

Use of Checklists to Increase Staff Performance on Documentation of Session Notes in
an ABA Facility

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an ABA Facility

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ABSTRACT

Session notes are required by insurance companies to serve as documentation for services provided and provide an account of progress and problems to help guide further treatment. Previous research has investigated the use of package interventions to increase accuracy of progress note completion and found that they can be effective. While effective, package interventions consisting of many components can be time consuming and difficult to use in applied settings. Thus, the purpose of the current study was to investigate the use of a single intervention (checklists), opposed to a treatment package, for its effects on session note accuracy in an ABA facility. A non-concurrent multiple-baseline design across individuals was used to compare the accuracy of three behavior technician's session note documentation before, during, and after the use of a checklist. All three participants were unable to meet mastery criteria with the checklist alone. The addition of verbal and written feedback rapidly increased performance to mastery level. This finding indicates that checklists alone may be insufficient to increase session note accuracy and multiple components from a behavioral skills intervention may be necessary to improve staff performance on session note documentation.

Keywords: Applied behavioral analysis, autism spectrum disorder, checklists feedback, organizational behavior management

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Use of Checklists to Increase Staff Performance on Documentation of Session Notes in an ABA Facility

Applied behavior analysis (ABA) is the application of principles of behavior and operant conditioning to problems of social significance (Baer et al., 1968). In ABA, principles such as reinforcement, prompting, shaping, and chaining are utilized to facilitate changes in clinically significant behaviors. ABA has been utilized in diverse fields such as mental health treatment, education, sports, business, and gerontology.

ABA for Autism Spectrum Disorder

While ABA has been applied in a variety of contexts such as organizations, schools, and therapy clinics to improve socially significant behavior, it is best known as a treatment for autism spectrum disorder (ASD). ASD is a neurodevelopmental disorder that is characterized by deficits in social communication, restricted patterns of behavior, and low academic performance compared to their typically developing same aged peers (McClain et al., 2019). According to McClain and colleges (2019), “The prevalence rate of ASD is increasing with recent estimates indicating that one in fifty-nine children have the disorder, which has increased from prior estimates of one in eighty-nine from 2015” (p. 3007). The use of ABA has a long history in the field of ASD and remains one of the only empirically supported treatments (Cihon et al., 2016). Since Wolf, Risley, and Mees (1964) first demonstrated the efficacy of operant methods with an autistic child, “the popularity of behaviorally based interventions has markedly expanded and are now used to treat a wide range of core symptoms of ASD as well as challenging behaviors and psychopathology” (Matson et al., 2012, p.145).

ABA clinics provide one-on-one services to children with autism to address any skill excesses or deficits and improve the child's overall quality of life. These services are often comprehensive in nature requiring a large number of hours (30-40 per week) to produce the best outcomes for the child. For example, Linstead and colleagues (2017) investigated how ABA treatment intensity and duration impacted learning across different treatment domains including: academic, adaptive, cognitive, executive, function, language, motor, play, and social (Linstead et al., 2017). Participants all had a diagnosis of ASD and ranged in age from eighteen months to twelve years old. Overall, 1,468 children were included in the study and receiving a minimum of twenty hours a week of individualized ABA services. Results showed that there was a positive dose-relationship between treatment intensity/ duration and gains for mastering learning objectives across all eight treatment domains supporting the necessity and effectiveness of ABA therapy. Intensive ABA therapy is an "established" treatment reported by the National Autism Center's National Standards and endorsed by the U.S. Surgeon General and the New York State Department of Health (Medavarapu et al., 2019).

Documenting ABA Services

With the rising numbers of children diagnosed with ASD, there is a greater need for effective behavior analytic services. As comprehensive ABA services can become expensive very quickly, insurance coverage for ABA services has become more common as the prevalence and awareness of ASD rises. With this increase in insurance coverage comes additional requirements to substantiate payment and coverage for services. Session notes are one type of documentation that are required by insurance providers to document sessions and client progress. Session notes also allow staff and other members of an organization to refer back to services provided on any given day and see progress,

problematic behavior, incidents that may have occurred, interventions used and an overall summary of the client's day. Other items included on session notes can include the clinician who worked with the client, the amount of time the client was in our care, individuals who were involved in the session, and the client's response to treatment.

Keeping objective and diligent records of clients is important for two reasons. First, it is a requirement by the Behavior Analyst Certification Board (BACB) that Registered Behavior Technicians (RBT) "generate objective session notes for service verification by describing what occurred during the sessions, in accordance with applicable legal, regulatory, and workplace requirements" (BACB, 2020). Second, "session notes are commonly required by insurance companies who fund ABA services for individuals with ASD" (Brown et al., 2020, p.3). Session notes allow companies to review treatment being provided and to verify service delivery. Session notes may also be the only document of previously delivered services and serve as part of the client's permanent record (Brown et al., 2020).

Organizational Behavior Management

One sub-discipline of ABA, organizational behavior management (OBM), refers to the application of principles of behavior and operant conditioning to performance problems in the workplace (Gravina et al., 2018). OBM has been utilized for decades to increase performance in settings such as hospitals, universities, and other human service settings (Wilder et al., 2009). High quality evidence-based management interventions are necessary to ensure employees deliver high quality interventions to clients (Gravina et al., 2018). OBM can be used in ABA facilities to increase performance on a multitude of tasks to improve treatment integrity, including documentation of session notes.

Most interventions in OBM utilize some type of package intervention or combination of interventions to increase staff performance. Package interventions do not allow for analysis of the individual intervention components. When training staff, it can sometimes be useful to use multiple interventions as staff needs can differ from person to person. For example, some staff may benefit more from feedback, some might need a model of the behavior they are expected to demonstrate, and some may benefit more from a self-monitoring aid to describe the task at hand without feeling micromanaged. The major problem with using multiple interventions at once is that it doesn't allow certainty of which, if any, of these interventions was responsible for the increase in performance alone. It is possible some of the components could be eliminated and the overall intervention could still be effective. On the other hand, multiple components could be necessary. For example, Hardesty and colleagues (2014) did a component analysis, which looks at each intervention separately, to see the effects of specified performance criterion and performance feedback on staff performance of protocol reviews. This study demonstrated that when the interventions were used in isolation, staff were unable to improve to meet mastery criteria. It was only when these interventions were used simultaneously that staff performance improved. This study shows the importance of knowing exactly which interventions are responsible for the improvement in performance. In this example, if one of the interventions were not in place, staff performance would decline.

There are several evidence-based interventions in OBM that effectively increase staff performance on a variety of performance goals. Since OBM is a subfield of ABA, these interventions are based on principles of reinforcement and identify environmental

variables as those that control behavior. Most of the available research on improving staff performance utilizes “package interventions” consisting of a combination of interventions to improve performance (Gravina et al., 2018). Gravina and colleagues (2018) conducted a review of organizational behavior management interventions most commonly used in the human service setting from 1990 to 2016, and they found that the majority of interventions were not being described in specific detail. Often the interventions were not clearly defined, which made it hard to determine what interventions were being utilized in the “treatment packages”. Several interventions commonly used include behavioral skills training (BST), feedback, self-monitoring and checklists.

Behavioral Skills Training

“Behavioral skills training is a teaching package combining several methodologies that, when used together, create an effective technique for teaching a broad range of skills” (Clayton & Headley, 2018). BST contains four components: instruction, modeling, rehearsal, and feedback. Instruction can be in written or verbal form to provide staff an explanation of the task being acquired. Modeling provides the staff with an example of the task in action. Rehearsal gives the staff a chance to practice this skill on their own in the presence of an instructor. Lastly, written or verbal feedback can be given on ways to improve implementation of the task at hand. Clayton and Headley (2018) used BST to improve three paraprofessionals’ performance of discrete trial training (DTT) while working in an elementary school. Results showed an increase in correct DTT implementation with an average of 97% accuracy by all three paraprofessionals by the end of the study with the use of BST.

Performance Feedback

Performance feedback involves review of data, praise for correct implementation, corrective feedback, and addressing questions or comments (Coddling et al., 2005).

Coddling and colleagues (2005) used these components to see if immediate performance feedback would increase special education teachers' treatment integrity for implementing antecedent and consequence procedures in an ongoing behavior support plan. Feedback during the intervention phase occurred each day directly after each observation and included praise for following written procedures and corrective feedback in the form of reviewing the components missed and explaining how the component should have been implemented. Results showed an increase in staff treatment integrity of antecedent components for four out of five staff and consequence components for all five staff members, showing that performance feedback was effective in increasing staff performance.

Feedback Delivery

Coddling and colleagues (2005) used immediate verbal feedback to increase staff performance, but many different types of feedback exist. For example, feedback can be delivered immediately, delayed, to groups, with individuals, verbally, written, or graphically (Sleiman et al., 2020). The effects of different types of feedback have been researched in several meta analyses. Different kinds of feedback can be effective, and what kind to use depends on the desired improvement in the organization, the existing staff's competency level, and staff's personal preference of how they prefer to receive feedback. In addition, feedback is a quick, low-cost, and effective way to enhance staff performance, which is why it is often used within package interventions to supplement

other interventions (Sleiman et al., 2020). Sleiman and colleagues (2020) conducted a meta-analysis over a twenty-year period from 1998 to 2018 to evaluate the effectiveness of different feedback characteristics in organizational settings. Results indicated that the following feedback characteristics produced the best outcomes: a combination of feedback with antecedent and behavioral consequences, presented graphically, verbal, or written, to an individual opposed to a group, and delivered immediately in a positive nature either daily or weekly. These characteristics should be considered when choosing how to best deliver feedback to staff in an effective manner.

Self-Monitoring

Another technique used in the literature is self-monitoring. Self-monitoring involves two components, measurement and evaluation (Wright, 2013). For example, staff using self-monitoring could measure and record one's own behavior and then compare that recorded behavior to a pre-determined standard. Self-monitoring is unique and takes advantage of the simple act of measuring one's own behavior to promote awareness that the behavior is occurring in order to produce lasting behavior change. (Wright, 2013). Gerald and colleagues (2019) used self-monitoring to improve the performance of data recording by nine educational care providers working at a private school for children with intellectual disabilities. Care providers were required to record any target behaviors that occurred each day during thirty and sixty-minute time blocks for each individual child in the classroom. A self-management procedure was put in place to help the care providers record data with greater accuracy. A self-monitoring checklist was used along with a count-down timer to remind the care providers to record data just prior to the end of the time block. Intermittent feedback was provided at the end of the

school day and consisted of a brief check-in with participants. By the conclusion of the study, all nine participants improved their data collection performance and were implementing at 90-100% accuracy. Some potential advantages identified by Gerald and colleagues were the reduced need for continuous supervision, ease of implementation, receptivity by care providers, and an element of individual responsibility (2019, p.389).

Checklists

Another OBM intervention that has been researched for its effects on performance is checklists. “Performance checklists include lists of tasks or steps required to complete a procedure successfully and serve as concrete reminders of which tasks need to be performed” (Durst, 2018, p.243). Checklists have the advantage of being easy to implement, time efficient, cost-effective and enable staff to be more self-sufficient. Casey and McWilliam (2011) looked at the impact of checklist-based training on teachers’ use of a teaching strategy in a school environment and concluded “checklists are a tool for providing job-embedded training; they allow supervisors to structure observations and ensure that teachers understand the expectations for performance” (p. 397). Reliability and treatment integrity checklists traditionally are the main focus of most checklist-based interventions. Casey and McWilliam used a checklist intervention with nine female teachers (split into three teams of three) in a classroom setting to ensure treatment integrity of a new teaching strategy. Teachers helped collaborate with the experimenter to come up with checklist items to be included in the teaching strategy to be implemented in the classroom. Each classroom was observed three days a week for sixty minutes. The experimenter used the checklist to provide feedback to the participants and reviewed the checklist with the participants at the end of each observation. Results indicated that the

check-list based feedback intervention was successful with all three teaching teams implementing the teaching strategy with 80% accuracy of all checklist items.

OBM Interventions to Improve Session Notes

While research on the use of OBM interventions exists, there is limited research to improve session notes using principles of OBM. Luna and Rapp (2019) examined the use of a checklist to increase objective session note-writing skills for school personnel across five dimensions. Two special education teachers and fifteen paraprofessionals participated in the study. The participants were told to watch a simulated interaction between two research assistants (one teacher, one child) and then had two minutes to describe that interaction. Participants were scored in their description of five areas: reinforcer, subjectivity, prompting, problem behavior, and task. Once baseline data was collected, the participants were given the checklist, which described these components. The checklist was reviewed, and the participants had the opportunity to complete the simulated scenarios again, post-checklist. Overall, the participants improved in their description of the reinforcer earned by the child and the prompts delivered by the teacher, however, their description of problematic behavior actually decreased following the checklist intervention.

One unpublished manuscript utilized OBM interventions to address progress note accuracy in an ABA organization. Brown and colleagues (2020) used self-monitoring in addition to modeling and feedback to improve session note accuracy in an ABA agency. Results indicated this intervention to be effective in improving all six paraprofessionals' session note accuracy quickly, with implementation being cost-effective and time efficient. However, the authors utilized the interventions simultaneously in a package, which

prevents analysis of which intervention(s) were responsible for changes in staff performance.

Lastly, Piazza and colleagues (2021) looked at the effects of remote staff training using a teaching interaction procedure to remotely train staff to write objective session notes. Participants included three RBT's who were providing home-based therapy to children with ASD. Participants used Central Reach (a data collection system) to complete their session notes, and experimenters were able to access submitted notes for grading. The intervention was completed using Zoom Meeting and Google Slideshow to train the staff how to effectively write their session note. The meeting included: a training PowerPoint, modeling, role-play, and feedback. Results of this package intervention showed that all three participants met mastery criteria in no more than four training sessions suggesting the effectiveness of remote teaching to increase performance on session note documentation.

Statement of the Problem

While package interventions have been shown to be effective, the simultaneous use of more than one intervention does not allow for identification of which variable(s) is primarily responsible for increases in performance. For instance, it is possible that an intervention consisting of self-monitoring could be as effective as one consisting of self-monitoring and feedback. In this example, including feedback would be an unnecessary drain on resources. Determining which intervention is primarily responsible for changes in behavior would help streamline interventions in organizational settings and save resources for supervisors. Thus, the purpose of the current study was to systematically replicate one element of Brown and colleagues' (2020) article to examine the use of a

single intervention, checklists, for its effects on session note accuracy as required by insurance companies in an ABA facility.

Method

Participants

Three participants (two females and one male) were used to assess progress note documentation before, during, and after the use of a checklist intervention at an ABA facility. All three participants were over the age of eighteen years old and provided one-on-one therapy as behavior technicians. Participants worked with children with ASD and were required to describe their client's session in objective and behavior analytic terms to verify service delivery. Participants were chosen based on their baseline level of performance not meeting acceptable facility standards. Informed consent was obtained by all three participants before the intervention began.

Materials

The same checklist as Brown and colleagues (2020) was utilized to review session note components. Individual items included on the checklist fell into three general categories: demographic and general information about the session, description of the content of the session, and the grammar or type of language used when completing the note (see Brown et. al, 2020). Each component had two columns next to it that indicated "yes" or "no" and were utilized: (1) by staff to ensure the use of the checklist and (2) by the reviewer to help make scoring session notes easy and time efficient. An example of the checklist used in the study can be seen in Appendix I.

Experimental Design

A non-concurrent multiple-baseline design across individuals was used to compare the performance of behavior technician's session note documentation before, during, and after the use of a checklist. A non-concurrent multiple baseline design is a series of A/B designs with baselines lasting different lengths of time to compare a single intervention across individuals, behaviors, stimuli or settings (Watson & Workman, 1981). It is a quasi-experimental design that controls for threats to internal validity by introducing the intervention phases in a staggered fashion to replicate treatment effects and demonstrate experimental control (Byiers et al., 2012). A multiple baseline design was well suited for the current study because introducing checklists across individuals in a staggered manner eliminates the need to return to baseline to demonstrate treatment effects on skills that cannot be unlearned. By using a non-concurrent design, comparison of the effects of the intervention presented at different points in time across individuals can occur without having to take data across baselines simultaneously (Watson and Workman, 1981).

Although the non-concurrent multiple baseline designs can rule out a number of common threats to internal validity, there are two limitations that should be noted (Harvey et. al, 2004). First is the inability to control for history effects or unrelated events that might be coincidental with the application of the intervention and influence the outcomes. Second, the non-concurrent multiple baseline design across individuals is not a true single case design because control is not demonstrated within a single individual. Being that this skill cannot be unlearned, it is necessary to demonstrate a functional relationship across multiple participants.

Procedure

Baseline

Before implementation of the checklist intervention began, the checklist was used by the reviewer to collect baseline data on the percentage of correct session note components. This was accomplished by reviewing staff's daily session notes, which are collected at the end of each workday as part of the ongoing facility procedures. Baseline data allowed the reviewer to see and quantify if any improvements were made once the checklist aid was provided. Baseline were predetermined in length (consistent with the non-concurrent multiple baseline design) and lasted three, five, and seven sessions.

Intervention

At the beginning of the intervention phase, staff were informed of the overall goal of the intervention and the importance of writing clear and objective session notes. The checklist was presented to the staff, which explained the three basic categories making up a session note as well as a description of each individual component. The following script was used to keep the explanation of the checklist consistent for each staff member:

“Provided is a checklist that contains all the necessary components that need to be included in your session note. You should use it when you complete your daily note and staple it to the session note before turning it in at the end of each session. Please circle “yes” or “no” on the checklist for each item. Do you have any questions?”

Once all questions were clarified, staff were instructed to start using the checklist right away. The intervention phase continued until staff members reached 90% accuracy across three consecutive sessions or completed ten sessions with limited improvement. At

this point, daily verbal and written feedback were given in addition to the checklist intervention to ensure the necessary improvements were made to reach mastery criteria. Feedback was given in a staggered fashion across participants to show experimental control and effectiveness of this added component. Once mastery criterion was met, staff moved on to maintenance or follow-up probes.

Follow-up Probes

Follow up probes were taken one and two weeks after the completion of the intervention phase to see if improvements maintained after the checklist intervention was over. Follow up probe data were collected the same way baseline data were collected prior to the start of the intervention.

Assessment of Social Validity

Once the study was completed, a short survey was given out to the participants to assess the social validity of the checklist intervention. Questions were geared toward the acceptability, practicality, and efficacy of the checklist intervention. This survey was scored using a 5- Point Likert scale in which participants specified their level of agreement with each statement. This survey can be found in Appendix II.

Results

Figure 1 displays the results of the checklist intervention for documentation of session notes and displays percentage of correct checklist components per session. Baseline levels of performance for all three participants were below facility standards and ranged from 45-75%. Introduction of the checklist intervention facilitated a slight increase overall, but there was no change in level and variable performance for all three participants. Because participants made limited improvements for ten consecutive

sessions, daily verbal and written feedback were added in addition to the checklist to ensure the necessary improvements were made. As mentioned, feedback was added in a staggered format for analysis of the effects of feedback. Once feedback was added, all three participants quickly showed an increase in performance with changes in level, up to mastery criteria. Gains were maintained during 1- and 2-week follow-up probes. An assessment of social validity was completed and separated questions into two categories: acceptability and social validity of the checklist intervention. Acceptability scores ranged from 80%-100%, whereas social validity scores ranged from 92%- 100%.

Interobserver Agreement (IOA)

Interobserver agreement was collected by a second graduate student to ensure the reliability of the checklist. The same checklist was used to grade participants' notes and compare scores between observers. Total count IOA was calculated for 20% of graded notes and took the lower total of correct session note components and divided it by the higher total of correct session note components multiplied by 100 (lower total/higher total x 100). Total count IOA was calculated at 95% agreement.

Social Validity

Social validity was assessed using the Acceptability of Intervention Measure (AIM). The survey was split up into two categories to assess both acceptability and social validity for each participant. Results of the AIM indicated that all three participants found the intervention to be acceptable with scores ranging from 80-100%. In addition, all three participants found the checklist intervention to be socially valid with scores ranging from 92-100%.

Discussion

The current study examined the effectiveness of a checklist intervention in increasing staff performance of session note documentation and found that all three participants were unable to meet mastery criteria with the checklist alone. Verbal and written feedback were added as a teaching strategy and rapidly increased performance to mastery level. This finding indicates that the multiple components used in Brown and colleagues (2020) were necessary to improve staff performance in session note documentation. In addition, as this study showed the effectiveness of using a checklist intervention with feedback, it could be possible that the modeling component used in the Brown (2020) “treatment package” was not an essential component and could have been eliminated. Participants also indicated a high acceptability and social validity to using the checklist intervention, and this could be a consideration for future use.

Feedback was a necessary component in increasing staff performance in the current study. This is consistent with research conducted by Mouzakitis and colleagues (2015), who studied the effects of self-monitoring and performance feedback on the treatment integrity of behavior intervention plan implementation and generalization. Four teachers from a public elementary school working with children with ASD were taught to implement behavior intervention plans using two treatment phases, self-monitoring and self-monitoring plus feedback (Mouzakitis et al., 2015). In the self-monitoring phase participants were simply asked to use a checklist with the behavior intervention plan items on it. The feedback phase was the same as the self-monitoring phase except written feedback was added to the checklist daily and returned to the teachers. Results showed increased levels of performance in the self-monitoring phase, however, only one teacher

met mastery criteria. Feedback was required to improve three out of the four teacher's implementations of the behavior plan to mastery level.

Research has been conducted in other human service settings as well to evaluate the use of checklists as effective interventions to improve staff performance. Reames and colleagues (2015) used a checklist-based intervention in hospitals to improve surgical outcomes (Reames et al.). Twenty-nine hospitals in the Michigan area participated in the study and were evaluated on the number of surgical site infections, complications, and thirty-day mortality following a general surgery pre- and post-checklist intervention. Results showed that the checklist was not successful in reducing unwanted surgical outcomes and increasing staff performance. Similar research conducted by Conley and colleagues (2011) examined the effectiveness of checklist implementation and its impact on patient outcomes. Results when addressing the effectiveness of the World Health Organizations (WHO) surgical safety checklist have been mixed. How is it that the WHO checklist can be so successful in some hospitals and not in others? Conley and colleagues (2011) suggested that the effectiveness of the checklist depends on two factors: (1) the ability of leaders to explain why the checklist is being used and (2) education regarding its use. These factors were critical to promoting buy-in by surgical staff. When the checklist was not properly explained, and staff didn't see the importance of its use, they became frustrated, disinterested and eventually abandoned its use despite a hospital-wide mandate. Other barriers surrounding the use of a checklist intervention reported by hospital staff included: surgeons resisting the intervention, checklists that were poorly worded, not enough time to complete the checklist, repetitive use with other safety checklists in place, and data to support its implementation (Anthes, 2015).

Limitation and Directions for Future Research

More research is needed to determine the effectiveness of checklists alone in increasing staff performance. There were several limitations identified in the current study. First, and most importantly, the checklist alone was not successful in increasing staff performance to desired levels. It is possible the checklist used was too vague or could have been worded differently to aid in staff performance. Variations of the checklist may be considered for future research. Second, the number of participants used in the current study was low. This makes it less generalizable to the general population and should be replicated to ensure reliability of results. Third, the checklist was utilized to assess *only* the effects of staff performance in writing accurate session notes. This may not generalize to other staff performance goals and should be evaluated separately as checklists may be used to increase performance on other performance tasks.

Future research should be conducted to further evaluate the effects of checklists on staff performance. As performance did not improve to mastery levels in the current study, checklists may be more well suited as a self-monitoring tool for already acquired skills. This can serve as a reminder of correct implementation after the skill has met mastery. Other considerations include the checklist items, the performance goal being evaluated, and staff understanding of the task. There is limited research on the use of checklists to increase staff performance, especially to increase session note accuracy, and should be further investigated to establish its effectiveness.

References

- Anthes, E. (2015). The trouble with checklists: An easy method that promised to save lives in hospitals worldwide may not be so simple after all. *Nature*, *523*, 516-518.
<https://users.cs.northwestern.edu/~robby/courses/395-495-2017-winter/checklists/Anthes%20The%20Trouble%20with%20Checklists.pdf>
- Baer, D.M., Wolf, M. M, & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis*, *1*(1), 91-97.
<https://doi.org/10.1901/jaba.1968.1-91>
- Brown, K., Rosales, R., Brown, M., & Flora. S. (2020). The use of modeling, self-monitoring, and feedback to improve session not accuracy in an ABA agency. Unpublished manuscript.
- Byiers, B. J., Reichle, J., & Symons, F. J. (2012). Single-subject experimental design for evidence-based practice. *American Journal of Speech-Language Pathology*, *12*, 397-414. [https://doi.org/10.1044/1058-0360\(2012/11-0036\)](https://doi.org/10.1044/1058-0360(2012/11-0036))
- Casey, A. M., & McWilliam, R. A. (2011). The impact of checklist-based training on teachers' use of the zone defense schedule. *Journal of Applied Behavior Analysis*, *44*(2), 397-401. <https://doi.org/10.1901/jaba.2011.44-397>
- Cihon, T. M., & Cihon, J. H., & Bedient, G. M. (2016). Establishing a common vocabulary of key concepts for the effective implementation of applied behavior analysis. *International Electronic Journal of Elementary Education*, *9*(2), 337-348. <https://www.researchgate.net/publication/312085118>

- Clayton, M., & Headley, A. (2018). The use of behavioral skills training to improve staff performance of discrete trial training. *Behavioral Interventions*, 34, 136-143.
<https://doi.org/10.1002/bin.1656>
- Codding, R. C., Feinberg, A. B., Dunn, E. K., & Pace, G. M. (2005). Effects of immediate performance feedback on implementation of behavior support plans. *Journal of Applied Behavior Analysis*, 38, 205-219.
<https://doi.org/10.1901/jaba.2005.98-04>
- Conley, D. M., Singer, S., Edmondson, L., Berry, W.R., & Gawande, A. A. (2011). Effective Surgical Safety Checklist Implementation. *American College of Surgeons*, 212(5), 873-879. <https://doi.org/10.1016/j.jamcollsurg.2011.01.052>
- Durst, C. J., Raab, M., Embler, D., & Roberts, K. (2018). Developing evidence-informed early childhood intervention e-learning lessons, performance checklists and practice guides. *Journal of Education and e-Learning Research*, 5, 242-248.
<https://doi.org/10.20448/journal.509.2018.54.242.248>
- Gerald, D., Keeler, L., Mackey, K., & Merrill, R. (2019). Application of a self-management intervention to improve data recording of educational care providers. *Behavioral Interventions*, 34, 388-395. <https://doi.org/10.1002/bin.1673>
- Gravina, N., Villacorta, J., Albert, K., Clark, R., Curry, S., & Wilder, D. (2018). A literature review of organizational behavior management interventions in human service setting from 1990 to 2016. *Journal of Organizational Behavior Management*, 38(2), 191-224. <https://doi.org/10.1080/01608061.2018.1454872>.
- Hardesty, S. L., Hagopian, L. P., McIvor, M. M., Wagner, L. L., Sigurdsson, S. O., & Bowman, L. G. (2014). Effects of specified performance criterion and

- performance feedback on staff behavior: A component analysis. *Behavior Modification*, 38(5), 760-773. <https://doi.org/10.1177/0145445514538280>
- Harvey, M., T. May, M. E., & Kennedy, C. H. (2004). Nonconcurrent multiple baseline designs and the evaluation of educational systems. *Journal of Behavioral Education*, 13(4), 267-276. <https://doi.org/10.1023/B:JOB.0000044735.51022.5d>
- Linstead, E., Dixon, DR., Hong, E., Burns, CO., French, R., Novack, MN., & Granpeesheh, D. (2017). An evaluation of the effects of intensity and duration on outcomes across treatment domains for children with autism spectrum disorder. *Translational Psychiatry*, 7, e1234. <https://doi.org/10.1038/tp.2017.207>
- Luna, O., & Rapp, J.T (2018). Using checklist to increase objective session note writing: Preliminary results. *Behavior Analysis in Practice*, 12(3), 622-626. <https://doi.org/10.1177/0145445504272974>
- Matson, J.L., Turygin, N. C., Beighley, B., Rieske, R., Tureck, K., & Matson, M. L. (2012). Applied behavior analysis in autism spectrum disorders: Recent developments, strengths, and pitfalls. *Research in Autism Spectrum Disorders*, 6, 144-150. <https://doi.org/10.1016/j.rasd.2011.03.014>
- Medavarapu, S., Marella, L., L., Sangem, A., & Kairam, R. (2019). Where is the evidence? A narrative literature review of the treatment modalities for autism spectrum disorders. *Cureus*, 11(1): e3901. <https://doi.org/10.7759/cureus.3901>
- McClain, M.B., Harris, B., Schwartz, S. E., Benallie, K. J., Golson, M. E., & Benney, C. M. (2019). Brief report: Development and validation of autism spectrum knowledge scale general population version: Preliminary analyses. *Journal of*

Autism and Developmental Disorders, 49, 3007-3015.

<https://doi.org/10.1007/s10803-019-04019-8>

Mouzakitis, A., Coddling, R. S., & Tryon, G. (2015). The effects of self-monitoring and performance feedback on the treatment integrity of behavior intervention plan implementation and generalization. *Journal of Positive Behavior Interventions*, 17(4), 223-234. <https://doi.org/10.1177/1098300715573629>

Piazza, J. L., Leaf, J. B., & Lanier, L. L. (2021). Effective remote staff training of objective session notes. *Journal of Applied Behavior Analysis*, 54, 25-37. <https://doi.org/10.1002/jaba.793>

Reames, B. N., Krell, R. W., Cambell, D. A., & Dimick, J. B. (2015). A checklist-based intervention to improve surgical outcomes in Michigan: Evaluation of the keystone surgery program. *American Medical Association*, 150(3), 208-215. <http://doi.org/10.1001/jamasurg.2014.2873>

Sleiman, A., A., Sigurjonsdottir, S., Elnes, A., Gage, N., A., & Gravina, N. E. (2020). A quantitative review of performance feedback in organizational settings (1998-2018). *Journal of Organizational Behavior Management*, 40(3), 303-332. <https://doi.org/10.1080/01608061.2020.1823300>

Watson, P.J., & Workman, E. A. (1981). The non-concurrent multiple baseline across-individuals design: An extension of the traditional multiple baseline design. *Journal of Behavior, Theory, and Experimental Psychiatry*, 12(3), 257-259. [https://doi.org/10.1016/0005-7916\(81\)90055-0](https://doi.org/10.1016/0005-7916(81)90055-0)

Wilder, D., Austin, J., & Casella, S. (2009). Applying behavior analysis in organizations: Organizational behavior management. *American Psychological Association, 6*(3), 202-211. <https://doi.org/10.1037/a0015393>

Wright, J. (2013). How to: Teach students to change behaviors through self-monitoring. *How the Common Core Works Series*, Retrieved from <http://www.interventioncentral.org>

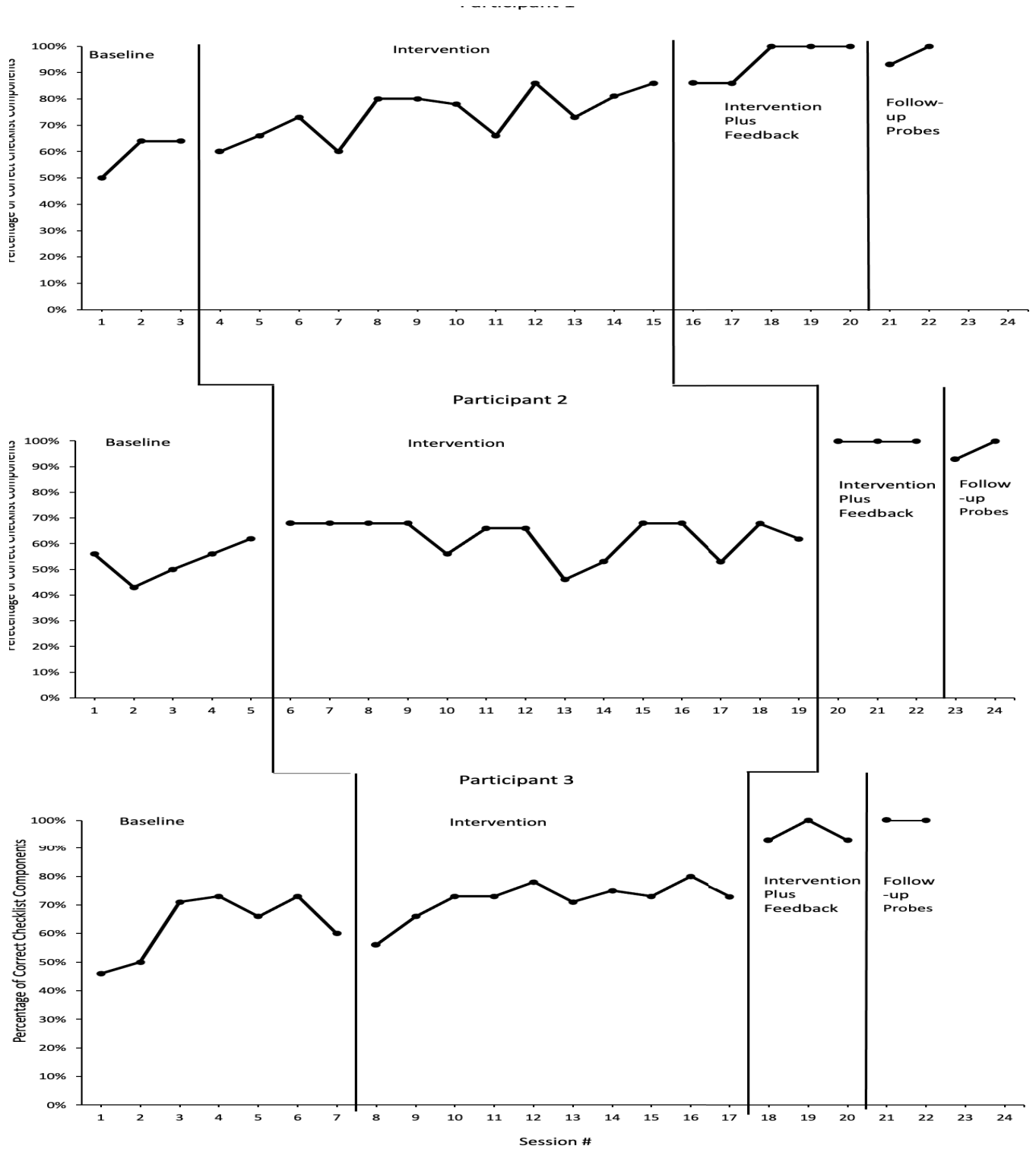


Figure 1. Displays the percentage of correct session note components per session across three participants.

APPENDIX I
Checklist for Progress Note Completion

Staff: _____ Date: _____

Step	RBT	BCBA
Demographic and Session Information		
Clinician full name, client full name, and date of service are completed correctly	Yes or No	Yes or No
Credential, client DOB, (XX/XX/XXXX) and type of session (supervision or not) are completed correctly.	Yes or No	Yes or No
Service code, time of service, and total hours of session are completed correctly	Yes or No	Yes or No
Location of services and those in attendance in session are completed correctly	Yes or No	Yes or No
Session Description		
Client status is filled out correctly.	Yes or No	Yes or No
ABA interventions used during the session are checked off	Yes or No	Yes or No
Summary of treatment progress towards goals is completed with at least one paragraph that mentions scores on skill programming, presence of problem behavior, and any deficits noted within the session.	Yes or No	Yes or No
Narrative of client response to treatment is completed correctly	Yes or No	Yes or No
Barriers to progress section is completed correctly	Yes or No	Yes or No
If problematic behavior occurred in the session, the antecedent, behavior, consequence (staff response) are noted.	Yes or No	Yes or No
Coordination of care is complete and indicates the individuals who will be notified of the progress in that day's session using a full sentence.	Yes or No	Yes or No
Grammar and Style		
Client is referred to by first name, client, or "CL" in progress note.	Yes or No	Yes or No
The progress note uses objective language to describe observable behaviors (i.e., "client threw materials" versus "client was mad") to describe the events during the day	Yes or No	Yes or No
Errors are crossed out with a line through the mistake (i.e., engags) with the staff initial and date next to the crossed off item.	Yes or No	Yes or No
End of Note		
Clinician signs name with credential	Yes or No	Yes or No
Clinician puts correct date next to signature	Yes or No	Yes or No
Score (Supervisor only)		%

APPENDIX II
Acceptability of Intervention Measure (AIM)

1) The use of a checklist to help improve progress note completion meets my approval.	1 = Completely disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree 5 = Completely agree
2) The use of a checklist to help improve progress note completion is appealing to me.	1 = Completely disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree 5 = Completely agree
3) I liked the use of a checklist to help improve progress note completion.	1 = Completely disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree 5 = Completely agree
4) I welcome the use of a checklist, to help improve progress note completion.	1 = Completely disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree 5 = Completely agree
Social Validity	
I believe learning to write complete progress notes is important for my current position as a technician.	1 = Completely disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree 5 = Completely agree
The checklist was easy to use when writing my progress note.	1 = Completely disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree 5 = Completely agree
The checklist DID NOT take a lot of time to use each day.	1 = Completely disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree 5 = Completely agree
The checklist helped me understand requirements for writing a complete progress note.	1 = Completely disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree 5 = Completely agree
The checklist helped improve my progress note completion.	1 = Completely disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree 5 = Completely agree

APPENDIX III

Dear Investigators,

Your protocol Use of checklists to increase staff performance on documentation of progress notes in an ABA facility has been reviewed and is deemed to meet the criteria of an exempt protocol. You will be testing the use of a checklist using a non-concurrent multiple-baseline design across individual's will be used to compare the performance of behavior technician's session note documentation before, during, and after the use of a checklist. You will be conducting follow-up probes after the intervention. You will be working with adults; no identification information will be recorded.

The research project meets the expectations of 45 CFR 46.104(b)(2) and is therefore approved. You may begin the investigation immediately. Please note that it is the responsibility of the principal investigator to report immediately to the YSU IRB any deviations from the protocol and/or any adverse events that occur. Please reference your protocol number 023-21 in all correspondence about the research associated with this protocol.

Good luck with your research.

Karen

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