The Journal of Special Education Apprenticeship

Volume 8 | Number 2 Article 6

9-2019

Using Apple Watch to Increase Behavior Specific Praise and Promote a Positive Learning Environment

Andrew M. Markelz
Ball State University

Benjamin S. Riden
University of Minnesota Duluth

JOSEA
THE JOURNAL OF SPECIAL EDUCATION APPRENTICESHIP
ISSN 2167-3454
Vol. 8(2) September 2019

Using Apple Watch to Increase Behavior Specific Praise and Promote a Positive Learning Environment

Andrew M. Markelz
Ball State University
Benjamin S. Riden
University of Minnesota Duluth

Effective classroom management is pivotal in special education teachers' successful interactions with students who frequently engage in inappropriate and undesirable behaviors. One evidence-based strategy to promote positive social and academic outcomes is behavior specific praise (BSP). Yet, regardless of the evidential benefits of BSP, teachers continue to use low rates of praise because frequent student disruptions and general off-task behaviors reinforce teachers to reprimand. Apple Watch is at the forefront of a growing wearable industry and is increasingly common on special education teachers' wrists. With the assistance of a publicly available application (app), the Apple Watch easily becomes a tactile prompting device to vibrate on an interval schedule and remind teachers to deliver BSP. In this scenario situation, we examine how Apple Watch can serve as a tool to practice effective classroom management and foster a positive learning environment.

Keywords: Apple Watch, behavior specific praise, classroom management, tactile prompting, technology

Mr. Ward is a special education teacher who has taught in a fifth-grade self-contained, emotional support classroom for three years. He enjoys working in a self-contained setting because the small number of students in his classroom allows for development of personal relationships. During the first month of the school year, Mr. Ward has learned a lot about his students, but he has had a difficult time establishing a positive environment where the students are making social and academic progress. At the end of the day, Mr. Ward is exhausted. He feels like he is constantly putting out fires. His students this year seem to argue, fight, and disrupt more than his previous students. Very little academic progress is made and Mr. Ward knows he is becoming more easily agitated and frustrated with his students. He realizes that he and his students are in a downward spiral, so he asks a teacher friend for advice.

Managing Disruptive Students

Teachers in classroom settings with high rates of student disruptions are susceptible to a pattern similar to that of Mr. Ward. The more students disrupt, the more a teacher reprimands, and the more toxic the environment feels. Through the process of negative reinforcement, teachers are rewarded for reprimanding students (Heward, 2003). *Negative reinforcement* is defined as removing a stimulus contingent on a response resulting in an increase in the future probability of that response (Cooper, Heron, & Heward, 2007). For example, cars have an annoying seatbelt alarm that continues to sound until the seatbelt is fastened. Negative reinforcement rewards a person's seat-belt-fastening behavior to quickly fasten the belt and eliminate that annoying alarm. A student's disruptive behavior (e.g., calling out, out of seat, arguing) is similar to a car's seatbelt alarm, and a teacher's reprimand to that student is comparable to fastening one's belt. The reprimand (e.g., "Stop calling out!") often eliminates the undesirable behavior (at least for a moment) which negatively reinforces a teacher to reprimand more frequently. Research supports this notion that teachers are negatively reinforced to reprimand with high reprimand to praise ratios (Jenkins, Floress, & Reinke, 2015).

Mr. Ward is always impressed with Ms. Lang's classroom management and one day in the teachers' lounge he asks Ms. Lang for advice. Ms. Lang is a veteran special education teacher who has been teaching learning support for 17 years. Over her years of experience, Ms. Lang understands the downward spiral of reprimands and negativity teachers and students can get into and now has a great appreciation for the value of proactive classroom management. Ms. Lang tells Mr. Ward that he needs to focus on reinforcing students' desirable behaviors as opposed to always focusing on reprimanding undesirable behaviors. Proactive classroom management, she says, will help prevent undesirable behaviors before they occur, and one particularly effective proactive classroom management strategy is behavior specific praise (BSP). Ms. Lang suggests that Mr. Ward focuses on praising students on-task behavior more frequently to establish a positive learning environment.

Behavior Specific Praise

Kounin (1970) suggested good classroom management focuses on techniques that elicit student cooperation and involvement thereby preventing problems from happening. Rather than reactive procedures (i.e., punishment) that attempt to reduce undesirable behaviors (e.g., reprimanding, strikes on the board, negative phone calls home), proactive strategies (i.e., positive reinforcement) increase desirable behaviors (e.g., praise, token economies, and opportunities to respond). *Behavior specific praise* (BSP) is when an affirmative statement is delivered that identifies a desirable behavior, for example, "Great job raising your hand, Sarah."

The effectiveness of BSP is based in positive reinforcement where the verbal acknowledgment is a reinforcer to the student to encourage her behavior. Behavior specific praise is more effective than general praise (e.g., "Good job") because it specifically communicates to the student why she is receiving the verbal praise. Teachers often deliver general praise; however, at any given moment, a student is performing multiple behaviors. For example, a student may be sitting appropriately in his seat, he might be focusing on his math, and he is keeping his hands to himself. If the teacher says, "Nice

job, Kenny", what specific behavior is reinforced? Behavior specific praise allows teachers to target specific behaviors that need reinforcement. Behavior specific praise has an extended history of empirical evidence of positively affecting student outcomes (Gage, & MacSuga-Gage, 2017; Hall, Lund, & Jackson, 1968; Sutherland, Wehby, & Copeland; 2000).

Mr. Ward enters school the next day ready to use BSP more frequently in his classroom. He knows his students have a hard time following directions, so his plan is that when he gives a directive, and the students comply, he will use BSP to reinforce their compliance. As the school day starts, he is intentional about delivering BSP. His student, Jessica, arrives late to school, and when she comes in the classroom, Mr. Ward says, "Hi Jessica, please take a seat and get out your spelling words." Jessica quietly goes to her seat and gets her spelling words out of her folder. Mr. Ward recognizes this desirable behavior and says, "Thanks Jessica, you did a great job following directions."

But the positive environment does not last long. Before Mr. Ward knows it, two other students start arguing. The vice-principal comes in to talk to another student about an incident before school, which upsets the student. The calm, positive environment is disrupted with distractions and negativity. At the end of the day, Mr. Ward reflects back and realizes he hardly delivered any BSP to students, he was overwhelmed with putting out fires throughout the day and simply forgot. Even though Mr. Ward realizes the positive impact BSP can have on student behaviors, there is just too much going on like managing disruptive behaviors and trying to teach the academic content. He keeps falling into the negative reinforcement cycle of reprimanding students and forgetting to use BSP.

Cognitive Overload

Teachers make up to 1500 educational decisions daily (Good & Brophy, 2008), often causing teachers to experience cognitive overload (Feldon, 2007). *Cognitive overload* is when processing stimuli consumes all of a teacher's working memory resources making it likely to forget additional tasks (Sweller, Van Merrienboerer, & Paas, 1998). In other words, in a classroom with lots of things going on (e.g., teaching content, managing disruptions, answering questions, progress monitoring), it is understandable that teachers forget to praise students. As opposed to aversive student behaviors that get the attention of the teacher (similar to a car seat belt alarm), desirable behaviors such as on-task, sitting quietly, or focusing on the activity, do not capture a teacher's attention. To recognize on-task behaviors, a teacher has to proactively seek them out, which is another reason why teachers have high reprimand to praise ratios. In classrooms with high rates of disruptions, teachers are busy dealing with aversive behaviors and cognitive overload prevents them from remembering to praise (Maag, 2001).

Back in the teachers' lounge Ms. Lang asks Mr. Ward how his classroom management is going. Mr. Ward explains that he tries to start the day remembering to praise appropriate behaviors, but as he starts teaching and dealing with everyday teacher tasks he forgets, and before he knows it, he's reprimanding a lot and feeling frustrated with his students. Ms. Lang says she has been there before and understands how a busy day can make a teacher feel like they are doing all that they can to stay

afloat. She asks if Mr. Ward has ever heard of tactile prompting.

Tactile Prompting

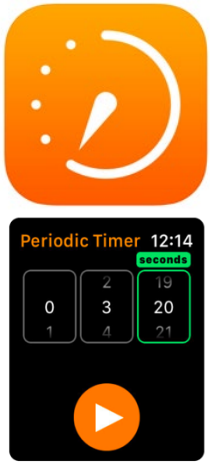
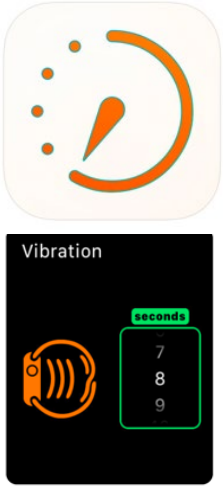
Tactile prompting is when a worn device produces a vibration on a time schedule prompting the user to deliver a specific behavior. Tactile prompting allows users to perform a behavior (when prompted) without having to remember to perform the behavior. Given the benefits of tactile prompting, researchers have investigated the efficacy of tactile prompting to increase desirable teaching behaviors (e.g., Haydon & Musti-Rao, 2011; Labrot, Pasqua, Dufrene, Brewer, & Goff, 2016; Markelz, Taylor, Scheeler, Riccomini, & McNaughton, 2018; Markelz et al., 2019; McDonald, Reeve, & Sparacio, 2014; Petscher & Bailey, 2006; Rivere, Mason, Jabeen, & Johnson, 2015; Thompson, Marchant, Anderson, Prater, & Gibb, 2012). The most common teaching behavior investigated was BSP. High effect sizes and strong social acceptability suggest tactile prompting may be an ideal intervention in assisting teachers to remember to perform proactive classroom management strategies like BSP (Markelz et al., 2019).

Ms. Lang points to Mr. Ward's wrist and says, "See that Apple Watch you're wearing? That is the perfect device for tactile prompting to increase your BSP." Ms. Lang tells Mr. Ward that he needs to download a free application (app) called Periodic Timer (Kelin, 2017). The Periodic Timer app allows users to set a looping alarm that vibrates on every interval (see Table 1). Ms. Lang goes on to explain previous research suggests teachers should deliver BSP once every 1-2 minutes (Jenkins et al., 2015). Mr. Ward downloads the app and Ms. Lang shows her how to set the looping time to vibrate every 90-seconds. Ms. Lang explains that all Mr. Ward has to do now is find a student in his classroom to praise every time his Apple Watch vibrates. Mr. Ward does not have to remember to praise because the tactile prompt will remind him to do so every 90 seconds.

The next day Mr. Ward initiates the Periodic Timer app on his Apple Watch and prepares to welcome his students into class. He is worried the tactile prompt every 90-seconds is too frequent and may be disruptive. But as his day begins and the business of running a classroom consumes his cognitive resources, Mr. Ward realizes the tactile prompt is helpful, and he finds it easy to quickly say something like, "Jessica, you are doing an awesome job listening as I explain directions." At the end of the day Mr. Ward knew he delivered more BSP than he ever had before. Although the day was not without some incidences, he can tell that his students enjoyed receiving the additional positive attention and he, himself, felt more positive and less stressed. He thanks Ms. Lang for her advice and tells her he is going to continue using his Apple Watch to increase BSP and promote a positive learning environment.

Table 1

Periodic Timer Applications

Application	Pricing	Features
Periodic Timer 	Free	• Sound or vibration (if sound is off). • Works in the background. • Three timer output modes: intervals, total time, countdown. • You can cancel or pause the timer with a notification. • Quick Start with 3D Touch. • Flexibility and minimalism. • Dirty Hands Mode. Cancel or pause the timer by shaking the device!
Periodic Timer + 	$1.99	• Many sounds to select + the ability to add custom ones. • Up to Four Quick Start items (require 3D Touch). • Days, hours, minutes and seconds. • Sound or vibration (if sound is off). • Works in the background. • Three timer output modes: intervals, total time, countdown. • You can cancel or pause the timer with a notification. • Flexibility and minimalism. • Dirty Hands Mode. Cancel or pause the timer by shaking the device!

Pro-tips

Here are some additional tips to consider when using Apple Watch to increase BSP:

- It is important to remember BSP is not always synonymous with positive reinforcement. Before delivering praise to your students, make sure verbal praise is a reinforcer for each student. Research suggests verbal praise is more effective with younger students than older students given increased social dynamics among older students (Brophy, 1981). While

younger students may love receiving attention from the teacher and having their good behavior praised out loud, older students may not want to be singled out among their peers, nor seen as the "teacher's pet." It may be more effective to walk over to an older student who is on-task and delivering the BSP more discreetly.

- When first implementing this intervention, you may want to target one or two students who display the most disruptive behaviors (especially if these students are demonstrating attention-seeking behaviors). If you have students who act out to receive attention, then tactile prompting is an efficacious method of providing frequent attention in a positive way, as opposed to negative attention with reprimands. There is no specific recommendation for the amount of attention needed to curb undesirable behaviors. Adjust the prompting interval schedule as needed (e.g., 30-seconds or 60-seconds) if you find that a student needs more frequent teacher attention.
- Behavior specific praise is better than general praise, but there are also some characteristics of BSP to consider that would increase its efficacy such as contingency, variability, sincerity, and immediacy.
    - Contingency is the relationship between two events, one being a consequence of the other. It is important that the delivery of BSP is contingent on a student's appropriate behavior. If a teacher says, "You are doing a great job paying attention, Donte", but Donte is not actually paying attention, then that BSP statement is less effective. Delivering BSP is not enough. It has to be contingent on the student's behavior.
    - Variability of BSP is significant because students are aware if praise is repetitive which reduces its effectiveness (Willingham, 2006). Based on research about relevant stimuli, quality of reinforcer, and habituation (Shriver & Allen, 2008), if a teacher repeatedly delivers the same praise statement (e.g., "good job being on task) it is likely that that statement will lose its efficacy. Students will become accustomed, or habituated, to hearing that statement and overtime it will not hold the same quality of reinforcer. Consider eating your favorite candy bar. At first it is the best candy bar, but if you eat the same candy bar every day you will likely grow tired of it and want to "mix things up". Varied praise statements are likely to provide a higher quality of reinforcement due to the uniqueness or novelty. Some examples of varied BSP statements for being on-task are: 1) I love how you are paying attention, 2) Keep up the great work, you're really focused on your assignment, and 3) You are doing a fantastic job sitting in your seat and working on your assignment. To assist with varying praise statements, one could hang a list of variable praise statements within the classroom to reference throughout the day.
    - It is critical that teachers are sincere when they are providing

BSP (Willingham, 2006). Students can tell if a teacher is just "going through the motions" when providing praise. Sincerity can be enhanced by delivering praise with emotion and excitement. Rather than a monotoned, "Great job getting on task," the teacher should deliver the praise statement with enthusiasm and meaning.

- Immediacy of BSP is key to increasing its effectiveness. Teachers should deliver BSP immediately after the appropriate behavior occurs, increasing the likelihood that the behavior will occur again (Riden, Markelz, & Heid, 2018).

- It is a teacher's job to teach appropriate behaviors. However, when teaching appropriate behaviors to students, error correction procedures are often necessary. Due to the nature of error correction procedures, students can feel as though they have done something "bad". As such, teachers should pair error correction procedures with BSP. For example, a teacher has been working with Brett on his raising hand behavior, a replacement behavior for blurting out. When Brett blurts out the teacher reminds him that when he wants to offer something to the class, he should raise his hand and wait to be called on. The teacher asks Brett to show her how to raise a hand to offer something to the class. When Brett engages in the appropriate behavior the teacher states, "Brett, I like the way you worked with me on raising your hand. You did an excellent job!" Using this strategy allows for the correction of a less desirable behavior while at the same time praising a desirable one.
- When modifying behavior of one's self or one's students it is important to collect, graph, and analyze data. In order to determine if using BSP has been effective in your classroom you must gather baseline data (i.e., before implementing BSP) and then implement BSP as your intervention. While implementation is occurring, you should continue collecting and graphing data to determine if BSP is having the desired effect. One simple strategy of self-monitoring BSP statements is with transferring pennies from one pocket to the other. To implement this strategy, start with a bunch of pennies in one pocket. Every time a BSP statement is delivered, transfer a penny to the other pocket. At the end of the lesson, or day, count how many pennies transferred to self-monitor the number of BSP statements delivered. The pocket penny strategy allows for easy goal-setting and data collection.
- As with any new technology, it is important to become familiar with it before implementation. We suggest using tactile promoting via your new Apple Watch at home with your family and friends before using it as an intervention in your classroom. This allows you to gain familiarity with the technology and delivery of BSP before implementing it with students (see Table 2 for Apple Watch options).

Table 2
Apple Watch Series Options

Apple Watch	Pricing	Features	
Series 3 with GPS 	$279.00 (38mm) $309.00 (42mm)	• Built-in GPS, GLONASS, Galileo, and QZSS • S3 with dual-core processor • W2 Apple wireless chip • Barometric altimeter • Capacity 8GB • Optical heart sensor	• Accelerometer and gyroscope • Ion-X strengthened glass • Composite back • Wi-Fi (802.11b/g/n 2.4GHz) • Bluetooth 4.2 • Up to 18 hours of battery life • Water resistant 50 meters • watchOS 5
Series 3 with GPS + Cellular 	$379.00 (38 mm) $409.00 (42mm)	• LTE and UMTS • Built-in GPS, GLONASS, Galileo, and QZSS • S3 with dual-core processor • W2 Apple wireless chip • Barometric altimeter • Capacity 16GB • Optical heart sensor	• Accelerometer and gyroscope • Ion-X strengthened glass • Ceramic and sapphire crystal back (center) • Wi-Fi (802.11b/g/n 2.4GHz) • Bluetooth 4.2 • Up to 18 hours of battery life • Water resistant 50 meters • watchOS 5
Series 4 with GPS 	$399.00 (40mm) $429.00 (44mm)	• Built-in GPS, GLONASS, Galileo, and QZSS • S4 with 64-bit dual-core processor • W3 Apple wireless chip • Barometric altimeter • Capacity 16GB • Optical heart sensor • Electrical heart sensor • Improved accelerometer up to 32 g-forces • Improved gyroscope • Ambient light sensor	• LTPO OLED Retina display with Force Touch (1000 nits) • Digital Crown with haptic feedback • Louder speaker • Ion-X strengthened glass • Sapphire crystal and ceramic back • Wi-Fi (802.11b/g/n 2.4GHz) • Bluetooth 5.0 • Built-in rechargeable lithium-ion battery • Up to 18 hours of battery life

			• Water resistant 50 meters • watchOS 5
Series 4 with GPS + Cellular 	$499.00 (40mm) $529.00 (44mm)	• LTE and UMTS • Built-in GPS, GLONASS, Galileo, and QZSS • S4 with 64-bit dual-core processor • W3 Apple wireless chip • Barometric altimeter • Capacity 16GB • Optical heart sensor • Electrical heart sensor • Improved accelerometer up to 32 g-forces • Improved gyroscope • Ambient light sensor	• LTPO OLED Retina display with Force Touch (1000 nits) • Digital Crown with haptic feedback • Louder speaker • Ion-X strengthened glass • Sapphire crystal and ceramic back • Wi-Fi (802.11b/g/n 2.4GHz) • Bluetooth 5.0 • Built-in rechargeable lithium-ion battery • Up to 18 hours of battery life • Water resistant 50 meters • watchOS 5

Conclusion

Classrooms are dynamic environments where special education teachers are constantly making decisions. When disruptive behaviors consume a teacher's cognitive resources, evidence-based proactive classroom management strategies like BSP are sometimes forgotten. Tactile prompting is a non-evasive technique to remind a teacher to praise. With more teachers wearing Apple Watches on their wrist, a simple app download can unlock an effective intervention to increase BSP and promote a positive learning environment.

References

Brophy, J. (1981). Teacher praise: A functional analysis. *Review of Educational Research, 51*, 5-32. doi:10.2307/1170249

Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied behavior analysis.* Upper Saddle River, NJ: Pearson/Merrill-Prentice Hall.

Feldon, D. F. (2007). Cognitive load and classroom teaching: The double-edged sword of automaticity. *Educational Psychologist*, *42*, 123-137. doi:10.1080/00461520701416173

Gage, N. A., & MacSuga-Gage, A. S. (2017). Salient classroom management skills: Finding the most effective skills to increase student engagement and decrease disruptions. *Report on Emotional & Behavioral Disorders in Youth*, *17*, 19–24.

Good, T., & Brophy, J. (2008). *Looking in classrooms* (10th ed.). Boston, MA: Pearson Education.

Hall, R., Lund, D., & Jackson, D. (1968). Effects on teacher attention on study behavior. *Journal of Applied Behavior Analysis, 1*, 1-12.

Haydon, T., & Musti-Rao, S. (2011). Effective use of behavior-specific praise: A middle school case study. *Beyond Behavior*, *20*, 31-39.

Heward, W. L. (2003). Ten faulty notions about teaching and learning that hinder the effectiveness of special education. *The Journal of Special Education*, *36*. 186-205.

Jenkins, L. N., Floress, M. T., & Reinke, W. (2015). Rates and types of teacher praise: A review and future directions. *Psychology in the Schools*, *52*, 463-476.

Kelin, V. (2017). Periodic Timer (Version 2.3) [Mobile application software]. Retrieved from https://itunes.apple.com/us/app/periodic-timer/id933241656?mt=8

Kounin, J. S. (1970). *Discipline and group management in classrooms*. New York, NY: Holt, Rinehart & Winston.

LaBrot, Z. C., Pasqua, J. L., Dufrene, B. A., Brewer, E. A., & Goff, B. (2016). In situ training for increasing head start after-care teachers' use of praise. *Journal of Behavioral Education*, *25*, 32-48. doi:10.1007/s10864-015-9233-0

Maag, J. W. (2001). Rewarded by punishment: Reflections on the disuse of positive reinforcement in schools. *Exceptional Children*, *67*, 173-186. doi:10.1177/001440290106700203

Markelz, A. M., Taylor, J. C., Kitchen, T., Riccomini, P. J., Catherine Scheeler, M., & McNaughton, D. B. (2019). Effects of Tactile Prompting and Self-Monitoring on Teachers' Use of Behavior-Specific Praise. *Exceptional Children, 85*(4), 471-489.

Markelz, A. M., Taylor, J. C., Scheeler, M. C., Riccomini, P. J., & McNaughton, D. B. (2018). Prompting with wearable technology to increase teaching behaviors of a special education preservice teacher. *Journal of the American Academy of Special Education Professionals,10*(4), 74-91.

McDonald, M. E., Reeve, S. A., & Sparacio, E. J. (2014). Using a tactile prompt to increase instructor delivery of behavior-specific praise and token reinforcement and their collateral effects on stereotypic behavior in students with autism spectrum disorders. *Behavioral Development Bulletin*, *19*, 40-43. doi:10.1037/h0100573

Petscher, E. S., & Bailey, J. S. (2006). Effects of training, prompting, and self-monitoring on staff behavior in a classroom for students with disabilities. *Journal of Applied Behavior Analysis*, *39*, 215-226. doi:10.1901/jaba.2006.02-05

Riden, B. S., Markelz, A. M., & Heid, M. K. (2018). Supporting students with disabilities during group activities: Five tools every inclusive mathematics educator needs. *Journal of the American Academy of Special Education Professionals, 13*(2), 23-30.

Rivera, C. J., Mason, L. L., Jabeen, I., & Johnson, J. (2015). Increasing teacher praise and on task behavior for students with autism using mobile technology. *Journal of Special Education Technology*, *30*, 101-111. doi:10.1177/0162643415617375

Shriver, M. D., & Allen, K. D. (2008). *Working with parents of noncompliant children: A guide to evidence-based parent training for practitioners and students*. Washington, DC: American Psychological Association.

Sutherland, K., Wehby, J., & Copeland, S. (2000). Effects of varying rates of behavior-specific praise on the on-task behavior of students with EBD. *Journal of Emotional and Behavioral Disorders, 8,* 2-8.

Sutherland, K. S., Wehby, J. H., & Yoder, P. J. (2002). Examination of the relationship between teacher praise and opportunities for students with EBD to respond to academic requests. *Journal of Emotional and Behavioral Disorders, 10*, 5-13. doi:10.1177/106342660201000102

Sweller, J., Van Merrienboer, J. J., & Paas, F. G. (1998). Cognitive architecture and instructional design. *Educational Psychology Review*, *10*, 251-296. doi:10.1023/A:1022193728205

Thompson, M. T., Marchant, M., Anderson, D., Prater, M. A., & Gibb, G. (2012). Effects of tiered training on general educators' use of specific praise. *Education and Treatment of Children*, *35*, 521-546. doi:10.1353/etc.2012.0032

Willingham, D. T. (2006). How praise can motivate—or stifle. *American Educator, 29*, 23-27. Retrieved from https://www.aft.org/ae/winter2005-2006/willingham