



Teaching Social Niceties to Individuals with Autism Spectrum Disorder Using the Textual Prompt

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Accepted: 21 July 2023 / Published online: 8 August 2023
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Abstract

This study examines the effectiveness of textual prompts in acquiring social niceties in the workplace for five individuals with autism spectrum disorder. Based on the results of this study, resource- and time-efficiency interventions are discussed. The participants were taught two statements: "Do you have a minute?" and "Thank you for your time." The participants worked in a simulation setting simulating the workplace. When an opportunity for interaction with an actor acting as a supervisor or colleague was provided to the participants, they were required to use social niceties before and after the interaction. During the training, the participants were presented with a textual prompt to use social niceties. As a result, most participants were able to use social niceties compared to the baseline. However, the percentage of correct responses was not stable, and the results did not show that the participants had fully acquired social niceties. A comparison of the results of the previous study with the results of this study indicates that it is difficult to obtain sufficient efficacy from interventions using only the textual prompt.

Keywords Autism spectrum disorder · Textual prompt · Social nicety · Simulated workplace

Previous research on the employment of individuals with autism spectrum disorder (ASD) suggests that employment is extremely difficult for individuals with ASD (Hendricks, 2010; Volkmar et al., 2009), as it is difficult for them to start and continue working. The factors that make it difficult for these individuals to find employment are lack of communication skills and social skills (Camarena & Sariyani, 2009; Haring et al., 1987; Hendricks, 2010; Mechling et al., 2005). In some countries, the lack of such social niceties may be a particularly big problem for individuals with ASD. For example, Japan is a high context culture (Mukherjee & Ramos-Salazar, 2014) and Japanese prefer soft and polite communication. Therefore, the social niceties such as "Do you have a minute?" or "Thank you for your time" are regarded as an important behavior for the formation and maintenance of relationships among employees in the Japanese workplace. In order to solve this problem,

intervention studies have evaluated social and communication skills to promote employment for ASD, which has led to the people with ASD acquiring skills and successfully obtaining work (Gorenstein et al., 2020; Sung et al., 2019; Walsh et al., 2018).

There have been a few studies that have taught social nicety as a workplace communication skill. For example, Yamamoto and Isawa (2020) taught two social niceties: "Do you have a minute?" when talking to a boss or colleague, and saying "Thank you for your time" when leaving after a conversation. Social nicety is a behavior similar to social skill, but there are differences between the two behaviors. Social nicety is not a behavior that directly promotes job performance, but rather a behavior that can be used to facilitate interpersonal relationships and increase the probability of receiving reinforcement when consulting others. Social skills function as a mand, whereas social nicety functions as an autoclitic. For example, consider someone saying, "do you have a minute?" of a social nicety when someone wants to ask his boss a question about work. It is likely that the boss will be more likely to answer his question if he say the social nicety than if he do not say it. So, the social nicety is considered autoclitic because it increases the probability of reinforcement. Morgan and Salzberg (1992) used

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video-assisted training to teach children with ASD to say, “excuse me, please” and “help.” The skill of saying “help” was acquired rapidly. However, the skill of saying “excuse me, please” was acquired comparatively slowly. In their research, “Excuse me, please” is considered a social nicety. Furthermore, Grob et al. (2019) taught various job-related skills, including asking for a task model and asking for help with materials. They also taught social niceties, including saying “excuse me,” and knocking on the supervisor’s door. In their study, the acquisition of social niceties was slower than that of job-related skills. The fact that there is a difference in the number of sessions required to acquire the behavior despite the same procedure suggests that it is worthwhile to examine the effectiveness of the intervention by distinguishing social nicety from other behaviors.

Previous studies have examined effective interventions for teaching social niceties. Thiemann and Goldstein (2004) used peer training and written text cueing to secure attention and compliments. Miller and Thiemann-Bourque (2016) taught social niceties such as compliments and cheering for friends using written text and graphic cues in peer-mediated interventions. Yamamoto and Isawa (2020) showed that textual prompts and performance feedback were effective in teaching social niceties. From an overview of these studies, we conclude that all of them used textual prompts. Thus, the use of textual prompts may be effective in teaching social niceties.

In all of the previous studies mentioned above, participants were successful in acquiring social niceties. Therefore, researchers are beginning to understand the effective procedures that should be used to teach social nicety. However, when considering effective interventions, it is necessary to consider resource and time efficiency in addition to effectiveness for acquisition (Palmen & Didden, 2012; Reed et al., 2011). This is because considering resource- and time-efficient interventions is more likely to increase the likelihood of social implementation. Yamamoto and Isawa (2020) used textual prompt and performance feedback to examine resource efficiency, and Yamamoto and Isawa (2021) examined the effectiveness of a procedure using only performance feedback. As a result, although the speed of acquisition was slower than the intervention using both the textual prompt and performance feedback, all the participants were able to acquire social nicety even when the intervention used only performance feedback. Thus, to develop research on teaching social nicety for ASD, it may be necessary to examine the effects of fewer elements of intervention programs that have been found to be effective.

As many studies have demonstrated the effectiveness of textual prompts when evaluating social nicety, examining the effectiveness of interventions using only textual prompts would be preferable. In addition, comparing the effectiveness of the intervention with the textual prompt

alone, combined intervention of the textual prompt and performance feedback (Yamamoto & Isawa, 2020), and performance feedback alone (Yamamoto & Isawa, 2021), may expand our knowledge of what interventions are most effective, resource-efficient, and time-efficient for acquisition.

Only rules are presented when using an intervention with a textual prompt, and no programmed feedback is presented. Therefore, the social nicety acquired under such an intervention may be established as a rule-governed behavior. If we do not provide programmed feedback for social niceties, which are not easily reinforced in natural contingencies, it may become increasingly difficult to acquire social niceties. However, if the textual prompt functions effectively as a rule, and if the subject's rule-governed behavior has been sufficiently reinforced in their life to this point, then social niceties acquisition should be possible. This is because even if the behavior has never been reinforced before, if the rule-following behavior has been acquired, the behavior is established as rule-governed behavior. That is, if a person has acquired the rule-following behavior, then just being presented with the rule of the textual prompt is enough to acquire social niceties. For example, Bradley and Noell (2021) taught saying “thank you” to children with ASD by presenting only an instruction “When someone gives you a compliment, you should say ‘thank you.’” Tiger and Hanley (2004) taught emitting mand only in appropriate situations to child with ASD by presenting an instruction “When I am wearing the red lei, it is your time. I can answer your questions and look at your work. When I am wearing the blue lei, it is [other child’s name] time. I can’t answer your questions or look at your work. When I am wearing the white lei, it is my time. I can’t answer either of your questions or look at either of your work.” In both studies, participants acquired targeted responses as rule-governed behavior. By showing that social niceties can be acquired with only an intervention using the textual prompt for participants who are acquiring rule-engaged behavior, we can contribute to the development of resource-efficient interventions for teaching social niceties.

It is also necessary to consider what social etiquette should be taught in each country. For example, Japan is a high-context culture (Mukherjee & Ramos-Salazar, 2014) and Japanese prefer soft and polite communication. Therefore, the social niceties such as “Do you have a minute?” or “Thank you for your time” are regarded as an important behavior for the formation and maintenance of relationships among employees in the Japanese workplace.

This study examines the efficacy of the intervention to teach two social niceties with only the textual prompts for individuals with ASD who have acquired rule-following behavior. We also discuss the resource and time efficiency based on the results of this study.

Methods

Participants and Setting

Five adolescents and young adults with ASD participated in the study. Table 1 summarizes the background information for each participant. All participants were men. Their ages ranged from 15 to 21 years, with an average age of 18.6 years old. All participants were diagnosed with ASD before participating in this study. None of the patients were diagnosed with cognitive impairment. To recruit participants, the experimenters posted an advertisement for their research on workplace social skills on the nonprofit organization website run by parents of people with ASD. Potential participants had to satisfy the following four conditions: diagnosed with ASD, at least 15 years of age, their parents had to report a history of reciprocal conversational skills, and parents had to detail on the potential readiness of the participant to perform simple tasks such as assembling envelopes or typing on a computer for more than 30 min. Although a report from the parents was required for participation in this study, participants were able to voluntarily declare their participation. However, all the participants in this study participated in the application from their parents.

All participants were able to talk to others for at least 10 min. They emitted mands when they did not have the necessary tools for the work assigned to them or were asked to use the tool for the work that they had never used before. In addition, they emitted tacts for common stimuli, such as animals,

food, and vehicles. The participants spoke about their past experiences and what they wanted to do in the future. They answered questions when asked. Furthermore, they read the sentences and responded according to what was written in the given sentences. They could follow a rule presented by others. For example, when they were instructed “please say hello to your teacher,” they could say hello. However, they always spoke to others without saying “excuse me” or “hello.” They also always left the other person they were with without saying a polite greeting, such as “thank you,” when they had finished saying what they wanted to say in the conversation.

All sessions were conducted in a 16 m × 7.5 m private room in a public facility. Each session lasted approximately 15 min. Two to three sessions were conducted per visit, and these visits were completed 1–2 days every other week. The room was equipped with four long desks placed face-to-face. Two to three chairs were arranged for each desk. One long desk was placed away from the other desks to serve as the boss’s desk. A stack of newspapers, glue, pencil, eraser, notepad, and a guide to making a folded newspaper box were placed on each desk for the participants. For this study, we opted for the folding of newspapers to make boxes because it was established that this would be an easy task for the participants based on a report by parents. Only the participants, eight graduate students, and the first author were present throughout the study. One graduate student was assigned the role of the actor who played the participants’ boss. Two graduate students were assigned the role of actors who played the participants’ colleagues. Five graduate students were assigned the role of trainers who provided rule sheets.

Table 1 Participant Demographic Information.

| Name | Male/female | Age | Status |
|----------|-------------|-----|----------------------|
| Kazutaka | Male | 21 | College student |
| Chihiro | Male | 16 | High school student |
| Satoshi | Male | 16 | High school student |
| Takao | Male | 15 | High school student |
| Len | Male | 25 | Part-time employment |

Table 2 The Rule Sheet for Consulting with Others

“Consulting with Others”

1. When you are asked to come to your boss, please go to your boss.
 2. When you are left with some job to consult with the colleague, please say, “OK.”
 3. When you go to the colleague, please say, “Do you have a minute?”
 4. Please consult about the job entrusted by your boss.
 5. When the consultation is over and you leave the colleague, please say, “Thank you for your time.”
 6. Please go to your boss to tell the result of the consultation.
 7. When you speak to your boss, please say, “Do you have a minute?”
 8. Please tell your boss the result of the consultation.
 9. When you leave the boss, please say, “Thank you for your time.”
-

Materials

Tables 2, 3, and 4 present an example of a rule sheet. Three rule sheets were developed, one for each scenario in our study, which required the use of social niceties: consulting with others, delivering information to others, and borrowing tools to use for work. Each sheet contained a behavior chain for each scenario and included a description of how to use

Table 3 The Rule Sheet for delivering information about the task to others

“delivering information about the task to others”

1. When you are asked to come to your boss, please go to your boss.
2. When you are left with information to delivery with the colleague, please say, “OK.”
3. When you go to the colleague, please say, “Do you have a minute?”
4. Please delivery information to your colleague.
5. When you delivery information and you leave the colleague, please say, “Thank you for your time.”

social niceties in the behavior chain. Sheets of 15 cm × 21 cm with a 12-point Gothic font were used.

Data Collection

The dependent variable of this study was the percentage of social niceties (i.e., initiating and closing the interaction) correctly emitted by the participants in one session (i.e., three work scenarios). We decided on polite interaction skills concerning work as a correct response because such responses are crucial for working with others in Japan. The first social nicety was the initiating statement. When speaking to others, it was to say, “Do you have a minute?” before discussing business-related matters. We recorded it as a correct response when a participant responded within 5 s of approaching the actor within 1.5 m, and responded before the participant emitted additional remarks. If the participant emitted social nicety after 5 s of approaching the actor, and if he or she emitted it too far from the actor, we recorded it as an incorrect response. In addition, if the participant did not approach the actor or made no remark, we recorded it as an incorrect response. Furthermore, if the participant made additional work-related statements or requests before the boss or colleague responded to the social nicety, we recorded it as an incorrect response. The second social nicety was the closing statement. This was to say, “Thank you for your time” to close an interaction. We recorded it as a correct response when a participant responded before departing from an interaction (i.e., within 5 s after the actor responded to the participant’s request but remained within about 1.5 m).

Responses that functioned similarly to the social niceties described above were also recorded as correct responses. For example, the remarks of "Do you have a little time?" and "Is

it the right time to talk?” seemed to have the same function as "Do you have a minute?” In addition, “Thank you for your help” and “I am sorry to interrupt you” were considered functionally equivalent to “Thank you for your time.” Impolite responses, such as knocking at the boss's desk, or impolite statements, such as saying "Stop working and listen to me," were recorded as incorrect responses.

Procedure

This study used a concurrent multiple baseline design to examine the effectiveness of performance feedback on the acquisition of social niceties in a simulated workplace.

General Procedure

All the participants participated simultaneously in the same room. At the beginning of each session, the participants were required to sit on a chair. After all participants were seated in their chairs, the actor who played their boss read the following script:

Please imagine that the place is a real workplace. In addition, take a look at the desk. There are newspapers, a manual, glue, pencil, eraser, and notepad. Tell me if you do not have enough material. You will be making boxes by folding the newspapers when I tell you to start the session. Please read the manual to learn how to create the box. If you do not understand the manual, seek assistance from a nearby trainer. The work will last approximately 20 minutes. When the work is done, I will tell you, “The work is over!” There will be several other people with you while you work. These people will play the role of your boss and colleagues.

Table 4 The Rule Sheet for borrowing tools to use for work

“borrowing tools to use for work”

1. When you are asked to come to your boss, please go to your boss.
2. When you are asked to work with a specific tool and taught the name of the colleague who has the tool, please say, “OK.”
3. When you go to the colleague, please say, “Do you have a minute?”
4. Ask your colleague to borrow a specific tool.
5. When you borrow the tool and you leave the colleague, please say, “Thank you for your time.”

They will sometimes ask you to work. When you are asked to do the work, please do your best. Finally, if you feel tired or uncomfortable, you can always tell the nearby trainer. You may rest anytime. That is all I have to explain. Please go ahead and get to work.

The participants and the actors who played the colleagues sat across the long desk from each other. The actor who played the boss sat far from the participants and colleagues. The actor who played the boss and the actors who played colleagues differed in each session. All participants and colleagues made boxes by folding newspapers. If a participant stopped making a box for approximately 1 min, a nearby trainer verbally prompted him or her to return to work.

Three trainers were in a simulated workplace to measure participants' responses and provide performance feedback. One or two participants were allocated to one trainer. Trainer assignments were changed in each session. Throughout all sessions, the trainers usually stood out of the participants' view so that they could not see the recordings they were making. However, the trainers only moved within sight of the participants to provide the rule sheets and verbal corrective feedback.

Work Scenarios

We evaluated social niceties in three work scenarios. Each scenario included one or two trials. The work scenarios were as follows: consulting with others, delivering information about the task to others, and borrowing tools to use for work. Although the materials used in each training session varied, the baseline and posttraining sessions used the same materials and situations. Each work scenario occurred once per session. We measured the initial and closing responses four times for each of the three scenarios. The consulting with other scenarios included two trials each of initiating and closing, delivering information to other scenarios included one trial each of initiating and closing, and the borrowing tools to use for work scenario included one trial each of initiating and closing responses, for a total of four trials per social nicety in each session. In consulting with other scenarios, the boss provided the participants a list with the names of certain goods and asked them to consult with a colleague to select one of the best of the named goods. In the delivering information scenario, the colleague asked the participants to deliver the provided information (e.g., a change in scheduled meeting time, a decrease in inventory) to the boss. In the borrowing tools scenario, the boss asked the participants to work with a specific tool that was not on the table. For example, work that involves using scissors to cut out illustrations or a stapler to staple documents. The boss also told the participants the name of the colleague who had the tool and that the participants could find the

colleague by looking at their name tag. The first author had a predetermined order of work tasks to be presented to each participant.

Throughout the simulation, the boss and colleagues provided identical responses to the participants' correct and incorrect responses. Even if a participant emitted an incorrect response, the boss and colleagues did not stop interacting with the participants. Before starting each session, we provided the actors with instructions for each scenario. The actors' instructions for the borrowing tools scenario were as follows:

- 1) Please say “[the name of participant], please come here.”
- 2) When the participant arrives, please ask him or her to do work that requires a specific tool. For example, work involves stapling documents using a stapler. When you ask a participant to work, do not give him or her a specific tool to do the work. Instead, please give the name of a colleague who has the tool. If the participant asks to borrow the tool from you, please say, “I do not have the tool.” If the participant asks you to give the name of the colleague who has the tool, please give it to him or her again.
- 3) If the participant says statements such as “I will do the work now” or “Thank you for trusting me,” please respond “Okay” without a smile.

If the participants did not perform the work or went elsewhere before they performed the work accurately, the trainers immediately provided a verbal direction to perform the work, rather than having a boss or colleague provide a direction. Although there were a few situations when participants quit their interactions before they finished the work, the participants always completed some of the steps in the assigned tasks. Table 5 lists the tasks and materials of the work scenario per condition.

Because all participants were in the same room, the possibility of participants influencing each other was considered by the researchers. When this occurred (e.g., a participant pointed out or called out the name of another participant, or stood up and approached a participant who was interacting with the actors or the trainers), the trainers told the participants, “Please do your work.” The mean number of prompts by the trainers was 0.3 per session (range: 0–1).

Baseline

Each session began by reading the general instructions described earlier. Next, the actors presented three work scenarios for each participant. At baseline, the trainers recorded the participants' responses but did not provide a rule sheet. In all baseline sessions, each participant experienced the same work scenarios with the same materials in

Table 5 Work Scenario Tasks and Materials per Condition

| | Baseline/Post-Training | Training |
|-----------------------------|--|---|
| Consulting with a colleague | <ol style="list-style-type: none"> 1. Consulting about which person to hire while looking at two resumes with a photo 2. Consulting about which air cleaner to buy for the company while looking at a catalog 3. Consulting about which festive gifts to buy for retirees | <ol style="list-style-type: none"> 1. Consulting about which box to use for product packaging while looking for an actual product 2. Consulting about where to locate the venue for the welcome party for new employees 3. Consulting about which anti-virus software to install at the computer in workplace while looking at a catalog |
| Delivering information | <ol style="list-style-type: none"> 1. Delivering information that there was a call from a customer at 2 p.m. 2. Delivering information that the date to repair the air conditioner has been fixed for December 4 3. Delivering information that the location of the next meeting would be conference room 4 | <ol style="list-style-type: none"> 1. Delivering information that the visitor is expected to arrive at 9 a.m. 2. Delivering information that the meeting date had been set for Tuesday afternoon 3. Delivering the information that the colleague Jiro misses work due to fever |
| Borrowing tools | <ol style="list-style-type: none"> 1. Borrowing a punching tool to form holes in documents 2. Borrowing a stapler for binding documents 3. Borrowing a pencil sharpener to sharpen pencils | <ol style="list-style-type: none"> 1. Borrowing scissors to cut out illustrations from paper 2. Borrowing tape to mount a label on an envelope 3. Borrowing a red pen to mark typographical errors in a paper |

the same order; however, the order of the scenarios varied among participants. For example, the order for Kazutaka was to consult with others, deliver information, and borrow tools, whereas that for Chihiro was to deliver information, borrow tools, and consult with others.

Training

The instructions used to start the training sessions were the same as those used in the baseline, with the following added text: “Before you start the work scenario, the trainer will provide you with a sheet. This sheet shows how to respond to the work scenario. You will look at this. You may participate in the work scenario while referring to the sheet.”

Immediately before a work scenario started, the trainers gave the rule sheet to the participants and said, “Please take a good look at it.” The trainers signaled the actors to start the work scenario by raising their hands when the participant looked at the sheet. When the work scenario started, if the participant went to the boss or the colleague without bringing the sheet, the trainer stopped the participant and was told to bring the sheet. The trainer required the participants to return the rule sheet within 10 seconds after completing the work scenario. The trainer did not provide any feedback on whether the participants showed a correct response or an incorrect response.

Posttraining

The posttraining procedure was the same as that followed in the baseline. The order in which the work scenarios were presented was the same as that of the baseline. The trainers did not provide a rule sheet or feedback.

Interobserver Agreement

The trainers scored correct and incorrect responses during each session. Figure 1 summarizes the data recorded by trainers. For interobserver agreement (IOA), one trained observer independently recorded in the corner of the room where this study was conducted during each session. The observer independently scored the dependent variables during a subset of response opportunities from 53% across all phases. For each of the sessions sampled for IOA, the experimenters randomly selected two opportunities to score one initiation and its closing response per participant. Because there were five participants, the total number of opportunities assessed for IOA was 10 per session. In addition, the number of opportunities for each social nicety was the same for each session. Thus, the observers collected data from 80 opportunities. Experimenters defined an agreement to the trainer and observer independently, scoring the same performance on the same opportunity. IOA was calculated by dividing the total number of agreements by the number of agreements plus disagreements and multiplying them by 100%. The mean IOA for “Do you have a minute?” was 93%, and the mean IOA results for each participant were as follows: 93% for Kazutaka, 87% for Chihiro, 93% for Satoshi, 100% for Takao, and 93% for Len. The mean IOA for “Thank you for your time” was 93%, and the mean IOA results for each participant were 93% for Kazutaka, 93% for Chihiro, 93% for Satoshi, 87% for Takao, and 100% for Len.

Results

Figure 1 shows the percentage of correct responses for the initial social niceties and the closing social nicety. At

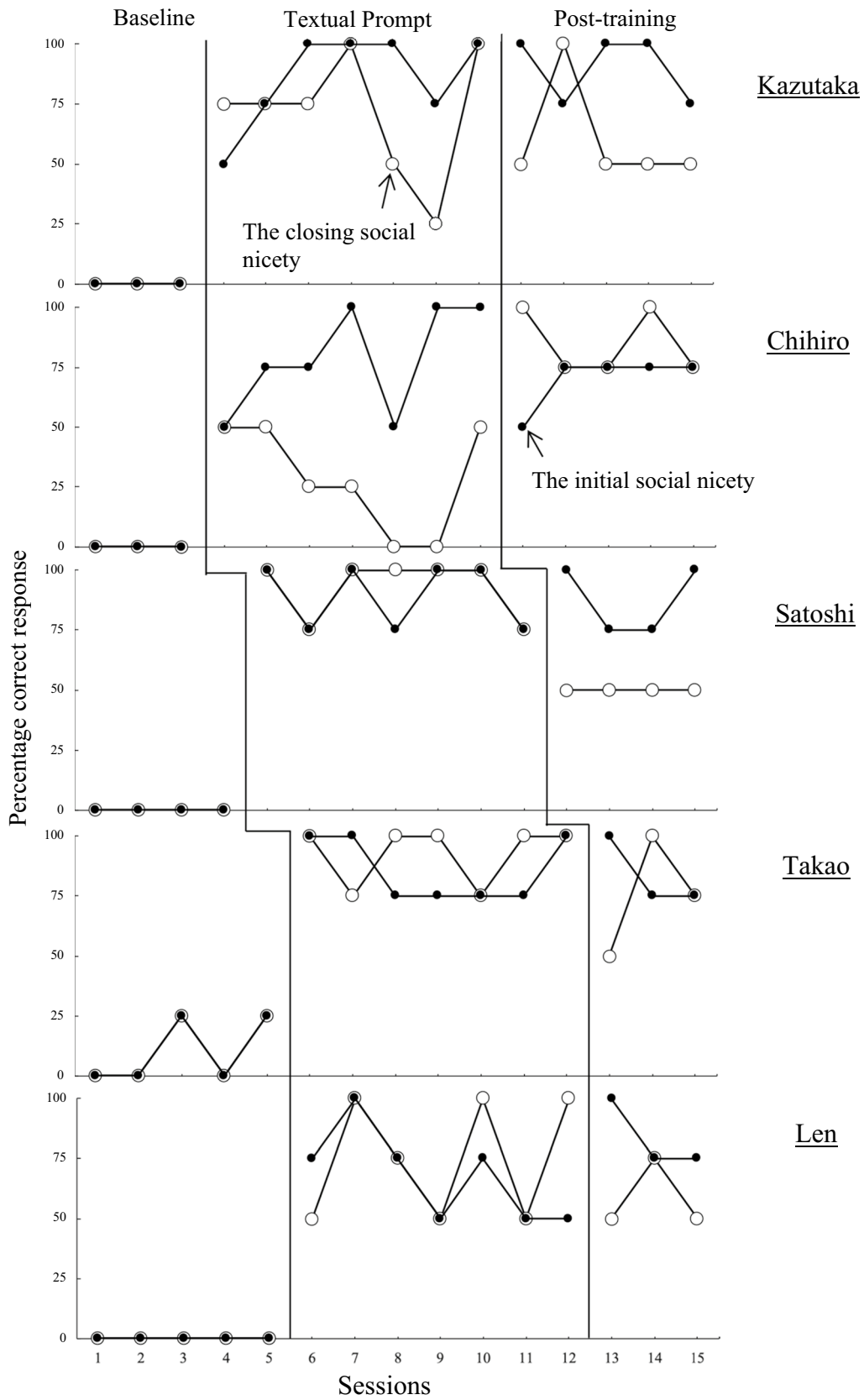


Fig. 1 Percentage of Correct Responses for Each Social Nicety

baseline, Kazutaka, Chihiro, Satoshi, and Len did not show the correct responses. The percentage of correct responses for Takao was 25%.

In the training phase, the percentage of correct responses of initial social nicety increased significantly. The mean percentage of initial social nicety was 71% for Kazutaka, 78% for Chihiro, 92% for Satoshi and Takao, 75% for Len. The percentage of correct responses of closing social nicety also increased compared to the baseline, although the trend in the percentage of correct responses was less stable than of initial social nicety. The mean percentage of correct responses of closing social nicety was 85% for Kazutaka and Takao, 78% for Chihiro, 89% for Satoshi, 67% for Len. In addition, Chihiro demonstrated a unique tendency. For Chihiro, the percentage of correct responses to closing social nicety showed an increasing trend, whereas the percentage of the initial social nicety showed a decreasing trend.

In the posttraining phase, the percentage of correct responses was almost the same as in the training phase. The mean percentage of correct responses in the posttraining phase was as follows: For Kazutaka, the mean percentage of initial social nicety was 60%, and the mean percentage of closing social nicety was 90%. For Chihiro, the mean percentage of initial social nicety was 85%, and the mean percentage of closing social nicety was 70%. For Satoshi, the mean percentage of initial social nicety was 50%, and the mean percentage of closing social nicety was 87%. For Takao, the mean percentage of initial social nicety was 75%, and the mean percentage of closing social nicety was 83%. For Len, the mean percentage of initial social nicety was 58%, and the mean percentage of closing social nicety was 83%. It should be noted that even though the percentage of the initial social nicety for Satoshi was consistently high during the training phase, it decreased to 50% during posttraining.

Discussion

This study aimed to further improve the resource and time efficiency of interventions for teaching social niceties to people with ASD. The results of this study showed that all participants were able to emit social niceties compared to the baseline. However, this study did not show results that could be considered a complete acquisition of social niceties in the posttraining period, and the percentage of correct responses was also unstable.

Yamamoto and Isawa (2021) used an intervention using only performance feedback, but the effectiveness of this study was lower than the effectiveness of the intervention in their study. All participants in this study had established rule-governed behavior before the intervention began. If the participants had been able to emit rule-governed behavior

in this study, the presentation of the textual prompt alone would have immediately increased the percentage of correct responses, and social niceties would have been acquired. However, this did not occur. The results of this study do not allow us to identify the factors, but there is at least one possibility. Possibly, the participants learned over the course of the intervention in this study that following the rules and emitting social niceties as written in the textual prompt did not reinforce the responses. In order to solve this problem while maintaining resource and time efficiency, it may be effective to present a programmed reinforcer to social niceties in the early stages of the intervention and gradually thin the schedule of reinforcement.

As described above, the results of this study did not show that textual prompts sufficiently facilitated the acquisition of social niceties. However, given that the percentage of correct responses at baseline for most of the participants was 0%, we can assume that the textual prompt shows some efficacy. Nevertheless, if a practitioner wants to teach social niceties to ASD and still cannot spend a lot of time and resources, then using performance feedback rather than the textual prompt is recommended.

In this study, the results of Satoshi and Chihiro showed a tendency to be difficult to interpret. The percentage of correct responses of the initial social nicety for Satoshi decreased significantly in the posttraining phase, despite the high percentage of correct responses in the training phase. On the other hand, the percentage of correct responses of the initial social nicety for Chihiro, which was low in training, increased significantly after training. It is difficult to identify a definite factor for this result from the data obtained in this study.

However, the fact that the percentage of correct responses changed when the phase was changed suggests that some kind of stimulus difference between the training phase and posttraining produced this rapid change in the percentage. One possible explanation for such a change in Satoshi is that the textual prompt was removed posttraining. Satoshi's initial social nicety was performed with the textual prompt as a discriminative stimulus, and other stimuli in the environment may have been established as little or no stimulus control for his performance of initial social nicety. Therefore, when the textual prompt was removed, the initial social nicety was also reduced.

This study removed the textual prompt immediately after the posttraining began, but the use of prompt fading may prevent such a sudden decrease in the percentage of correct responses. As for the increase in Chihiro's initial social nicety, the timing of watching the textual prompt in the training phase may have had an influence. Although Chihiro brought the textual prompt when he interacted with actors, he usually spoke to actors without watching the textual prompt. Instead, he often looked at the textual prompt after speaking to the actors. Therefore, it is likely that the

percentage of correct responses of the closing social nicety, which is listed after the talking description in the textual prompt, increased, whereas the percentage of the initial social nicety, which is listed before the talking response description, gradually decreased. In brief, Chihiro possibly acquired the following behavioral chain: “an instruction is given by actors,” “go to the actor with the textual prompt,” “speak to the actor,” “look at the textual prompt,” and “perform the response written in the textual prompt.” Once the behavioral chain was established, his performance of the initial social nicety was inhibited because he was not looking at the textual prompt until he spoke to the actor. When the textual prompt was removed in the posttraining, the initial and closing social niceties for Chihiro were controlled by stimuli in the natural environment rather than the description in the textual prompt. Thus, it seemed that the behavioral chain was no longer established, and the initial social nicety began to emit. For these participants, it would have been possible to solve the problem by having the trainer follow the participants as the trainer goes to the actor and prompts the participants to look at the visual prompts before approaching the actor.

Satoshi and Takao acquired social niceties immediately after the training phase started. This may be due to the textual prompts used in this study functioning as a rule. Although the percentage of correct responses for them was unstable, the results suggest that the textual prompt can be used to quickly teach social niceties. The performance feedback used by Yamamoto and Isawa (2021) did not produce such rapid acquisition. Based on these facts, using rules such as the textual prompt would contribute to developing a time-effective intervention.

The limitation of this study is that we could not strictly compare textual prompts with other interventions. The participants in this study received only the textual prompt and not performance feedback or interventions combining the visual prompt and performance feedback, which have been shown to be effective in previous studies (Yamamoto & Isawa, 2020, 2021). A more rigorous comparison of the effectiveness and time/resource efficiency between the textual prompt and other interventions could be performed using an alternating treatment design. Moreover, although verbal instructions were used in all three conditions, we instructed the participant to bring the textual prompt when he went to the boss or the colleague only in the training. Although this instruction was given so that the participant could emit social niceties, it is possible that the vocal stimulus functioned as prompting or interrupting stimulus. If such potential confound was removed, another result might be found. Future studies should use a more rigorous research design.

In addition, the results of this study alone do not suggest that interventions using only antecedent stimuli do

not sufficiently promote the acquisition of social niceties. Although textual prompts were used in this study, there is still a possibility that other antecedent stimuli may show efficacy. For example, Miller and Thiemann-Bourque (2016) used graphic cues in addition to textual prompts. It is easier to understand what should be done visually with graphics than with text, so the intervention with graphic cues may show higher effectiveness than in this study. Future research should develop procedures to promote the acquisition of social niceties by changing the type of prompt stimuli.

Furthermore, it is unclear how much impact each work scenario had on the acquisition of the initial social nicety and the closing social nicety. Three work scenarios were used in this study. In all work scenarios, the stimuli presented immediately before and after the initial and closing social nicety were the same, but the interactions between participants and actors for each work scenario were naturally different. However, this study was not designed to examine the influence of this difference in interaction on the acquisition of social niceties, nor was the number of trials conducted sufficient to allow a rigorous comparison of the percentage of correct response for each work scenario. Future research should measure how the participant’s response varies with the length and difficulty of the interaction in the work scenario. Possible methods to examine it are the group comparison method, which uses different work scenarios for each group, and the alternating condition design, which uses different work scenarios for each session.

This study examined the efficacy of two social niceties. But there are, of course, more than just two social niceties in this world. As noted above, two social niceties were chosen as target behaviors in this study because they are considered to be particularly important in establishing and maintaining relationships in the Japanese workplace. Therefore, it is not known whether these social niceties would be effective for relationships in other countries. It is also likely that the antecedent and consequent stimuli of the social nicety differ significantly depending on the culture of each region and country. More to the point, it is likely to vary depending on the style of the company. In future research, researchers in each country should identify the stimulant controls and develop effective interventions for their respective cultures.

This study was not able to present the textual prompt as an intervention that has shown significant success when compared to the various interventions that have been shown in previous studies. However, if we are to develop intervention programs that consider efficacy and time and resource efficiency, it seems necessary to publish not only successful cases but also unsuccessful cases. By evaluating the findings of such studies, we can approach the development of the best combination of effectiveness, resource efficiency, and time efficiency, which can contribute to the construction of the best intervention package.

All data generated or analyzed during this study are included in this published article.

Authors' Contributions Study conception and design: Shinya Yamamoto and Shinzo Isawa; Acquisition of data: Shinya Yamamoto; Analysis and interpretation of data: Shinya Yamamoto and Shinzo Isawa; Drafting of manuscript: Shinya Yamamoto; Critical revision: Shinya Yamamoto and Shinzo Isawa.

Data Availability The datasets during and/or analyzed during the current study available from the corresponding author on reasonable request.

Code Availability Not applicable.

Declarations

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Consent to Participate Before the study commenced, the participants and their parents received an explanation of the purpose, procedure, and expected results verbally and in writing. In addition, we told them they could refuse to participate in the study if they felt any dissatisfaction. All the participants and their parents agreed and signed the informed consent form.

Consent for Publication The participant has consented to the submission of the case report to the journal.

Conflicts of Interest/Competing Interests The authors declare that they have no conflict of interest and competing interests.

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