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Examining the Effects of Behavioral Skills Training on Social Praise Delivery in Malaysian Classrooms

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Abstract

Malaysia launched the Inclusive Education Program (IEP) in 1997 to integrate students with special needs into mainstream classrooms and local researchers have recently asserted that more training is necessary for Malaysian teachers to effectively work with IEP students. The purposes of this research, therefore, were to (1) introduce the use of social praise via behavioral skills training (BST) to teachers of students in IEP, (2) increase the use of social praise by teachers of students in IEP via written feedback provided by the experimenter following each post-BST classroom session; and (3) increase the likelihood of individually selected target behavior in students who attend IEP. A multiple-baseline across four teacher-student dyads was conducted. Results indicated that BST and written feedback were effective in increasing the frequency (converted to responses per minute) of social praise issued by all four teachers and that collateral effects were seen by an increase in target behaviors for two out of four student participants. A posttreatment social validity survey completed by teacher participants indicated that the BST goals, procedures, and outcomes were practical and important.

Keywords: behavioral skills training, Malaysia, Inclusive Education Program, feedback, video modelling

EXAMINING THE EFFECTS OF BEHAVIORAL SKILLS TRAINING ON SOCIAL PRAISE DELIVERY IN MALAYSIAN CLASSROOMS

Malaysia was a British colony that gained independence in 1957. Before independence, less than half of the population was in formal schooling. By 2011, Malaysia achieved near universal schooling enrollment (94%) of students aged seven to 12, a rate reported to be much higher than most developing countries in Southeast Asia (Ministry of Education Malaysia [MOE], 2015). The MOE database, however, underestimates the total prevalence of children with special needs as many children with special needs are not in school (Amar-Singh, 2008; UNICEF Malaysia, 2014). Stigmatization of people with special needs has been reported to be widespread in Asia (Abosi & Koay, 2008; Mak & Cheung, 2008). Having or being related to a person with special needs may affect one's eligibility for employment or marriage. Ngo et al. (2012) reported that parents are not registering their children with special needs due to fear of stigmatization. To encourage registration of children with special needs, MOE provides monthly allowances for caregivers to enroll their children with special needs in schools (Lee & Low, 2014).

Three different schooling options are provided by the Malaysian government for children with special needs: Special Education Schools, Special Education Integrated Programs (SEIP), and Inclusive Education Programs (IEP). In Special Education schools, all students have similar disabilities such as visual impairment; SEIP are mainstream schools with separated classrooms dedicated for students with special needs; and IEP are mainstream classrooms that integrate students with special needs and are taught by general educators (MOE, 2015; UNICEF Malaysia, 2014). A total of 93,951 children with special needs were registered in 2020 compared to 76,166 in 2014 (MOE, 2020).

There is a shortage of qualified teachers to teach and support students with special needs across Malaysia (Amar-Singh, 2008; MOE, 2015). Most developing countries in the

Asia-Pacific region have inadequate funding, support, or knowledge to effectively implement special needs education programs in comparison to most Western countries (Sharma et al., 2013). More training is needed for Malaysian teachers to efficiently work with students with special needs, especially with students in the IEP (Bailey et al., 2014; Khairuddin et al., 2016). Amar-Singh (2008) advocated that Malaysia needs a well-designed behavioral approach delivered by trained professionals to help the special education sector.

Introducing a workable behavioral intervention for Malaysia's IEP setting would be most impactful. Applied behavior analysis (ABA) is a reliable and scientific process that establishes socially important behavior (Baer et al., 1968) and can be used to improve outcomes for both teachers and students. For example, ABA can be used to train teachers to increase the use of verbal praise in classrooms, and to help students stay on task for longer durations. Although a plethora of ABA research for classrooms is available (e.g., differential reinforcement treatments, discrete trial teaching, token economy, etc.), the selection of an intervention for any developing country must carefully consider the limited resources that are available and the difficulty level of implementation, especially considering that ABA is not yet a well-recognized intervention in Malaysia.

One of the essential components of contingency management in ABA is positive reinforcement, defined as providing a consequence (e.g., social praise, high fives, tokens) following an appropriate behavior that increases the probability of the occurrence of that target behavior (Cooper et al., 2008). Cossairt et al. (1973) examined the systematic use of (1) instructions, (2) feedback, and (3) feedback plus social praise to increase teacher praise for student attending behavior. In the Instructions condition, experimenters provided a brief explanation to teachers that contingent application of positive teacher attention is effective in changing student behavior and instructed teachers to provide praise to students who attended to their instructions. In the Feedback condition, experimenters provided verbal feedback to teachers at the end of each session. Feedback included information about number of intervals that students were attending to instructions and number of intervals during which teacher praise was provided. Finally, in the Feedback-plus-Social-Praise condition, teachers were given similar verbal feedback, but with the addition of social praise for their praise of student behavior. This was gradually faded out with an intermittent schedule of experimenter praise. Feedback and social praise, when preceded by instructions and feedback, resulted in marked changes in the frequency of teacher praise. As teacher praise statements increased, student attending behavior also increased. Experimenters' social praise was found to be a necessary component that increased the frequency of teacher praise behavior, as compared to instructions or feedback alone.

Most recently, Knochel et al. (2020) used self-monitoring and performance feedback to increase the delivery of specific praise statements to students with autism spectrum disorders in Ghana. Contingent on students' on-task behavior, teachers were trained to describe the behavior when delivering social praise statements. Teachers provided feedback to the experimenters that these praise statements were too lengthy and were not within their cultural norms. Topographies of social praise were then adapted based on the feedback to include local verbiage, fewer words, and drumming. Results revealed that, with these adaptations and daily performance feedback by experimenters that included positive and corrective verbal feedback, teachers' praise delivery increased immediately and markedly. In addition, students' on-task behavior increased.

Positive outcomes have often been reported in the application of social positive reinforcement expressed as praise statements (e.g., "You got two right, that is very good," "Awesome job doing your work quietly") in general and in special education classroom settings (Floress et al., 2017; Mrachko et al., 2017). In fact, Kang et al. (2013) found that social reinforcement was just as effective as tangible reinforcement in increasing task engagement duration and skill acquisition in three students with autism spectrum disorders.

Behavioral skills training (BST) is a teaching procedure consisting of instructions, modelling, rehearsal, and feedback (Miltenberger, 2016). BST has been found to be effective in various teacher training studies, such as discrete trial teaching (Clayton & Headley, 2019; Sarokoff & Sturmey, 2004, 2008), EpiPen administration (Whiting et al., 2014), and Picture Exchange Communication System implementation (Homlitas et al., 2014). The introductory component of BST, *instructions*, describes the targeted skill as detailed as possible for the trainee. This is followed by *modelling*, during which the targeted skill is demonstrated in vivo, or through video models for trainees to observe (Kirkpatrick et al., 2019). Video modelling has been used to teach implementation of discrete-trial instruction (Catania et al., 2009), implementation of behavioral interventions with integrity (DiGennaro-Reed et al., 2010), and implementation of functional analysis (Iwata et al., 2000; Moore & Fisher, 2007) and paired-stimulus preference assessment (Lavie & Sturmey, 2002) methods. The third component, *rehearsal*, allows the targeted skill to be practiced in a proper context that facilitates generalization (i.e., a role play representative of the ultimate situation in which the targeted skill will be used). The fourth component, *feedback*, is often combined with role play to allow for positive and corrective feedback to be delivered based on performance. Feedback can occur during role play or

following completion of the role play (Miltenberger, 2016). Ward-Horner and Sturmey (2012) conducted a component analysis of BST when teaching functional analysis implementation. The outcome of their study showed that feedback was the most critical component of BST in increasing correct implementation among teacher participants.

Several types of performance feedback following teachers' use of praise have been studied. In Reinke et al. (2007), teachers received an individualized graph report at the beginning of each day that represented the total frequency of praise issued for all days prior. Sweigart et al. (2015) examined the effects of real-time visual performance feedback using a bar graph reflecting the total frequency of praise issued during sessions. The bar graph was displayed on an iPad within sight of teacher participants and updated immediately following each praise statement. Pinter et al. (2015) used a video-feedback intervention for teacher participants to evaluate their use of praise by watching video recordings of their previous teaching session. Barton and Wolery (2007) evaluated the effects of email feedback on the use of expansion and specific praise statements by preschool teacher participants. The email, however, only included written verbatim examples and a frequency count on the use of expansions. Results revealed that the use of expansions improved following email feedback, but specific praise statements remained at baseline levels across teacher participants. In summary, performance feedback in many different forms has been shown to increase the frequency of praise statements by teachers.

Kirkpatrick et al. (2019) conducted a systematic review of BST research that was published between 2004 and 2017 in six peer-reviewed journals. Studies met inclusion criteria if all four components of BST described above were implemented in a single-case design and teachers served as primary participants. Only 12 studies met these inclusion criteria, and according to the review, BST has yet to be evaluated with general education teachers (such as Malaysian teachers who teach students in the IEP), or in teaching teachers how to deliver contingent social praise.

Social praise is easy to implement and does not require additional costs for materials. Thus, the delivery of social praise would be an apt skill for Malaysian teachers to use when teaching and can be taught with a BST package conducted in Malay. The three purposes of this current study were to introduce the use of social praise using BST to Malaysian teachers who teach students in the IEP, to evaluate the effects of experimenters' social praise on teachers' use of social praise via written feedback, and to examine collateral effects of increased social praise by teachers on students' targeted behavior. In accordance with Cossairt et al. (1973) and Knochel et al. (2020), this study aimed to show a positive reinforcement effect in Malaysian IEP classrooms.

METHOD

Approval and Recruitment

An online application was submitted to the Economic Planning Unit (EPU) of Malaysia for approval to conduct this study in local public schools. EPU is part of the Prime Minister's Department of Malaysia and acts as the principal governing agency responsible for preparation of development plans for the nation. The process involved submission of an extended abstract, a list of public schools for potential recruitment, a letter of support from the university, and research-specific documents translated into Malay. Translated documents included a pre-experimental survey, experimental protocol, hypothetical results, relevant training materials, and a social validity survey. A declaration form was signed in acknowledgement that three copies of this completed study would be submitted to EPU in both printed and electronic copies.

Post-approval by EPU, approval by the university's Institutional Review Board was obtained. Proposal letters in Malay were then emailed to nine local schools with IEP. Three schools were in Kuala Lumpur, the capital of Malaysia; six schools were in two abutting states. Out of the nine schools, one school agreed to participate in this study on the condition that one copy of this completed study would be submitted to the headmaster (i.e., principal) of the school.

Settings and Materials

Four teachers in a Standard 5 IEP classroom in the participating school were selected as participants; each teacher taught a different subject (i.e., English, Malay, Moral, and Science). Classes were held from Monday to Friday between 7:40 a.m. and 1:30 p.m. with at least 10 class periods per day. Class periods were 30 minutes each and each subject lasted between one to two class periods (i.e., 30-min or 1-hr lessons). Each subject was held two to four times per week as arranged in a fixed schedule for the school year.

A video camera on a tripod was used to record BST competency checks and all classroom sessions. Materials included BST manuals in Malay, two video models (Video 1 and Video 2), and brightly colored written feedback forms.

Each participant was given a nine-page BST manual with two sections. The first section contained the following: an outline of the training and objectives, definition and examples of social praise, criteria for effective social praise, benefits of using social praise while teaching, and operational definitions of targeted behaviors of students attending IEP. The second section contained a

list of examples and nonexamples of social praise in Video 1 and a table for teachers to identify criteria of effective social praise in Video 2. The table consisted of five columns and six rows. The first column specified the classroom scenario (numbered 1–5), the second column described students' behavior in each scenario, the third column described teachers' behavior following students' behavior in each scenario, and the fourth to sixth columns were criteria-check-off boxes for each effective social praise criteria (i.e., immediate, contingent, and specific). The first two rows were prefilled as examples.

Two video models, approximately 1 min 30 s each in duration, were played on a laptop. In Video 1, an experimenter played the role of a teacher and a graduate student played the role of a student in a simulated classroom. Several target behaviors that were identified from the pre-experimental survey described later were portrayed by the graduate student. The experimenter delivered social praise contingently, immediately, and as specifically as possible to the graduate student following a target behavior. The video captured 10 social praise delivery examples, including those delivered gesturally, physically, and in spoken English and spoken Malay. Video 2 was recorded in English with Malay subtitles. The experimenter again played the role of a teacher and four graduate students played the role of students in a simulated mathematics classroom setting. One male graduate student played the role of the target student. At the beginning of Video 2, a caption "raising hand before speaking" was shown in English and Malay as the behavior targeted for increase and a red circle appeared around the target student. The target student portrayed hand-raising three times, and non-target behavior (i.e., hitting the table and yelling) two times. The experimenter delivered social praise for hand-raising behavior and did not provide consequences for occurrences of non-target behavior.

The written feedback form consisted of four sections. The first section consisted of empty lines for the date, time, teacher's name and subject area, target student's name and target student's behavior for the experimenter to fill in at the beginning of each session. The second section consisted of two side-by-side empty boxes. The left box was titled "class-wide social praise" and the right box was titled "student-specific social praise." The experimenter recorded the number of social praise deliveries in the appropriate box. During sessions with written feedback, one hash mark was recorded in the box titled "student-specific social praise" for each social praise occurrence directed to the target student and one hash mark was recorded in the box titled "class-wide social praise" for each social praise occurrence directed to a non-target student. The third section of the form was an empty space titled "feedback" for the experimenter to write one to three positive feedback statements about teachers' use of social praise during the session. Finally, the fourth section was a space at the bottom right of the written feedback form for teachers to initial as proof of receipt.

Experimental Design and Participants

A multiple baseline design across four teacher-student dyads was used (Teacher A-Student A, Teacher B-Student B, etc.). All baseline and postintervention sessions occurred during regular class periods in the classroom. Sessions were approximately 10 min each, separated by at least 5 min, with one to three sessions within each class period. BST was approximately 30 min for each teacher and was conducted in a teacher's office during non-class time based on each teacher's schedule availability. Postintervention sessions began in the next scheduled class for each teacher after BST.

Each teacher identified one student attending IEP as a secondary participant and one targeted classroom behavior for that student. All teachers had at least a bachelor's degree in education, between 10 to 22 years of general teaching experience, and zero to four years in teaching students with special needs. Students were 11 years old and were diagnosed with either autism spectrum disorder, dyslexia, or dyscalculia.

Response Definitions, Measurement, and Reliability

Class-wide social praise was defined as any praise statement (e.g., "Good job," "That is correct," etc.) or positive social gesture (e.g., fist bump, head nod, high five, etc.) provided by a teacher or by another person as prompted by the teacher (e.g., "Give your friend a round of applause," etc.) issued towards a student or a group of students as evidenced by using the student's name or otherwise identifying the group. One episode was recorded upon emission of a social praise statement or gesture; a second episode was recorded if 2 s had elapsed without social praise and another praise statement or gesture was emitted to the same student or group, or another student or group behavior occurred and another praise statement or gesture was emitted. Multiple topographies of praise could occur simultaneously and were only counted as one episode. *Target student social praise* was defined as any praise statement or positive social gesture provided by a teacher or by another person as prompted by the teacher and issued towards the target student as evidenced by using target student's name or otherwise identifying him or her. Episodes were defined similar to class-wide social praise. Both class-wide social praise and student-specific social praise episodes were recorded in frequency and converted to responses per minute.

The secondary dependent variables were percentage of questions answered (Student A and Student B), percentage of intervals with on-task behavior (Student C), and percentage of intervals with participation in classroom activities (Student D). *Answering questions* was defined as

any instance of a target student replying to a teacher vocally or gesturally following a question or instruction (e.g., giving a verbal response when asked a question, pointing to a graph when asked to locate the graph, etc.). Student responses did not need to be accurate to be counted. Frequency of questions answered (and instructions followed) and teacher questions were recorded in 10-s interval bins. The percentage of questions answered per session was calculated by dividing the frequency of questions answered (and instructions followed) by the frequency of teacher questions (and instructions given) within the same or the adjacent interval and multiplying by 100. *On-task behavior* was defined as the student's head and eyes oriented towards teacher, classmates, or materials related to the classroom task (e.g., facing the teacher before answering a question, looking at a classmate presenting, etc.). On-task behavior was estimated with 10-s momentary time sampling and converted into percentage of intervals with on-task behavior per session by dividing the total intervals with on-task behavior by total intervals per session and multiplying by 100. *Participation in classroom activities* was defined and recorded like on-task behavior but was only scored when classroom activities were occurring. Classroom activities began when the teacher issued instructions to complete an assignment that required students to engage with each other (e.g., writing on a big piece of paper as a group, engaging with a partner on an assignment, etc.). The percentage of intervals with participation in classroom activities was calculated by dividing total intervals with participation in classroom activities by total intervals with classroom activities and multiplying by 100.

An independent observer scored video recordings to measure interobserver agreement (IOA) on frequency of class-wide and student-specific social praise issued by the teacher and occurrences of the student behavior targeted for increase. IOA was scored separately for social praise and student target behavior in 34.9% of sessions distributed across baseline and postintervention sessions. An agreement for social praise was scored when exact frequencies of student-specific and class-wide praise deliveries were recorded in the same or an adjacent interval. A similar method was used for student target behavior. When student target behavior was answering questions or participation in classroom activities, IOA also included experimenter and independent observer agreement on occurrences and nonoccurrences of teacher questions or classroom activities, respectively. Agreement was calculated by dividing the number of intervals with agreement by total number of intervals and multiplying the quotient by 100. For teachers' use of social praise, IOA ranged from 90.9% to 100% with a mean agreement of 96.3%; for student behavior targeted for increase, IOA ranged from 78.3% to 100% with a mean agreement of 90.6%.

Two measures of procedural integrity (PI) were taken from videos or pictures of permanent products. First, BST role-play sessions were recorded and an independent observer scored 100% of role-play sessions. BST role plays were prescribed to continue until teacher participants provided three consecutive occurrences of social praise contingently and immediately (within 2 s) following target behavior as portrayed by the experimenter. Observers used a data sheet to record each occurrence of target behavior and whether contingent praise was delivered within 2 s. PI was recorded if there were three consecutive deliveries of social praise that were contingent on and within 2 s of the specified target behavior. Second, pictures of completed written feedback forms were captured from postintervention sessions. An independent observer scored 100% of the captured written feedback forms using a checklist of items. The PI checklist consisted of these items: (1) hash marks were present on one or both boxes, (2) one or more positive feedback statements on teachers' use of social praise were written, and (3) teacher signature was present. PI on the written feedback forms was calculated for each teacher by dividing the number of items present by the total number of items and multiplying the quotient by 100. PI for written feedback was 100% with three of the teachers; PI was 76.9% for Teacher D due to one missing written feedback form and two without signed initials.

Procedures

Pre-Experimental Survey. A brief questionnaire in Malay was distributed to 10 teachers in the IEP (Teacher A, B, C, and D, and six others) via Google Docs to complete (questionnaire available from first author). The purpose was to gather study-related information about teachers, such as their highest level of education, number of years of teaching experience, and a brief description of the identified student participant in the IEP and his or her behavior targeted for increase. The survey results were used to inform the BST video modelling content.

Baseline. Prior to baseline sessions, the head of the Special Needs department from the school informed teachers that a video camera would be used to record some of their classes. Teachers were also told that the study was related to social praise delivery in an inclusive classroom setting. During the first baseline session, the experimenter said to teachers, "Teach as you normally do." The experimenter sat in the classroom corner with a video camera angled to capture video footage of both teacher and student participants.

Behavioral Skills Training. At the beginning of BST, the experimenter told teachers that they may ask questions at any point of training. Then, the experimenter gave teachers a nine-page printed manual in Malay, described above. During the first section of BST, experimenter read the definition and provided examples of social praise, including those delivered physically or gesturally (e.g.,

shoulder pat, fist bump, thumbs up, etc.) as listed in the training manual. After that, the experimenter explained that social praise is most effective when three criteria are met: contingent, immediate, and specific. Next, the experimenter explained the benefits of using social praise in classrooms. Finally, the experimenter and the teachers discussed and confirmed the students and student behaviors for increase that was gathered from the pre-experimental survey answers. This part of BST took approximately 5 min to complete.

During the second section of BST, the experimenter showed teachers Video 1 and Video 2. After Video 1, teachers looked at a compilation of social praise examples and nonexamples listed in the training manual and identified examples of social praise from the video. Teachers practiced delivering social praise examples in the training manual. After that, teachers watched Video 2. During Video 2, the experimenter pressed pause each time social praise was delivered, and teachers were asked to identify if the praise was contingent, immediate, or specific. This BST section took approximately 10 min to complete.

During the third section of BST, the experimenter played the role of the identified student (e.g., during BST with Teacher D, the experimenter played the role of Student D engaging in the target behavior of participating in the ongoing classroom activity). During role plays, the experimenter also engaged in behaviors that were not targeted for increase, such as looking away or playing with a pen. To meet the established competency criteria, each teacher had to (1) deliver social praise contingently and immediately (within 2 s) following occurrences of target behavior in three of three opportunities, and (2) not deliver social praise for occurrences of non-target behavior during the same time period. Role playing continued until competency criteria were met. The experimenter provided teachers with feedback on their use of social praise at the end of the role-playing section. The role-playing and feedback sessions took an average of 8 min to complete for each teacher.

Written Feedback. An empty feedback form was shown to teachers when BST ended. The experimenter explained that classroom sessions from now on would be supplemented with the feedback form. Teachers were told to look at the written feedback form as soon after the experimenter left the classroom as possible and without disrupting the lesson. Teachers were asked to initial the form after looking at it. Following each postintervention session, the experimenter placed a written feedback form within sight of the teacher and left the classroom until the next session began. All positive feedback statements were written as descriptively as possible (e.g., "The combination of 'well done' and thumbs up was a very creative effort, good job!") in English or in Malay. Before beginning the next session, the experimenter took a picture of the written feedback form with or without the teacher's initials from the previous session.

Social Validity Survey. At the end of the experiment, a 10-question written survey was distributed to teachers. Out of 10 questions, seven questions were designed based on Wolf (1978) and sought to validate: (1) importance of social praise and significance of classroom behaviors targeted for increase, (2) appropriateness of BST procedures and written feedback, and (3) significance of the behavior-change outcome. These seven questions were answered based on a rating scale that ranged from 0 to 3, with 0 being not important or not significant, and 3 being very important or very significant. Question 8 asked if teachers would continue to incorporate social praise into their teaching methods. The two remaining questions were open-ended and allowed teachers to provide written feedback for future improvements of the BST and intervention package.

RESULTS

Figure 1 shows social praise measured in responses per minute (rpm) for all teacher participants during baseline and postintervention sessions. For Teacher A, class-wide social praise increased from baseline ($M = 0.1$) to postintervention sessions ($M = 1.3$); target student social praise also increased ($M = 0$ to $M = 0.5$). For Teacher B, class-wide social praise increased from baseline ($M = 0.2$) to postintervention sessions ($M = 1$); target student social praise also increased ($M = 0$ to $M = 0.2$). For Teacher C, class-wide social praise increased from baseline ($M = 0.4$) to postintervention sessions ($M = 1.8$); target student social praise also increased ($M = 0.1$ to $M = 1.3$). Finally, for Teacher D, class-wide social praise increased from baseline ($M = 0.4$) to postintervention sessions ($M = 1.4$); target student social praise also increased ($M = 0.03$ to $M = 0.2$).

Figure 2 shows percentages of intervals with student target behavior before and after corresponding teachers received BST and written feedback. Only two student participants showed improvements in target behavior. Student B answered questions in a mean of 7.4% of intervals during baseline and in a mean of 16.6% of intervals during postintervention sessions. Student D participated in classroom activities in a mean of 75.7% of intervals during baseline and in a mean of 83.2% of intervals during postintervention sessions. The remaining two student participants did not show improvement in target behavior. Student A answered questions in a mean of 53.1% baseline intervals, and in a mean of 35.4% postintervention intervals. Student C was on-task for 74.9% of baseline intervals, and 74.3% of postintervention intervals.

All teachers completed the social validity survey anonymously. Each indicated that the goals of the study were very important (student behavior targeted for change $M = 3$; social praise as a teaching strategy $M = 3$). All

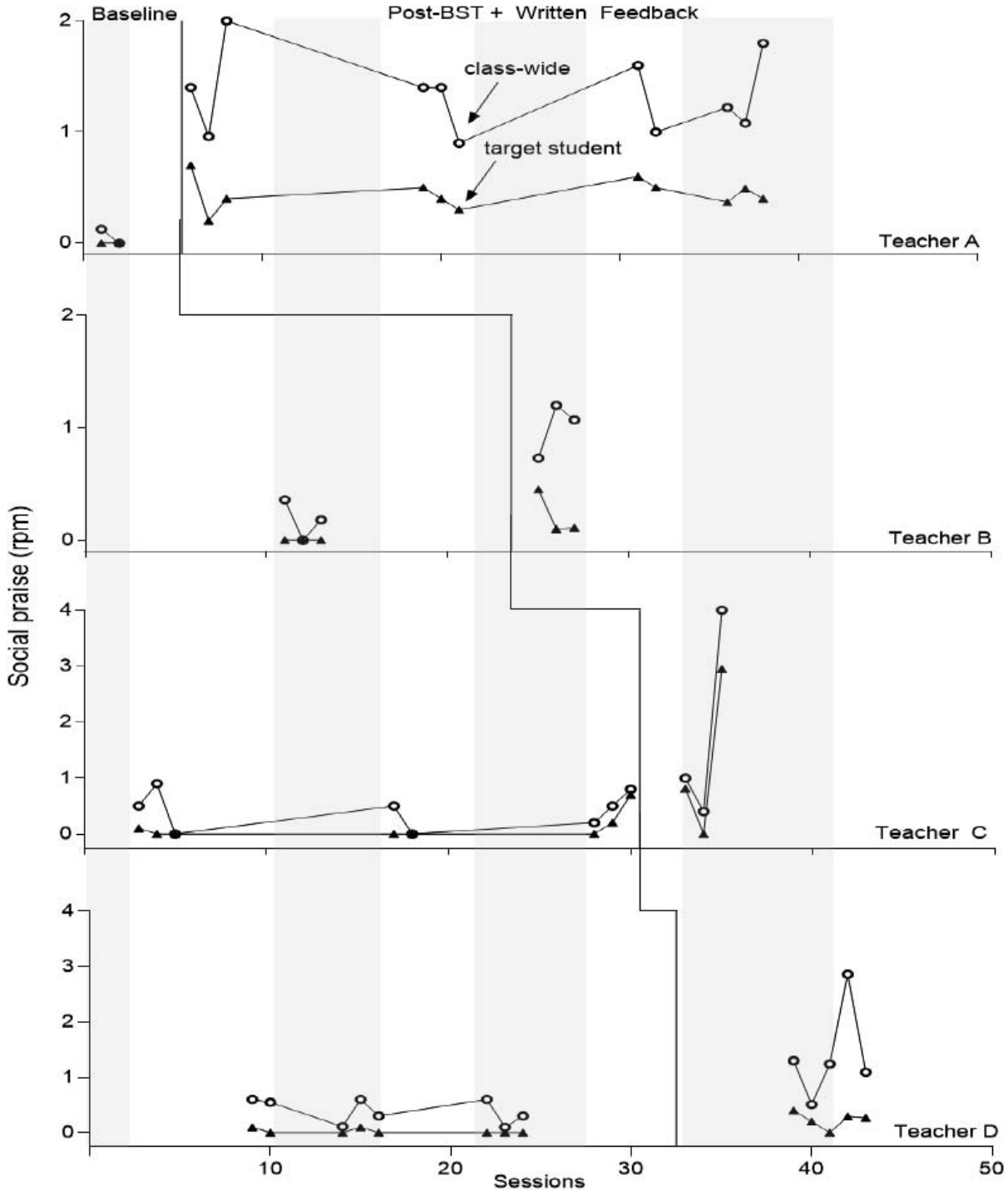

Figure 1: *Responses per minute of teacher social praise delivered to target student and class wide across four teachers. Shaded and non-shaded areas designate successive days. Note different scales across teachers.*

teachers agreed that the training and its materials ($M = 3$) and all but one teacher agreed that the use of written feedback ($M = 2.75$) were very important procedures. Two teachers agreed that the change in student behavior was very significant, while two teachers agreed that it was significant ($M = 2$). Three teachers agreed that the change in their quality and frequency of social praise was very significant, and one teacher reported that it was significant ($M = 2.75$). In the yes/no question, all teachers reported affirmatively that they would continue to use social praise in the future. Teachers suggested the provision of bilingual materials and including more rationale for providing social praise to improve student outcomes. Teachers also reported that the most preferred aspects of this study were social praise examples during BST, written feedback from experimenter including social praise and frequency of

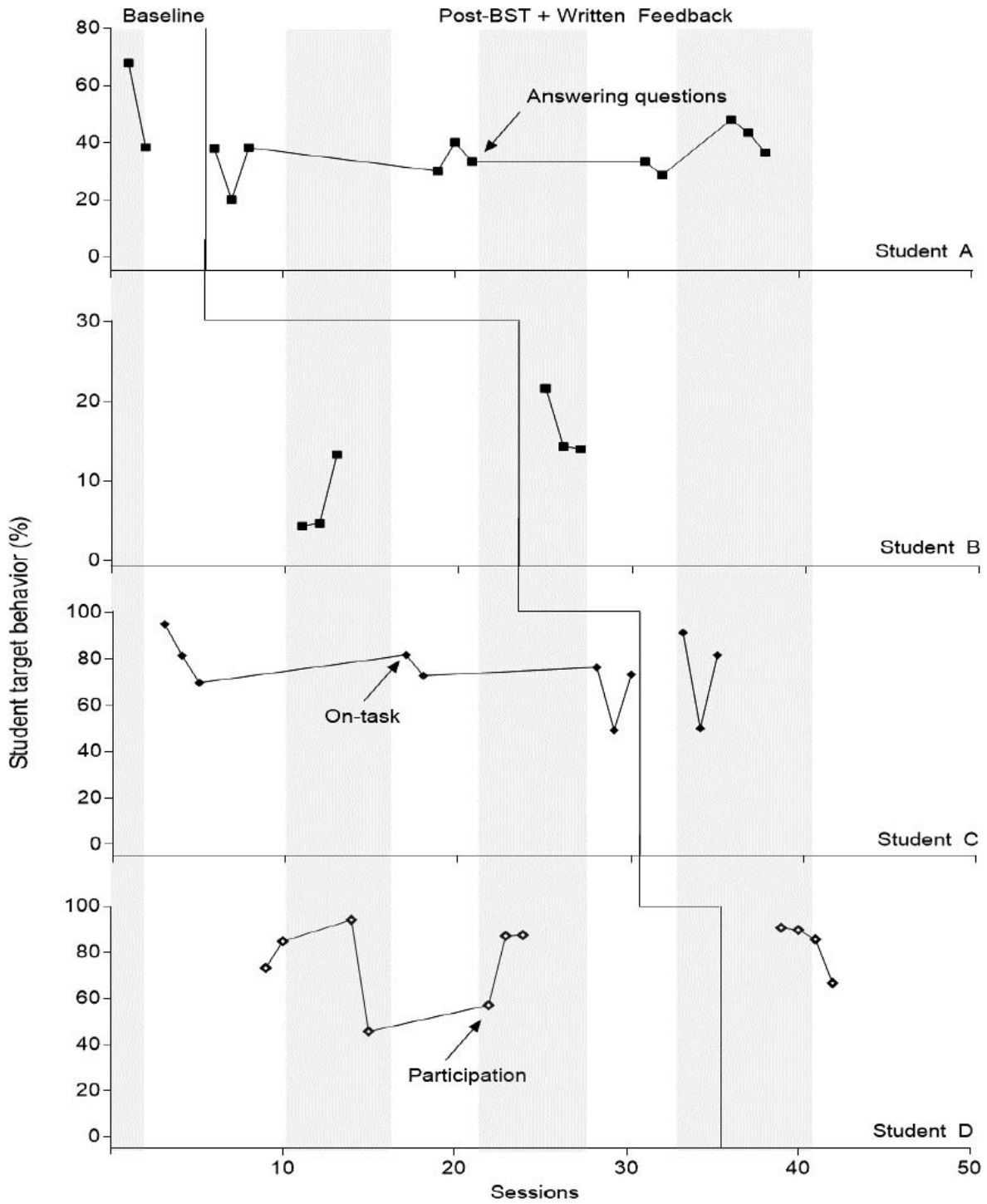

Figure 2: *Percentage of target behavior across four students. Shaded and non-shaded areas designate successive days. Note different scale for Student C. For student D, the teacher assigned individual work (no classroom activities) during sessions 16 and 43.*

teacher-delivered social praise, and changes in student behavior.

DISCUSSION

Consistent with Cossairt et al. (1973) and Knochel et al. (2020), results of this study showed an increase in use of social praise by all teacher participants. A complete BST package including video modelling and role play was introduced for delivering social praise immediately and contingently following occurrences of student behavior targeted for increase. A feedback form with one to three written social praise statements by the experimenter and a tally of social praise statements issued during each session was provided at the end of each session. The use of solely

written feedback was aimed to control for extraneous variables that might affect teacher performance such as fluctuation of the experimenter's facial expression and tone of voice. Additionally, written feedback forms ensured ease of delivery without the need to schedule a follow-up time and location with the teacher. Based on our results, written feedback forms following BST were sufficient to reinforce social praise delivered by teachers. Due to limited resources in the school, written feedback was a feasible option in comparison to vocal-verbal feedback that would require more time, or technology-related feedback that would require access to computers and the internet. In fact, a response from the social validity survey described that the side-by-side boxes in the written feedback forms for session tallies of social praise were preferred. Future research in developing countries should consider the use of written formats for feedback and social praise.

Two types of social praise were measured in this study: student-specific and class-wide social praise. During BST role play, teachers only practiced student-specific social praise delivery. Interestingly, results revealed that frequencies for both types of social praise improved. Generalization of the trained skill was especially evident for Teachers A, B, and C. It was observed that teachers started to provide high fives and fist bumps to all students in the classroom following occurrences of desired classroom behavior (e.g., standing up before speaking to the teacher, writing answers on the whiteboard, etc.).

The collateral effects of increased social praise on four student behaviors were also examined as secondary dependent variables. Despite an increase in the frequency of social praise delivered by teachers, the impact on student behaviors was not robust. Question answering and classroom activity participation improved for Student B and Student D, respectively; however, for Student A and Student C question answering and on-task duration decreased. Careful inspection of the graphs revealed that the increase in student-specific social praise had different effects on classroom behaviors for Student B and Student C. For example, in the Teacher B-Student B dyad, student-specific social praise represented a smaller proportion of class-wide social praise than in Teacher C-Student C dyad. In other words, most of all social praise that was issued by Teacher C was directed towards Student C, but Teacher B issued more social praise to classmates than to Student B. Despite receiving most of the social praise delivered by his teacher, Student C's on-task duration was not maintained (0.8% decrease). Inversely, question answering for Student B improved by 124% despite receiving the minority of his teacher's social praise deliveries.

There are two possible accounts for the performances of Student A and Student C. First, neither a preference assessment was conducted to identify if social praise (i.e., teacher attention) was preferred, nor was a reinforcer assessment conducted to verify that praise functioned as a reinforcer for the students' behaviors. In addition, we did not evaluate if different types of social praise were preferred (e.g., high fives versus "Good job!"). Secondly, although competency criteria were met by teachers during BST role play for delivering social praise contingently and immediately, we did not include the criterion of delivering specific social praise (i.e., as descriptively as possible). The students, therefore, might not have understood which of their behaviors resulted in social praise. Without the specificity of social praise, more sessions may have been needed to show contingency-shaped behavior changes. In future research, preference and reinforcer assessments should be conducted to identify topographies of social praise to use as reinforcers. Additionally, social validity measures should be taken pre-experimentally to identify culturally appropriate topographies to be included in these assessments (Knochel et al., 2020). BST can then include delivery of highly preferred topographies of social praise with descriptive feedback on desired classroom behaviors.

Although four secondary dependent variables (student behaviors) were measured, overlapping features were evident (i.e., similarity of behavioral definitions for classroom activity participation and on-task duration). This study did not combine *classroom activity participation* and *on-task duration* into one dependent variable because of the subtle differences identified by the teachers for their corresponding student's target behavior. For example, Teacher D wanted to target Student D's participation in classroom activities but did not want to target participation in independent work (e.g., copying from whiteboard). As previously mentioned, the experimenter discussed and confirmed the student behavior targeted for increase with each teacher during BST. Identification of the secondary dependent variables by teachers demonstrated the social significance and applied aspects of this study (Baer et al., 1968). Additionally, all teachers reported in the social validity survey that identified student behaviors targeted for increase were very important.

One limitation of this study was that the experimental design was somewhat compromised because of the time delay between baseline, BST, and intervention phases. These delays were due to the fixed classroom schedule and teacher absences. BST could only occur (following baseline) based on availability of teachers. Lessons were not necessarily scheduled on the day of or immediately following BST. For example, Teacher D received BST on Day 7 and the next lesson was not scheduled until Day 8. Unfortunately, unanticipated teacher absences and late arrivals also occurred, which meant that study design was constantly adjusted to adhere to the best practices of single-case research designs. Another related issue was the short timeframe of the experimenter's stay in Malaysia that did not allow for adding sessions for those that were missed.

Further, the school headmaster did not agree to our original request for videotaped maintenance probes (e.g., 1 month after intervention) to check for behavior change durability without written feedback forms. Further research could consider feasible options that will allow for maintenance probes to be conducted.

We believe this was the first study to utilize an empirically validated instructional method (i.e., BST) based on the principles of ABA to train general educators in Malaysia. BST was found to be effective in increasing the use of social praise by all teacher participants. The procedures and materials of this study could be passed on to qualified instructors in Malaysia to train teachers in IEPs across the nation, including schools in rural areas, to cultivate a positive learning environment for students in the IEP. Teacher participants expressed strong approval for the procedures of this study, potentially indicating that further dissemination of ABA research and interventions in Malaysia would be welcomed.

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