and investigated its effectiveness. The results demonstrated that the CPT improved the knowledge of participants regarding communication with people with acquired brain in-

Table 4. Characteristics of participants

| | Intervention condition (<i>n</i> = 13) | Delayed condition (<i>n</i> = 18) |
|----------------------|---|------------------------------------|
| Age (years) | 18–22 (<i>M</i> = 19.77) | 18–21 (<i>M</i> = 19.17) |
| Gender (male/female) | 2/11 | 0/18 |
| Knowledge (a/b/c) | 1/11/1 | 7/10/1 |

Knowledge regarding brain injury: (a) nothing at all, (b) some from lectures, TV, books, etc., (c) direct experience with a person with brain injury.
Numbers in parentheses are the numbers of participants.

Table 5. Means (Standard Deviations) of each condition at Time 1 and Time 2

| | Time 1 | | Time 2 | | <i>p</i> -value | |
|------------|--------------|---------------|---------------|---------------|-----------------|--------|
| | Intervention | Delayed | Intervention | Delayed | | |
| Knowledge | Video 1 | 5.66 (1.97) | 6.13 (1.59) | 9.50 (1.45) | 6.00 (1.67) | < .001 |
| | Video 2 | 5.54 (1.98) | 5.67 (1.78) | 9.31 (1.70) | 6.17 (1.76) | < .001 |
| Interests | | 69.17 (6.69) | 70.00 (19.70) | 80.00 (8.53) | 71.11 (14.91) | .05 |
| Confidence | | 40.77 (18.91) | 35.00 (22.29) | 55.38 (16.13) | 38.33 (19.48) | .19 |
| Motivation | | 73.08 (9.47) | 73.33 (16.45) | 76.92 (9.47) | 71.67 (14.25) | .21 |

Note. *p*-values indicate the interaction of conditions and times

jury. These results suggest that the CPT can provide appropriate knowledge to people in the workplace, which is essential as well as a prerequisite for effective communication. Nevertheless, whether the knowledge gained in the CPT leads to actual behavioral changes in communication is unclear because this study did not examine it directly. In fact, participants reported after the program the following: “speaking slowly seemed easy, but doing so was difficult” and “although I knew what I have to do, I could not wait for my partner in the exercise of conversation.” Further studies must definitely focus on the behavioral changes of participants in actual communication with people with acquired brain injury to conclude the effectiveness of the CPT.

There was no significant improvement in interest, motivation, and self-confidence by the CPT. When observing the changes in scores for each participant in the intervention condition before and after the CPT, most participants increased their scores whereas a few participants exhibited a decrease in the scores of interest, confidence, and motivation (one, three, and three participants, respectively). These participants often had higher than average scores on relevant items at T1.

There were several positive comments after the program such as “I wanted to learn more about this disability, and I gained some confidence in how to interact with people with this disability,” “I want to be actively involved in communication to reduce the burden on people with disabilities,” and “I would like to reduce the burden on people with disabilities by being actively involved in communication.” However, some participants might have felt anxious as they learned the new skills. One participant reported, “I felt that it requires more knowledge to interact with people with acquired brain injury than I had expected.” Exposure to detailed information regarding the characteristics of the disability and the communication skills may lead to a difficult impression. Forming negative attitudes by participating in the CPT is not plausible. Therefore, keeping this point in mind, when conducting the CPT, is necessary.

Limitations and future directions

The CPT program was effective for participants to gain knowledge about communication with people with acquired brain injury; however, it was not effective enough to increase their levels of interests, confidence, and motivation. The appropriate knowledge is necessary for the communication; however, interests and confidence could be the facilitating factors

for actual behaviors. Thus, the program may need some improvements to increase the levels of interests and confidence. The current program introduced the facts about problems and difficulties that people with acquired brain injury face in the communication situations, and then participants learned the communication skills and practiced with other participants through roll-playing. If they have opportunities for listening to patient’s experience or communicating with the patient in the program, their levels of interests may be more increased. Concerning the confidence, more frequent feedback from the trainers on the exercise during the program as well as feedback on the difference in their scores on the knowledge before and after the program may be able to increase their levels of confidence. The increases in the interests and confidence will encourage them to be motivated for the communication with people with acquired brain injury in actual situations. Besides, participants’ characteristics might influence their motivation: people who have no needs for communicating with people with acquired brain injury in their daily life, such as university students, participants in the present study, may be motivated lower than those who have the needs, such as corporate employees who work with people with acquired brain injury. In addition, this study was conducted as a nonrandomized controlled trial; therefore, future studies should be conducted as a randomized controlled trial.

Conclusion

The present study examined the effects of the CPT program and demonstrated the effectiveness on the improvement in knowledge about the appropriate communication behaviors. The CPT is the vital and promising method for the promotion of the workplace adaptation of people with acquired brain injury; therefore, it is expected to be implemented widely to support people with acquired brain injury.

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