[Paper]

Effects of Functional Assessment Learning for After-School Day Service Staff: Using an Original Card Game

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Abstract

Objective: This study was designed to enhance the quality of support provided in after-school day services by implementing a functional assessment training program using an originally developed card game. The study examined how this training influenced both the quantity and quality of support ideas generated by participants when presented with hypothetical case scenarios. Method: We used a pre-post design to evaluate the training's effectiveness. The participants included 37 staff members from four after-school day service facilities. The intervention consisted of a role-playing card game designed to teach functional assessment principles and creative idea generation. The training lasted between 1.5 and 2 hours. Outcome Measures: The dependent variables included the number and quality of support ideas generated for hypothetical case scenarios, as well as the social validity of the training. Results: Participants generated more support ideas after the training, and their ideas' quality improved. Additionally, social validity assessments indicated that participants found the training understandable and beneficial. Conclusion: Utilizing the card game as a training tool created an environment that reinforced idea generation and facilitated the generalization of learned concepts to hypothetical case scenarios. However, challenges remained in sharing the acquired knowledge with others and applying it to real-world problems. These findings highlight the need for additional support and follow-up training.

Keywords: Functional Assessment, Behavioral Problems, After-school Day Services, Card Games, Staff Training

1. Introduction

After-school day services provide continuous welfare support for school-aged children with disabilities by offering learning programs designed to enhance their daily living skills during after-school hours and extended vacations. These services aim to promote the independence of children with disabilities while complementing their formal education. The primary objective is to facilitate after-school support tailored to individual needs. According to the After-School Day Service Guidelines issued by the Ministry of Health, Labour and Welfare (MHLW, 2015), service providers must recognize the diversity of support needs and continuously improve the quality of care by adapting their approaches based on each child's circumstances. In particular, the guidelines mandate the development of Individualized Support Plans (ISPs), which require service providers to assess each child's needs and document key issues, specific support strategies, and important considerations for effective intervention (MHLW, 2015). Children utilizing after-school day services have a variety

of disabilities, including intellectual and physical disabilities as well as developmental disorders. Their ages range widely, from elementary school students to high school. Consequently, facilities may encounter a variety of behavioral challenges that require a high level of expertise.

Common challenges include difficulty following instructions, an inability to participate in group activities, conflicts with other children, strong fixations that make it hard to adapt to schedule changes, and impulsive behaviors such as shouting loudly or leaving one's seat. Therefore, when developing an ISPs to improve a child's overall quality of life, it is important to understand the reasons behind their behaviors. Functional assessment is an effective evaluation method for this purpose (O'Neill et al., 1997). Functional assessment analyzes behavioral problems by identifying the functional relationship between antecedent and consequent events. Based on this analysis, interventions can be designed to modify the antecedents and consequences that reinforce or maintain the behavior (Hirasawa and Fujiwara, 2002).

This type of assessment employs one or a combination of three primary methods: (1) interviews with relevant individuals, including the person exhibiting the behavior; (2) descriptive analysis through direct observation; and (3) experimental analysis by manipulating environmental conditions (O'Neill et al., 1997). While the effectiveness of functional assessment is widely recognized, applying it in practice requires specialized knowledge.

Bareford (2023) conducted a systematic review on the use of analog board games in higher education, revealing that such games are widely implemented as effective tools to foster active learning, collaboration, and problem-solving. The review highlighted that board games not only enhance students engagement and motivation but also contribute to the development of 21st-century skills, including communication, critical thinking, and teamwork. In recent years, analog game-based learning (GBL) has emerged as a promising pedagogical approach that integrates the motivational and interactive qualities of games with educational objectives. Unlike traditional lecture-based methods, analog GBL—such as the use of board and card games—provides learners with hands-on, collaborative experiences that promote active participation and deeper understanding through play. Nguyen (2024) investigated the effects of incorporating board games into STEM education using four distinct games designed to enhance cognitive understanding, motivation, and engagement. The findings showed that the introduction of board games significantly increased students' motivation and engagement while deepening their comprehension of STEM concepts. Similarly, Szilagyi (2025) examined the use of a non-digital card game, Blue Yeti, among first-year computer science students, and reported that analog card-based GBL produced measurable short-term improvements in learning performance and knowledge acquisition. Drawing on the demonstrated effectiveness of analog GBL in promoting active and experiential learning (e.g., Bareford, 2023; Nguyen, 2024; Szilagyi, 2025), its potential applications may extend beyond formal education to practical fields such as vocational training and welfare services. Currently, training in welfare settings faces challenges such as time constraints and personnel shortages, highlighting the need for training methods that can efficiently and effectively enhance the professional expertise of field staff (MHLW, 2020; MHLW, 2024). Nevertheless, practical research on staff training that utilizes GBL tools such as card games within the welfare sector remains limited.

This study aims to enhance the quality of support provided in after-school day services by implementing a functional assessment learning program using an original card game (hereafter, "card game learning"). Specifically, the study examines how this learning influences the quantity and quality of support ideas generated by staff members when presented with hypothetical case scenarios.

2. Method

2.1 Participants

We recruited staff members from four after-school day service facilities (n = 37): 4 from Facility A, 17 from Facility B, 7 from Facility C, and 9 from Facility D.

2.2 Procedure

The learning sessions were conducted over six months at four after-school day service facilities, each session lasting 1.5 to 2 hours. At the beginning of each session, participants were provided with printed descriptions of Hypothetical Cases 1 and 2 and were instructed to write their support ideas freely on blank A4-sized paper. Response time was approximately 10 minutes. Following this, the facilitator explained the five functions of behavior in functional assessment, after which the participants received an overview of the card game. They then engaged in the card game for approximately one hour. In the latter half of the training, two types of support tools were introduced to facilitate consideration of support based on the function of behavior. One tool was a questionnaire (BAC) for organizing the function of the behavior, and the other was a Support Strategy Planning Sheet for devising and organizing specific support strategies tailored to the identified function. The facilitator spent approximately 10 minutes explaining these tools before asking participants to generate support ideas for Hypothetical Cases 3 and 4 under the same conditions as the initial task. After the session, participants completed a social validity questionnaire to evaluate their perceptions of the learning.

2.3 Materials

2.3.1 Behavioral Assessment for Children (BAC)

We developed a customized questionnaire based on the Motivation Assessment Scale (MAS; Carr and Durand, 1985), a 16-item rating scale for estimating the function of a target behavior across four domains: sensory stimulation, escape, attention, and tangible reinforcement (demand for objects or activities).

The Behavioral Assessment for Children (BAC) incorporates the four functional domains of the MAS and introduces an additional function: prevention (Ito and Takeuchi, 2022). Prevention refers to behaviors that prevent participation in activities that may lead to failure or discomfort. For example, a child may feign illness to avoid physical education class, anticipating the possibility of failure. After-school day services often include small group activities for students from elementary to high school. Since tasks are frequently assigned to elementary school students, preventive behaviors are often implemented, which is why this was added. The BAC was explicitly designed for after-school day service settings and consists of 10 items, with two questions per function. Participants rated each item on a six-point Likert scale ranging from 0 (never) to 5 (always). We calculated the mean score for each function to determine the dominant function of the target behavior.

2.3.2 Support Strategy Planning Sheet.

Support Strategy Planning Sheet is a tool developed to facilitate the consideration of specific support methods for individuals based on functions identified through MAS and other methods (Takeuchi, 2023). Takeuchi (2023) emphasized that the sheet is a practical resource for caregivers and support staff, enabling them to develop targeted behavioral interventions.

The Support Strategy Planning Sheet required participants to document intervention strategies according to the function of the behavior. We classified these strategies into five categories: Alternative Behavior Learning, which involves teaching a new behavior that serves the same

function as the problem behavior; Enhancing Daily Activities, which provides opportunities for the individual to fulfill the function of the behavior in a structured, adaptive way; Environmental Modifications, which aim to remove triggers that may elicit problem behaviors; Psychoeducation, which fosters understanding of the behavior's function and encourages self-regulation within feasible limits; and Self-Management Learning, which teaches individuals strategies to fulfill the function of their behavior independently.

In this study, we added the function "prevention of anxiety-inducing activities!" to Takeuchi (2023) independently created sheet (see Figure 1). The learning session included sample sheets with pre-filled intervention ideas to enhance participants' understanding of using the tool effectively.

2.3.3 Behavioral Support Trial-and-Error Card Game

The learning incorporated a role-playing card game designed to provide an experiential learning opportunity for generating support strategies based on functional assessment principles. This game allowed participants to actively engage with different behavioral scenarios and develop intervention strategies in a dynamic and interactive format. The card game follows this flow: (1) Define the action (what is the child role doing?), (2) Present the context and infer what function the action serves, (3) Generate as many support ideas as possible to address the problematic behavior.

As shown in Figure 2, the game consisted of three types of cards: Behavior Cards (16), Function

		Behavioral Functions				
		Sensory Stimulation / Self-Stimulation	Escape from Aversive Situations	Attention Seeking	Demand for Objects or Activities	Prevention of Anxiety-Inducing Activities
Support Methods	Alternative Behavior (Teaching alternative behaviors with the same function)					
	Enrichment of Daily Life (Creating opportunities in daily life to fulfill the desired function)					
	Environmental Considerations (Removing stimuli that may trigger inappropriate behavior)					
	Psychoeducation (Showing understanding of the function, encouraging patience and effort)					
	Self-Coping (Allowing them to fulfill the desired function on their own					

Figure 1 Support strategy planning sheet used in learning

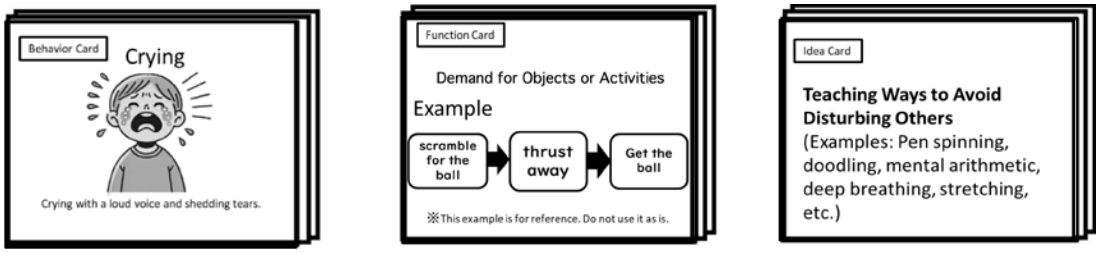

Figure 2 Examples of the three types of cards used in the games

Cards (5), and Idea Cards (36). Behavior Cards depicted behavioral problems through illustrations and written descriptions, helping participants recognize specific problematic behaviors. Function Cards identified one of five behavioral functions—sensory stimulation, escape, attention, tangible reinforcement, and prevention—and included examples of behaviors along with their antecedents and consequences. Idea Cards provided commonly used support strategies for addressing behavioral challenges, guiding participants in brainstorming intervention approaches.

Participants played the game in groups of three to five, with one person assigned a child's role and the remaining participants acting as support providers. The participant playing the child's role began by drawing a Behavior Card, reviewing its content privately, and acting out the described behavior using gestures (e.g., running around, spitting, etc.). The support providers then identified the problem behavior based on the gestures. If they guessed correctly, the participant playing the child's role confirmed it with the sound "Ping-Pong!" If they guessed incorrectly, teach the correct answer.

Next, the participant playing the child's role drew a Function Card, again reviewing it privately. Based on the function described on the card, they imagined a storyline explaining how the behavior was being maintained and expressed this narrative through gestures. This procedure required incorporating contextual cues to represent the antecedents and consequences of the behavior. For instance, if the function was attention, the participant might add gestures such as looking around before and after performing the behavior to indicate an attempt to gain social attention.

After observing the gestures, the support providers discussed the possible function of the behavior—whether it was driven by sensory stimulation, escape, attention, tangible reinforcement, or prevention. Once they reached a consensus, they presented their conclusion. If their guess was correct, the participant playing the child's role confirmed with the sound "Ping-Pong!" If incorrect, they provided the correct function as written on the card.

Next, one of the support providers draws an Idea Card and shows its content to the group (e.g., Praise them for what they're already enduring, Use partitions, etc.). Using the suggested strategy on the card as a reference, the support providers brainstorm intervention ideas tailored to the behavior and function previously acted out by the participant playing the child's role. Once they decide on an idea, the participant playing the child's role reenacts the behavior while the support providers role-play the intervention they devised. In some cases, the content of the Behavior Card, Function Card, and Idea Card may not match perfectly. In such cases, we instructed the participants to adapt and refine their intervention ideas through trial and error, using the drawn Idea Card as a guiding framework instead of drawing a new card.

At the end of the round, the participant playing the child's role evaluates the effectiveness of the intervention by rating their satisfaction—specifically, how much the intervention made them feel they could stop the behavior—on a 100-point scale. If the rating is below 100, the support providers continue to refine their approach by drawing additional Idea Cards and incorporating new strategies until the total score reaches 100. Participants are also encouraged to combine multiple ideas (e.g., two 30-point strategies and a 40-point strategy) rather than relying on a single perfect solution, a guideline explicitly explained during the learning.

2.3.4 Developing Hypothetical Case Scenarios

We adopted the method used by Okubo et al (2015) to evaluate the effectiveness of the learning, in which we asked participants to generate support ideas based on hypothetical case scenarios. Following this approach, we developed original case scenarios and asked participants to describe their intervention ideas. The first author, Certified Public Psychologist and Clinical Psychologist,

and the second author, a university faculty member specializing in applied behavior analysis, collaboratively developed four hypothetical case scenarios (see Figure 3).

The participants received a one-page summary of each case scenario before and after the learning. The scenarios did not explicitly describe the behavior's function to encourage them to analyze the behavioral functions independently.

Case	School Year/Age	Sex	Behavioral Function	Behavioral Pattern	Antecedent events	Behavioral information	Consequences	Others
1	4th Grade Elementary school Student	Male	Attention	Hit another child	More likely to occur when each individual is engaged in separate tasks, when a specific friend is present, or during free time	In addition to hitting other children, the child also uses harsh language and destroys others' belongings. Different children are targeted	He glances at a friend repeatedly. The surrounding children laugh, reprimand, or show fear	No communication delays are observed
2	5th Grade Elementary school Student	Male	Escape	Break objects	More likely to occur while engaging in a highly challenging activities. It can also be triggered by an adult pointing out corrections or by teasing from other children	The child breaks items that are being made, tears up worksheets, and throws objects placed in the room	When encouraged to continue the task, the child's excitement increases, and once excited, it takes time for him to calm down	Clumsy with hands. Likes trains. Shows a tendency toward sensory hypersensitivity
3	1th Grade Elementary school Student	Female	Attention	Atypical vocalization	Often occurs when she is engaged in an activity alone, slightly apart from the group, and the direct cause is unclear	The child tends to say whatever comes to mind immediately and, in addition to shouting 'Waa' or 'Kyaa,' also utters inappropriate words such as 'pee'	When an adult approaches and tells the child to stop, she may stop making unusual vocalizations, but she may also get into conflicts with the child who reprimanded her	Talks frequently. Eager to raise their hand and answer adults' questions
4	2th Grade Elementary school Student	Female	Escape	Sprawl out	More likely to occur in situations where people around are noisy or when a specific adult repeatedly speaks to her	The child sometimes lies down on the floor or sprawls across the desk	The child does not move on to the next activity for a while, but may get up when those around stop prompting	Has difficulty expressing their feelings in words

Figure 3 List of hypothetical case scenarios

2.4 Dependent Variables

2.4.1 Number of Ideas

We counted the number of support ideas generated by participants for each hypothetical case scenario. For example, if a participant wrote the following intervention: "To reduce the need for repeated verbal prompts, write instructions on paper or a board, place an instructional picture card nearby, and use pointing gestures when necessary," this statement would be broken down into three distinct ideas: (1) writing instructions on paper or a board, (2) placing an instructional picture card nearby, and (3) using pointing gestures to communicate the instructions. We counted each of these as a separate support idea.

2.4.2 Quality of Ideas

We asked two third parties, who were not involved in this research, to evaluate the quality of the support ideas. We randomly selected 50% of the participants for qualitative assessment to reduce the evaluators' workload.

The evaluation focused on three criteria: (1) Diversity – Does this support idea reflect a variety of approaches? (2) Effectiveness – Is this support idea likely to improve the target behavior? (3) Positivity – Does this support idea reflect a positive, reinforcement-based approach? The evaluator rated each idea using a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The final quality score was determined by the sum of the ratings across these three dimensions.

2.5 Reliability Assessment

We calculated interrater agreement for the number of support ideas generated by participants to evaluate reliability. The second author independently counted the ideas generated for each hypothetical case scenario. The interrater agreement rates were 87.8% for Case 1, 86.3% for Case 2, 84.9% for Case 3, and 85.5% for Case 4, indicating a high level of consistency in the scoring process.

2.6 Ethical Considerations

Participants received a written explanation of the study and provided informed consent in writing. The study received prior approval from the Institutional Review Board (IRB) of the authors affiliated university (Approval No. 2020-034).

2.7 Social Validity

The participants completed a six-question questionnaire evaluating their perceptions of the learning to assess the social validity of the study. The questions included items such as "Did you understand the content of the learning?" and "Did the learning provide you with a new perspective?" Participants also had the opportunity to provide open-ended feedback about their experiences. Each question was rated on a five-point Likert scale, ranging from "Strongly Agree" to "Strongly Disagree." The specific questions are presented in Table 2.

Additionally, we conducted a follow-up survey one month after the learning with participants from Facility B to examine how the participants applied the learning content in real-world settings. This survey consisted of 10 questions assessing the practical implementation of learning concepts, including items such as "Do you find yourself assessing children's behaviors with a clearer understanding of their functions compared to before the learning?" and "Do you consider behavioral functions more frequently when discussing cases with colleagues?" Participants rated their responses using the same five-point Likert scale.

3. Results

3.1 Number and Quality of Ideas Before and After learning

Table 1 presents the number of support ideas generated for hypothetical cases, categorized by facility, before and after the learning. In Facility A, participants generated 61 ideas for Cases 1 and 2 before and 67 for Cases 3 and 4 after the learning. In Facility B, the number of ideas increased from 169 to 225. In Facility C, participants initially generated 54 ideas, which increased to 63 post-learning. In Facility D, the number of ideas rose from 69 to 79. Across all participants, the total number of ideas recorded was 157 for Case 1, 196 for Case 2, 206 for Case 3, and 228 for Case 4. Overall, the card game learning increased 81 additional ideas, indicating that participants generated more intervention strategies following the learning.

To examine qualitative changes in ideas before and after card game learning, we calculated the average scores for each of the "diversity," "effectiveness," and "positivity" categories by summing the evaluation points from two observers for each of Cases 1 and 2, and Cases 3 and 4 (see Table 1). The average scores for the two observers in each case are as follows. Diversity scores were 3.66 for Case 1, 4.25 for Case 2, 4.24 for Case 3, and 4.22 for Case 4. Effectiveness scores were 3.37 for Case 1, 4.00 for Case 2, 3.92 for Case 3, and 3.92 for Case 4. The positivity scores were 3.53 for Case 1, 4.28 for Case 2, 4.18 for Case 3, and 4.28 for Case 4.

Comparing the pre- and post-learning cases indicated that the average scores increased. Diversity improved by 0.13 points, effectiveness increased by 0.19 points, and positivity improved by 0.24 points. These results suggest that participants also proposed higher-quality interventions after the learning in addition to generating more ideas.

3.2 Social Validity of the learning

Table 2 presents the results of the social validity assessment of the learning All participants reported understanding the learning content, responding "Agree" or "Strongly Agree." Additionally, most participants expressed interest in attending another session of the card game learning, although a small number selected "Neutral." Furthermore, many participants indicated they planned to apply what they learned in their professional practice.

Table 3 shows the results of the follow-up social validity assessment conducted one month after the learning. Many participants still expressed interest in additional learning using the card game, even after a month. Some also reported successfully applying the learning concepts in their work settings. However, a notable number of participants stated that they found incorporating discussions about behavioral functions challenging when communicating with colleagues or parents.

Table 1 Number and quality of support ideas before and after card game learning

		Case 1 + Case 2 (Before card game)	Case 3 + Case 4 (After card game)
Number of ideas	Facility A	61	67
	Facility B	169	225
	Facility C	54	63
	Facility D	69	79
Qualitative evaluation	Diversity	3.95	4.23
	Effectiveness	3.68	3.92
	Positivity	3.89	4.23

Table 2 Post- learning evaluation of the card game learning

	Questions about the training	Strongly agree (5)	Agree (4)	Neither agree nor disagree (3)	Disagree (2)	Strongly disagree (1)
1.	Did you understand the content of the training?	17	22	0	0	0
2.	Were you able to gain new perspectives through the training?	12	24	3	0	0
3.	Do you think it has become easier to come up with support ideas than before after taking the training?	11	26	2	0	0
4.	Would you like to have another assessment training using the card game with other staff members?	15	19	5	0	0
5.	Do you intend to put the assessment you learned in the training into practice?	18	18	3	0	0
6.	If a training session like this is held again, would you like to participate?	18	18	3	0	0

Table 3 One-month follow-up evaluation of the card game learning

	Results of one-month follow-up evaluation of card game learning	Strongly agree (5)	Agree (4)	Neither agree nor disagree (3)	Disagree (2)	Strongly disagree (1)
1.	Do you think you are assessing the children attending your facility with a better image of their functions compared to before the learning?	0	5	4	0	0
2.	Do you think you can now discuss while considering functions when having meetings with other staff members?	0	3	5	1	0
3.	Do you think you can now share information with parents while considering functions?	0	2	6	1	0
4.	Do you feel you can understand current issues more clearly than before the training?	0	7	2	0	0
5.	Do you feel that you can apply what you learned from the card game to your daily support?	0	7	2	0	0
6.	Do you think learning assessment through the card game is a simple method?	1	6	2	0	0
7.	Would you like to receive more assessment training through card games in the future?	2	7	0	0	0
8.	When you encountered challenging behaviors, did you feel you could apply what you learned from the card game?	0	5	4	0	0
9.	Did you make any new discoveries through the card game?	4	5	0	0	0
10.	If new card games related to assessment become available, would you like to try them?	3	4	2	0	0

4. Discussion

This study was designed to enhance the quality of support provided in after-school day services by implementing a functional assessment learning program using an original card game. The study's primary objective was to examine how the learning influenced the quantity and quality of support ideas generated by participants when presented with hypothetical case scenarios. Based on the results, the discussion focuses on two key aspects: (1) changes in the number and quality of ideas and (2) the validity of the learning.

4.1 Changes in the Number and Quality of Ideas

The findings revealed increased support ideas across all participating facilities after the learning. It is possible that the use of card games and tools may have generalization to fictitious cases, as the environment reinforced the generation of ideas. Two specific factors likely contributed to this effect. First, the learning provided an environment with minimal aversive stimuli, reducing the cognitive burden associated with generating completely new ideas from scratch. Since participants could reference predefined strategies from the Idea Cards, the process was less intimidating and more structured, allowing for more fluid and confident idea generation.

Additionally, because participants worked with predetermined ideas, the environment was less likely to present punishment feedback. Second, the game's mechanics functioned as an establishing operation, reinforcing participants' responses. The card game allowed participants to test their intervention ideas immediately and receive feedback from their peers in real-time. In contrast, practitioners often deliberate on behavioral interventions long after the problematic behavior in typical case discussions, which may weaken the learning and reinforcement process. However, in this learning, participants observed problem behaviors immediately before generating ideas, enabling real-time evaluation and reinforcement of their responses. This frequent, immediate reinforcement likely contributed to the increased idea generation. A unique aspect of the Behavioral Support Trial-and-Error Card Game—its "100-point system"—may have further contributed to this effect. This mechanism encouraged participants to accumulate reinforcement gradually rather than attempt to develop a perfect solution. By rewarding partial successes (e.g., implementing a 20-point idea and later supplementing it with a 40-point idea), participants experienced repeated reinforcement opportunities, strengthening their ability to generate and refine ideas over time. This process likely played a crucial role in enhancing the quantity and quality of support ideas.

The qualitative evaluation of ideas showed that the average post-learning scores for Cases 3 and 4 were higher across all dimensions than the pre-learning scores for Cases 1 and 2. The most notable improvement was observed in positivity, indicating that participants proposed more reinforcement-based and supportive intervention strategies following the learning.

Participants' open-ended feedback further supported this finding. Some comments included: "Knowing that a 30- or 40-point solution was acceptable made me feel less pressured," "I was able to break out of rigid thinking patterns," and "The card game helped me visualize and explore a variety of intervention strategies." These reflections suggest that the learning enabled the participants to generate more diverse and practical support ideas after completing the session. Together, these results indicate that the card game learning improved the quality of participants' intervention strategies.

However, variability was observed in the quality scores across the different case scenarios. Specifically, Case 1 received a lower score overall compared to the other cases, suggesting that

specific contextual factors may have influenced participants to generate ideas. Furthermore, since the pretest was administered to upper elementary student cases (fourth and fifth graders) and the posttest to lower elementary student cases (first and second graders), it cannot be ruled out that grade level influenced idea generation. Based on the above, this finding implies that procedure content, nature of the hypothetical cases may have affected the number and quality of responses. Future studies should carefully examine case selection, content structure, and the sequencing of case presentations to optimize learning effectiveness.

4.2 Validity of the Learning

The findings suggest that a functional assessment learning program incorporating a card game effectively improves support quality in after-school day services. The main reasons supporting this conclusion include the increased number and quality of ideas and the high level of participant comprehension and engagement with the learning content.

Social Validity of the Learning. The social validity assessment's results indicated that all the participants understood the learning content, as every respondent selected "Agree" or "Strongly Agree." Additionally, a large proportion of participants expressed interest in attending another session of the card game learning, suggesting that they found the content both accessible and beneficial. Furthermore, a one-month follow-up survey at Facility B provided additional insights into participants' perceptions of the learning. Many participants responded positively to questions such as "Did you gain new insights through the card game?" and "Would you be interested in trying a new assessment-related card game?" selecting "Agree" or "Strongly Agree." These responses suggest that the learning effectively met the participants' needs and engaged their interest in further learning opportunities.

However, certain aspects of practical application remained challenging. When asked, "Do you actively consider behavioral functions when discussing cases with colleagues?" and "Do you incorporate behavioral function analysis when sharing information with parents?" many participants responded "Neutral" or "Disagree." One possible factor is that the perspectives and terminology related to the function of behavior may not be widely understood or shared among staff members and parents who are not participating in the training program. Support based on functional assessment relies heavily on specific knowledge and conceptual frameworks. Without such a shared perspective, it becomes difficult to incorporate the functional viewpoint naturally into everyday conversations and information sharing (O'Neill et al., 1997). Against this backdrop, participants may have found it challenging to engage in discussions or share insights based on the functional aspects of behavior in their work settings. Furthermore, after-school day service settings often face structural challenges, such as chronic staff shortages and excessive workloads. These challenges make it difficult to secure sufficient time and mental bandwidth to carefully examine the background of behaviors. Consequently, a single learning opportunity is insufficient to effectively apply the functional perspective in practice. A continuous support system and mechanisms for sharing within the workplace are necessary. Similarly, when asked, "Do you feel the learning has helped you manage challenging behaviors in real-life situations?" Many participants also selected "Neutral."

These findings indicate that while the learning was well-received and conceptually valuable, participants struggled to apply the learned skills in real-world professional contexts. This finding suggests the need for additional support and follow-up learning to reinforce learning outcomes and facilitate practical implementation. Rather than conducting the learning as a one-time intervention, offering annual or regularly scheduled sessions within the workplace may be necessary to ensure

long-term retention and application of functional assessment skills.

4.3 Limitations and Future Directions

This study's learning program consisted of a combination of elements, including a card game, a Behavioral Assessment for Children (BAC), and a Support Strategy Planning Sheet. While the results suggest that this learning package was adequate, the study was not designed to isolate the specific effects of the card game alone. Future research should compare it with similar learning programs that do not incorporate the game to determine the independent impact of the card game.

Several areas require further investigation. Firstly, long-term effects need to be examined. This study found that the number and quality of intervention ideas improved immediately after learning, but it remains unclear how these improvements translated into real-world practice over time. Future studies should incorporate regular follow-up learning sessions and longitudinal tracking to assess whether changes in case discussions and support quality persist beyond the initial learning period. Secondly, learning delivery methods should be explored. Comparing the effectiveness of online versus in-person learning and examining differences between facilitator-led and participant-led sessions could help identify the most sustainable and accessible learning formats. Thirdly, the learning content should be diversified. Since the knowledge and skills required for adequate support vary based on individual children and specific intervention settings, the card game's structure should remain flexible while expanding the range of behaviors and idea cards to accommodate a wider variety of needs. Doing so would enhance the applicability of the learning across different contexts, increasing its potential for widespread implementation.

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