

Illinois State University

ISU ReD: Research and eData

---

Faculty Publications – Psychology

Psychology

---

2021

## A Preliminary Evaluation of a Digital Token Economy to Increase Student Engagement during Group Teletherapy

Hunter King  
*University of Utah*

Katerra Miller-Johnson  
*University of Utah*

Keely McCulla  
*University of Utah*

Aaron J. Fischer  
*University of Utah*

Shengtian Wu  
*Illinois State University, swu1234@ilstu.edu*

*See next page for additional authors*

Follow this and additional works at: <https://ir.library.illinoisstate.edu/fppsyach>



Part of the [Psychology Commons](#)

---

### Recommended Citation

King, Hunter; Miller-Johnson, Katerra; McCulla, Keely; Fischer, Aaron J.; Wu, Shengtian; and Miller, Mikey, "A Preliminary Evaluation of a Digital Token Economy to Increase Student Engagement during Group Teletherapy" (2021). *Faculty Publications – Psychology*. 89.  
<https://ir.library.illinoisstate.edu/fppsyach/89>

This Article is brought to you for free and open access by the Psychology at ISU ReD: Research and eData. It has been accepted for inclusion in Faculty Publications – Psychology by an authorized administrator of ISU ReD: Research and eData. For more information, please contact [ISUReD@ilstu.edu](mailto:ISUReD@ilstu.edu).

---

**Authors**


Hunter King, Kattera Miller-Johnson, Keely McCulla, Aaron J. Fischer, Shengtian Wu, and Mikey Miller





[www.ijte.net](http://www.ijte.net)

## A Preliminary Evaluation of a Digital Token Economy to Increase Student Engagement during Group Teletherapy

**Hunter King**   
University of Utah, USA

**Katerra Miller-Johnson**   
University of Utah, USA

**Keely McCulla**   
University of Utah, USA

**Aaron J. Fischer**   
University of Utah, USA

**Shengtian Wu**   
Illinois State University, USA

**Mikey Miller**   
University of Utah, USA

### To cite this article:

King, H., Miller-Johnson K., McCulla, K., Fischer, A. J., Wu, S., & Miller, M. (2021). A preliminary evaluation of a digital token economy to increase student engagement during group teletherapy. *International Journal of Technology in Education (IJTE)*, 4(4), 729-751. <https://doi.org/10.46328/ijte.175>

The International Journal of Technology in Education (IJTE) is a peer-reviewed scholarly online journal. This article may be used for research, teaching, and private study purposes. Authors alone are responsible for the contents of their articles. The journal owns the copyright of the articles. The publisher shall not be liable for any loss, actions, claims, proceedings, demand, or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of the research material. All authors are requested to disclose any actual or potential conflict of interest including any financial, personal or other relationships with other people or organizations regarding the submitted work.



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.



*International Journal of Technology in Education (IJTE)* is affiliated with  
**[International Society for Technology, Education, and Science \(ISTES\): www.istes.org](http://www.istes.org)**

# A Preliminary Evaluation of a Digital Token Economy to Increase Student Engagement during Group Teletherapy

Hunter King, Katerra Miller-Johnson, Keely McCulla, Aaron J. Fischer, Shengtian Wu, Mikey Miller

---

## Article Info

### Article History

Received:

14 April 2021

Accepted:

19 September 2021

---

### Keywords

Engagement

Technology

Therapy

Virtual token economy

## Abstract

Shortly following the temporary nationwide school dismissal amid COVID-19, the current exploratory case-study evaluated the feasibility of two engagement strategies delivered during group teletherapy: Class Dojo and opportunities to respond (OTR). Three elementary students with emotional and behavioral difficulties participated. An A-B-A design was used to evaluate the effects of Class Dojo on student engagement with therapist-delivered OTRs. Due to one student's poor response to the contingency, an A-B-C design was used to evaluate the additive effect of student-delivered OTRs on his engagement. Results indicated moderate to high rates of student attendance, and consistently high rates of engagement for two students. When students delivered OTRs, the student who initially struggled to engage demonstrated an increase in engagement. Practical issues are discussed and recommendations are considered for future research on increasing student engagement during online settings.

---

## Introduction

Students with disabilities often exhibit behavioral and social-emotional challenges that can have a profound impact on their academic achievement and peer relations (Sheridan et al., 2017). The prevalence rate of students who receive special education services under the Individuals with Disabilities Education Act (IDEA; 2004) has increased steadily over the past five years (National Center for Educational Statistics, 2020), contextualizing the additional demand placed on general and special education teachers. Furthermore, the resulting educational changes and social distancing measures amid COVID-19 have required many educators to shift their in-person instruction to an online format (Soloman & Soares, 2020), a modality of instruction unfamiliar to many educators (Kennedy & Archambault, 2012; McGarr & McDonagh, 2019).

To remain contemporary in light of an evolving educational landscape, it is important for educators and practitioners to familiarize themselves with online service provision (Firmin & Genesis, 2013), so that they may sustain their delivery of high-quality academic and social-emotional services to students and clients. In doing so, caregivers may experience some reprieve from the unique challenges that arise when educational practices take place almost entirely in the home (National Association for School Psychologists [NASP], 2020a).

## **Social-Emotional Support in School Settings**

Social-emotional learning (SEL) is a process through which students learn to understand and manage their emotions, self-awareness, self-management, social awareness, and develop a healthy problem-solving repertoire. The increasing prevalence of mental and behavioral health concerns for students at-risk for or with an emotional behavioral disorder (EBD) signals the need for increased SEL and mental health-related services in school-based settings (Kieling et al., 2011). Unfortunately, research continues to reveal that school mental health providers receive little guidance in the selection and delivery of these much-needed services (Arora et al., 2019). This finding is alarming considering that a growing body of literature supports the positive impact of universal SEL instruction not only on students' social-emotional competencies, but also their academic achievement and prosocial behavior (Low et al., 2019; Maynard et al., 2015; Taylor et al., 2017).

Indeed, the manner in which a student's disability manifests may hinder their ability to benefit from universal SEL supports, leading some educators to shift their SEL delivery to a more intensive, small-group format with a curriculum programmed around emotion regulation and skill generalization (Green et al., 2018; Walker & Barry, 2018). Despite increased support, many of the barriers to engagement during classroom instruction also present in these small-group psychotherapeutic contexts (e.g., peer presence, environmental distractions). Fortunately, researchers have explicated the strategies shown to increase student engagement in the classroom, which may be amenable to small-group therapeutic settings (Ivy et al., 2017; MacSuga-Gage & Simonsen, 2015; Sutherland & Wehby, 2001), and provided recommendations for conceptualizing client engagement during therapy (e.g., King et al., 2012).

## **Engagement**

Engagement entails active participation in classroom tasks and activities that encourage learning and, in other instances, acquisition of prosocial behaviors (e.g., healthy peer relations; Simonsen et al., 2008). In the aforementioned definition, engagement is portrayed as an interaction between a student and some aspect of their classroom (e.g., teacher, peers, materials). Research on engagement within a therapeutic context is viewed similarly. Specifically, King et al. (2012) conducted a scoping review of the literature on engagement during therapy to clarify the inconsistent manner in which scholars have defined and conceptualized engagement in mental health interventions. Following their review, King et al. conceptualized engagement as involving three components (e.g., affective, cognitive, and behavioral involvement) that stem from client-therapist interactions. Furthermore, through a systematic review of adolescent engagement in mental health settings, Kim et al. (2012) identified attendance as a strong predictor of treatment outcomes and that programmed reinforcement can be effectively used to increase attendance.

Although a wealth of literature supports the effectiveness of traditional, in-person engagement strategies (e.g., Nagro et al., 2018), it is possible that many of these strategies prove less effective in online formats. Accordingly, it is important that the field of education explore the instructional programming necessary to engage students during group-based, psychotherapeutic service delivery, such as SEL instruction.

## **Evidence Based Strategies to Promote Student Engagement**

Scholars have evaluated the relationship between teacher and student interactions to better understand how to increase students' learning outcomes. Different types of instructional formats have shown to promote active engagement among peers, such as small-group discussions and programmed peer-questioning and -interaction (Barkley, 2010; Nguyen et al., 2016; Prince, 2004). Further, peer relations that form during classroom activities have shown to moderate academic engagement (Dishion et al., 1996; Juvonen et al., 2012; Mounts & Steinberg, 1995). Teacher-student interactions also play an important role in student learning opportunities and creating a positive classroom environment (Martin & Collie, 2018). In the following section, we provide a brief review of in-person engagement strategies and applications that capitalize on student interaction and positive reinforcement.

### **Opportunities to Respond (OTRs)**

An OTR is an example of an antecedent strategy that encourages students to participate in classroom instruction. In general, OTRs entail a three-step sequence, where (1) an educator presents a learning opportunity, to which a (2) student responds, followed by a (3) response contingency (Simonsen et al., 2010). To date, most OTRs have focused on teacher-generated stimuli requiring a verbal (e.g., individual or choral; Adamson & Lewis, 2017) student response, such as, "Tell me one thing you liked from the video," or a non-verbal student response in the form of a paper-pencil multiple choice question or writing an answer on a white board.

OTRs have shown to improve student engagement in classroom activities (Skinner et al., 2005; Nagro et al., 2018), increase academic performance and prosocial behavior (Gettinger & Stoiber, 2014; Simonsen et al., 2008), and decrease disruptive behavior (Haydon et al., 2009). In addition, studies have evaluated different OTR formats (e.g., peer-delivered OTRs; Spence et al., 2003) and OTR rate. Specifically, The Council for Exceptional Children (CEC, 1987) proposed an optimal, minimum OTR rate for students with disabilities at a rate of 4.0 to 6.0 OTRs per minute. In addition, a recent systematic review (MacSuga-Gage & Simonsen, 2015) evaluated studies in which OTR rates were indicated for students in grades 1-11. Their findings revealed that improved student outcomes were observed when educators delivered OTRs at a mean rate of 3.0 to 5.0 OTRs per minute, which closely approximates the CEC's proposed OTR rate. In light of these findings, it appears that educators and school-based professionals should pay close attention to how often they deliver OTRs, especially when considering the effect of OTR rate on students' academic and behavioral outcomes.

### **Token Economies**

A token economy is a strategy through which students earn tokens for engaging in pre-determined appropriate behaviors. Many studies support the use of token economies for students with and without disabilities (Higgins et al., 2001; Klimas & McLaughlin, 2007). Rooted in the principles of positive reinforcement, students exchange their earned tokens for a backup reinforcer that is considered meaningful and preferred. Token economies have several advantages over other reinforcement-based procedures. Specifically, they can be

implemented across and modified for various settings and in conjunction with group contingency procedures, while tokens can function as reinforcers across different conditions (Ivy et al., 2017).

## **Engagement Applications**

Technology in the classroom has been progressing for decades (Firmin & Genesis, 2013) with numerous applications (e.g., Nearpod, Flipgrid, Kahoot, Plikers) shown to increase student engagement (Krause et al., 2017; Plump & LaRosa, 2017). For example, Class Dojo (<https://ClassDojo.com/>) is a free, online token economy system that tracks, manages, and awards students points for demonstrating target behaviors. Class Dojo documents and continuously displays the number of points each student earns throughout an activity, allowing educators to direct more time to instruction rather than periodically reminding students of their progress (Robecker et al., 2017).

A number of peer-reviewed studies support the use of Class Dojo as a class-wide intervention in primary (Dillon et al., 2019), secondary (Lum et al., 2017), and post-secondary classrooms (Rivera, 2019). Using a single case AB design, Maclean-Belvis and Muilenburg (2013) evaluated the impact of teacher praise on elementary-aged students' independent work time. Compared to baseline, results indicated that the use of teacher praise and Class Dojo led to an increase in positive behaviors and a decrease in disruptive behavior. It is important to note that these outcomes should be interpreted with caution given the lack of interrater agreement (IRA) and procedural integrity data. More recently, Lynne et al. (2017) conducted a methodologically-sound evaluation of Class Dojo used in conjunction with the Good Behavior Game (GBG), a type of interdependent group contingency. Their study targeted two dependent variables, class-wide disruptive and academically-engaged behavior across two fourth-grade classrooms and one first-grade classroom. Using an ABAB design, the combination of Class Dojo and the GBG resulted in meaningful changes in both target behaviors for each of the three classrooms.

Engagement as a moderator to learning outcomes during in-person instruction may be viewed similarly when instruction delivery is adapted to an online, synchronous format. With student mental health concerns on the rise (Bains & Diallo, 2016) and current limitations to in-person service delivery, it is imperative that educators and practitioners explore how to engage their clients when using telehealth.

## **Individual Teletherapy**

Telehealth is the provision of health-related services through a Health Insurance Portability and Accountability Act (HIPAA)–compliant videoconferencing platform. The delivery of mental health services through a virtual platform is referred to *teletherapy*. Although, evaluations of teletherapy for elementary-aged school children are scant, the outcomes of a relatively small number of studies have shown this mode of service provision to be a feasible and acceptable method for delivering individualized, mental health services (Bashshur et al., 2016; Hilty et al., 2013; Stewart et al., 2018). The increased attention directed to individual teletherapy is timely and socially valid, though, even fewer studies have evaluated teletherapy at the group-level.

## **Group Teletherapy**

Notwithstanding the limited research into group-based teletherapy, this line of study is emerging and promising, as seen in the outcomes of two recent systematic reviews. The first review focused on evaluations of telehealth services to increase student health-care access in the school setting (Sanchez et al., 2018), four of which delivered psychoeducational content in the form of videos and online modules (Izquierdo et al., 2009; Spaulding et al., 2008). Similarly, in the second review (Gentry et al., 2018), the authors limited their search to studies that deployed group-based teletherapy services. Findings from their search revealed 40 published studies characterized by a broad range of study designs, participants, group interventions, and outcome measures. The authors identified studies that used teletherapy to deliver various psychosocial interventions, including cognitive behavioral therapy (Khatri et al., 2014), mindfulness training (Zernicke et al., 2014), and acceptance and commitment therapy (Rayner et al., 2016), as well as to facilitate educational groups in areas of diabetes (Kearns et al., 2012) and smoking cessation (Carlson et al., 2012). Notably, participants in telehealth groups experienced similar treatment outcomes relative to in-person service provision. In terms of group process factors, a number of the identified studies examined the impact of teleconference delivery on therapeutic alliance (Batastini & Morgan, 2016; Frueh et al., 2007; Morland et al., 2010). In each of these studies, participants who experienced teleconference interventions reported small decreases in therapeutic alliance, compared to in-person groups.

## **Purpose**

The present evaluation served two interrelated purposes. The primary purpose of the current study was to ensure continued access to group therapy services. The second purposes was to conduct a preliminary evaluation of three engagement strategies during small-group SEL teletherapy, which included Class Dojo and two formats of OTRs.

## *Research Questions*

1. Can therapists deliver OTRs during teletherapy, as measured by a similar number of OTRs delivered between phases?
2. Does Class Dojo increase student engagement during teletherapy, as measured by an increase in engagement levels?
3. Can therapists track behavioral data and provide performance feedback during teletherapy, as measured by high levels of treatment integrity?
4. Do parents perceive teletherapy effective, as measured by a decrease between their pre-post measures?

## **Method**

### **Day Treatment Background**

Prior to the COVID-19 pandemic, all group therapy lessons occurred in-person at a day treatment program



located in a public elementary school district in the Mountain West region of the United States (U.S.). The day treatment program was designed to provide intensive behavioral and mental health support to students who experience the highest risk for emotional and behavioral disorders, both in general and special education. At most, students access services in the program for up to nine weeks (approximately 45 school days). During that time, a team of special educators deliver academic and universal SEL support. Graduate clinicians, supervised by a licensed psychologist and board-certified behavior analyst, developed and provided individualized mental and behavioral health supports and five separate lessons of SEL group therapy per week. Throughout a student's enrollment, day treatment staff provides ongoing behavioral consultation to the student's home-school teacher and administrators to prepare for an efficient and successful transition.

Two weeks following the most recent cohorts' enrollment, COVID-19 was declared a global pandemic and schools announced temporary closures. Each caregiver expressed interest in their child receiving continued support during this time. Thus, shortly after the announcement, the day treatment team obtained parental consent, permitting students' access to group teletherapy services.

## **Participants**

### *Students*

Three elementary-aged students participated in teletherapy services. Chris (pseudonym), a 12-year-old White male with an IDEA classification of Autism, was referred for day-treatment services due to ongoing bouts of physical and verbal aggression, use of profanity, and frequent escalations. Although Chris graduated from the program approximately one month prior to SEL teletherapy, his caregivers expressed interest in receiving additional support during the temporary school dismissal. Albert (pseudonym), a 7-year-old American Indian male with no IDEA classification, was referred for services due to frequent elopement from teacher-designated areas and having experienced a traumatic event two years prior, which led his home-school's mental health provider to give a provisional diagnosis of post-traumatic stress disorder (PTSD). Albert graduated from day-treatment services approximately one month prior to the temporary school dismissal and expressed interest in participating in group teletherapy with the day treatment team. Tim (pseudonym), who was also Albert's sibling and a 5-year-old American Indian male with no IDEA classification, was referred for day-treatment services due to social-emotional and behavioral regulation difficulties, decreased academic engagement, elopement, and exposure to the same traumatic event witnessed by Albert. Tim was enrolled in the program for two weeks prior to the temporary school dismissal.

### *Therapists*

Three second- and third-year school psychology doctoral students and one post-doctoral school psychologist served as therapists. Therapists received training in teletherapy and social-emotional content prior to study procedures. The therapist's primary role was to facilitate lesson content and related activities with the help of a co-therapist. In addition, the lead therapist was responsible for coding students' percentage of engagement for each of their digitally recorded lessons. All therapists and co-therapists received weekly supervision from the

fifth author, director of the day-treatment program, a licensed psychologist and BCBA-D.

#### *Research Assistant*

One undergraduate research assistant (RA) was responsible for coding digital recordings of each lesson for purposes of interobserver agreement (IOA). The RA received training in behavior coding procedures prior to coding lesson videos for IOA.

#### **Setting**

Two graduate-level clinicians led each group therapy lesson within a quiet and private room of their home. Similarly, each student was located at their homes, either in a bedroom, kitchen, or living room. Albert and Tim most often received teletherapy in either their kitchen or bedroom; when they were observed in their kitchen, adults and other children were occasionally present. Albert and Tim often interacted with each other, especially when the locations where they attended the teletherapy were close. Chris received teletherapy in the privacy of his room with no one else present. At times, Chris appeared to engage in off-task behaviors (e.g., surfing the internet) during lessons.

#### **Teletherapy Materials**

##### *Hardware and Technology*

Each therapist used their personal laptop to facilitate teletherapy. Prior to each lesson, therapists activated the Zoom recording function for weekly supervision with a licensed psychologist and data collection. Therapists uploaded each digitally recorded lesson to a Health Insurance Portability and Acceptability Act (HIPAA, 1996) and Family Educational Rights and Privacy Act (FERPA, 1974) compliant online storage platform (e.g., Box). Two students attended lessons using their district-issued tablet, whereas one student used a desktop computer.

##### *Teletherapy Manuals*

Therapists adapted their lesson plans from two, age-appropriate group therapy manuals grounded in SEL-related content: *Strong Start: A Social & Emotional Learning Curriculum, second edition* (Whitcomb & Damico, 2016), and *A Still Quiet Place: A Mindfulness Program for Teaching Children and Adolescents the Ease Stress and Difficult Emotions* (Saltzman, 2014).

#### **Data Collection Materials**

##### *Behavioral Coding*

Immediately following each lesson, the respective therapist used pencil and paper to code behavioral data for each of their digitally recorded lessons. Coding sheets included three columns for each student. In the first column, therapists indicated if they issued an OTR (i.e., frequency of OTRs). In the second column, the

therapist documented whether the student engaged with the OTR (i.e., frequency of engagement). If the student did engage, the therapist indicated in the third column whether the student received a Class Dojo point. All data were subsequently transferred to an online Excel data collection sheet.

#### *Pre and Post Measures*

Prior to and immediately following teletherapy, a therapist emailed each caregiver the *Strong Kids Symptom Test* (SKST; grades 3-8; parent form), a 10-item measure of students' negative affect and internalizing problems. Caregivers responded to each question on a four-point Likert scale (1 = *never*; 4 = *often true*), then emailed the form back to the therapist. The SKST has demonstrated moderate reliability (.70 to .80; Merrell et al., 2008) and strong convergent validity (.70 to .88) with established social-emotional self-rating scales, including the *Children's Depression Inventory* (Knight et al., 1998) and *Internalizing Symptoms Scale for Children* (Merrell et al., 2002). For two of the students, therapists adapted some of the verbiage in the SKST to account for their grade-level.

#### **Operational Definitions**

##### *OTRs*

OTRs were delivered in two ways: therapist-delivered and student-delivered. A therapist-delivered OTR was defined as a direct statement to engage in or respond to lesson content (e.g., "Albert, tell me one thing you learned from our lesson."). A student-delivered OTR was defined as Albert or Chris issuing a direct statement or asking a question to one of the other group members to promote engagement in the lesson's content. We included the use of questions in the operational definition of student-delivered OTRs to help them vocally initiate peer engagement.

##### *Student Engagement with Therapists*

Student engagement with therapists was defined as a student providing an appropriate verbal or behavioral response to a therapist's or co-therapist's OTR. Examples of an appropriate behavioral response include: looking at the camera upon a directive, giving a thumbs up, providing a head nod, engaging in a therapist-directed activity (e.g., deep breathing exercises), or using a Zoom function (e.g., chat, emoji response) to communicate. Examples of an appropriate verbal response include verbalizations, such as "yes" or "no". Percentage of engagement with therapists was calculated by dividing the number of instances each student successfully engaged with a therapist-delivered OTR by the total number of therapist-delivered OTRs issued in a lesson, then multiplied by 100.

##### *Student to Student Engagement*

**Albert and Chris.** Student to student engagement was defined as a student delivering an OTR to another student following a therapist's directive to do so. In this fashion, student-delivered OTRs could take the form of

either a question or a directive. Percentage of engagement with students was calculated by dividing the number of instances in which Albert and Chris delivered an OTR to another student by the total number of instances a therapist prompted Albert and Chris to deliver an OTR, multiplied by 100. This dependent variable did not apply to Tim due to his continued, low levels of engagement with therapists. In addition, we report the results of this outcome variable descriptively, as opposed to embedded in a figure.

#### *Student Engagement with Students and Therapists*

**Tim.** For Tim only, engagement with students and therapists was defined as an appropriate verbal or behavioral response to either a therapist- or student-delivered OTR. Percentage of engagement with students and therapists was calculated by dividing the number of instances Tim successfully engaged with a therapist- or student-delivered OTR by the total number of OTRs delivered to Tim in a lesson, then multiplied by 100.

#### **Treatment Integrity**

Treatment integrity consisted of a seven-step checklist, some of which needed to be completed prior to and during each lesson. Each therapist completed the first two steps prior to each lesson, which included setting up Class Dojo and Zoom. Therapists completed the remaining five steps throughout the lesson, which included reviewing how to earn Class Dojo points and the available rewards with students, identifying earned rewards approximately half-way through each lesson, and providing behavior-specific praise (BSP) and Class Dojo points contingent on appropriate responses to OTRs.

#### **Procedures**

A therapist obtained a telehealth consent form from each student's caregiver via email prior to initiating services. Similarly, caregivers received a teletherapy schedule via email detailing days and times that lessons would occur as well as lesson topics. Following, one therapist and co-therapist facilitated teletherapy five days per week over the course of four weeks using the combined SEL and mindfulness manuals.

#### *Group Rules and Virtual Rewards*

We conducted a virtual meeting with all three students to identify preferred virtual rewards and to establish group rules. Due to the nature of remote service delivery, rewards needed to be feasible such that each student would be able to engage with each reward. The first author asked each student to identify three rewards that could be delivered online and were free of charge. The therapist then facilitated a discussion about group rules and solicited potential rules from each student, which included: (a) wait your turn to speak; (b) raise your hand to be called on; (c) what is said in group stays in group; and (d) keep your hands, feet, and other objects to yourself (KYFOOTY). In addition to the primary group rules, the therapist discussed rules for using Zoom, which included (a) mute your microphone when other members are speaking or until you are called on and (b) keep your camera on at all times.

Following the meeting, the therapists met virtually to decide the appropriateness of each reward and familiarize themselves with the group rules. The finalized list of 5-min rewards included: (a) YouTube video (e.g., hydraulic press compilation, race cars), (b) national geographic animal quiz (<https://kids.nationalgeographic.com/games/quizzes/>), (c) game of eye spy within each members' residence, (d) a game of tic-tac-toe using Zoom's white board feature, and (e) a game of show and tell using personal items within student' residence. Prior to each lesson, the therapist added each reward to a modifiable, online digital spinner (<http://www.superteachertools.us/spinner/>) that randomly determined which reward students earned.

### **Teletherapy**

Each lesson lasted approximately 30 min with the last 5 min devoted to a group reward using the digital spinner. During the first lesson, the therapist explained how students were able to earn Class Dojo points, reviewed group rules, and explained that reward attainment was contingent upon attendance only. The only form of reinforcement that remained constant across all phases was BSP for engagement.

#### *Phase 1: Baseline*

Baseline consisted of five lessons delivered across one school week. During baseline, therapist-delivered OTRs to students in the form of a directive and verbally provided BSP immediately following students' appropriate response to each OTR. The Class Dojo contingency was not in effect during baseline. After the fifth lesson, the first author viewed each digitally recorded lesson and calculated the frequency and range of OTRs delivered to each student. This data guided the frequency and range of OTRs that therapists delivered in the subsequent phase.

#### *Phase 2: Class Dojo*

This phase included a total of five lessons delivered across one school week. All procedures remained the same except students received one Class Dojo point and verbal BSP following their engagement with a therapist-delivered OTR. To illustrate, following a student's successful response to an OTR, the therapist verbally announced that the student had earned a Class Dojo point, signaling the co-therapist to document the point, which, when delivered produced an audible "ding". Therapists indicated the number of points each student earned half-way through each lesson and remained mindful to facilitate engagement opportunities in a natural fashion. Importantly, students need only to attend the lesson to experience the virtual, group reward at the end of lesson, rather than having to meet a Class Dojo point criterion.

#### *Phase 3*

The procedures in phase 3 for Albert and Chris were different compared to those for Tim, which is described below.

**Albert and Chris: Withdrawal.** In Phase 3, The Class Dojo contingency was withdrawn for engagement with therapist-delivered OTRs. Albert and Chris continued to receive BSP for engagement and the group reward for their attendance. In other words, the only form of reinforcement Chris and Albert received was BSP for engagement and, for their attendance, the group-reward at the end of lesson.

**Tim: Class Dojo + Student OTRs.** Due to Tim's lack of response to the Class Dojo contingency, the therapists aimed to increase his engagement through an additional intervention component, student-delivered OTRs. Specifically, the Class Dojo contingency remained in effect for the remaining 14 lessons, during which Tim earned a Class Dojo point and received BSP for engaging with either therapist-delivered or student-delivered OTRs. The first author held one, 20-min virtual meeting with Albert and Chris to provide a brief training on how to deliver OTRs, which followed a behavior skills training (BST; Crane, 1995; "tell, show, do") model.

### **Interrater Agreement (IRA)**

Agreement data were collected for 33% of lessons, which assessed (a) therapists' integrity of lesson procedures, (b) frequency of therapist-delivered OTRs and (c) frequency of student-delivered OTRs, and (d) students' percentage of engagement. One RA independently viewed and coded each digitally recorded lesson. Following, the RA's code was compared to the therapists' code. Exact IRA was calculated by dividing the number of agreements between the two observers by the number of agreements plus disagreements then multiplied by 100 (Cooper et al., 2020).

Therapists adhered strongly to therapy programming, with a high mean integrity of 94.74 ( $SD = 0.07$ ). Mean IOA values for Chris's engagement during Phase 2 was 83.33% ( $SD = 0.40$ ) and 100% during Phase 3. The mean IOA value for Albert's and Tim's engagement during Phase 2 and Phase 3 was 100%. Mean IOA values for the number of therapist-delivered OTRs in Phase 2 and Phase 3 for Chris was 83.33% ( $SD = 0.40$ ), and 100% for both Tim and Albert. Mean IOA values for the number of student-delivered OTRs in Phase 3 was 75% ( $SD = 0.05$ ) for Albert and Chris. Lastly, the mean treatment integrity IOA value was 98.00 ( $SD = 0.05$ )

### **Analysis and Design**

For Albert and Chris, an A-B-A design to assess the effect of the Class Dojo contingency on student engagement with therapist-delivered OTRs. For Tim, an A-B-C design was used to assess the additive effect of student-delivered OTRs on his engagement. Although an A-B-C design does not allow for a determination of treatment effect, educators often use this design to evaluate student response to interventions. For Albert and Tim, at least five data points were collected for each phase (Kratochwill et al., 2013).

Tau-U effect sizes (ES) were calculated to measure the extent to which the Class Dojo contingency resulted in changes in engagement between phases. Separate ESs were calculated for each student. Tau-U ESs of .20 and below are considered weak, moderate scores range between .20 to .60, large scores span between .60 and .80, and scores at or above .80 indicate a very large effect (Vannest & Ninci, 2015). Visual analysis also served as a

means for analyzing data, which consisted of evaluation in changes across trend, level, variability, and immediacy of effect between the two phases (Kratochwill et al., 2013).

## Results

### Albert

Albert displayed variable levels of engagement with therapist-delivered OTRs ( $M = 75.4\%$ ; range: 63.6 - 87.7%) during baseline (see Figure 1). When Class Dojo was introduced in Phase 2, Albert's engagement immediately increased in level and trend across the five lessons he attended ( $M = 93.1\%$ ; range: 88.8 - 100%). Introducing Class Dojo has a large effect on Albert's engagement ( $\text{Tau-U} = 1.00$ ). During the withdrawal phase, Albert's engagement with therapist-delivered OTRs decreased initially, then increased in level and remained high but variable for the following 13 lessons he attended ( $M = 92.9\%$ ; range: 78.0 - 100%). The removal of Class Dojo had no effect on Albert's engagement ( $\text{Tau-U} = 0.09$ ).

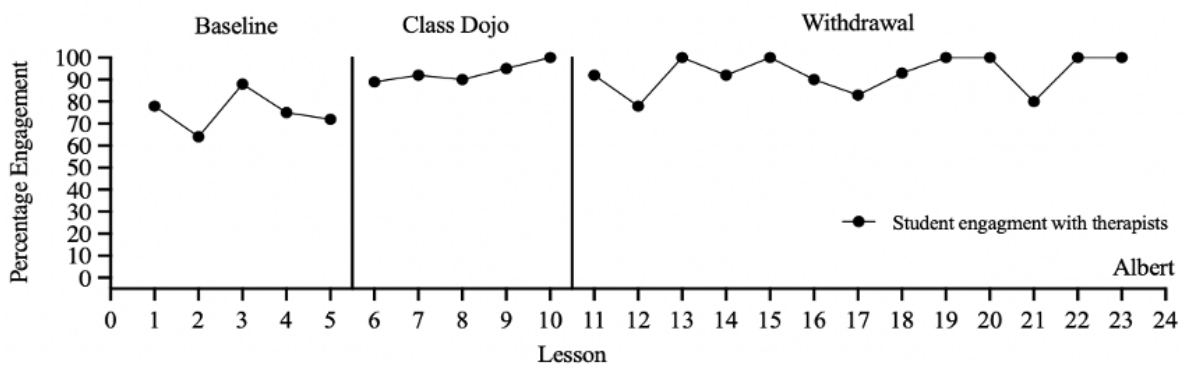


Figure 1. Albert's Engagement during Teletherapy

Regarding student-to-student engagement, therapists prompted Albert to deliver an OTR to another group member a total of 72 times in phase 3. Of those prompts, Albert successfully delivered OTRs on average 94.9% (range: 80-100%), which remained high yet variable for the remainder of therapy.

### Chris

On average, Chris displayed variable levels of engagement with therapist-delivered OTRs ( $M = 76.2\%$ ; range: 78.6 - 83.3%) across three of the five lessons he attended during baseline (see Figure 2). Following the implementation of Class Dojo, during which students were able to earn points for engaging with therapists, Chris demonstrated an abrupt increase in engagement ( $M = 100\%$ ;  $\text{Tau-U} = 1.00$ ), which remained consistent for the three lessons he attended. During the withdrawal phase, when the Class Dojo contingency was no longer in effect, his engagement with therapists remained at 100% ( $\text{Tau-U} = 0.12$ ), which indicated no effect. In terms of student-to-student engagement, therapists prompted Chris to deliver an OTR to another group member a total of 37 times in phase 3. Of those prompts, Chris successfully delivered OTRs on average 96.5% (range: 83-100%), which remained high for the remainder of therapy.

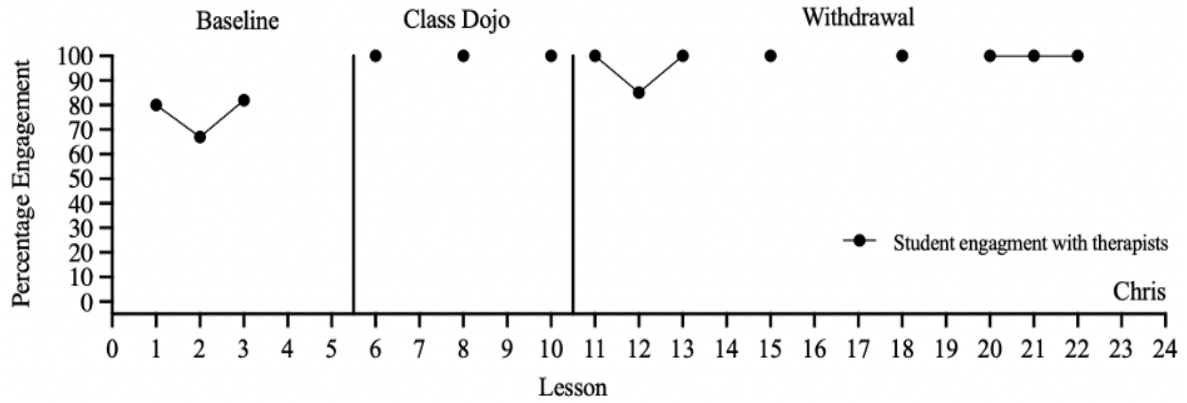


Figure 2. Chris's Engagement during Teletherapy

**Tim**

On average, Tim displayed low, variable levels of engagement ( $M = 50.0\%$ ; range: 37.5 - 54.17%) during baseline (see Figure 3). Following the introduction of the Class Dojo contingency, Tim's level and variability of engagement was comparable to baseline, but ended on an upward trend during the last two lessons ( $M = 60.0\%$ ;  $\text{Tau-U} = .60$ ), indicating a moderate effect. In Phase 3, when both students and therapists delivered OTRs, Tim displayed an immediate a delayed, abrupt improvement in engagement ( $M = 80.04\%$ ; range: 56-100%) that followed an increasing yet variable trend across all remaining lessons. As seen in the third phase, the introduction of student-delivered OTRs had a strong effect on Tim's engagement ( $\text{Tau-U} = 0.83$ ).

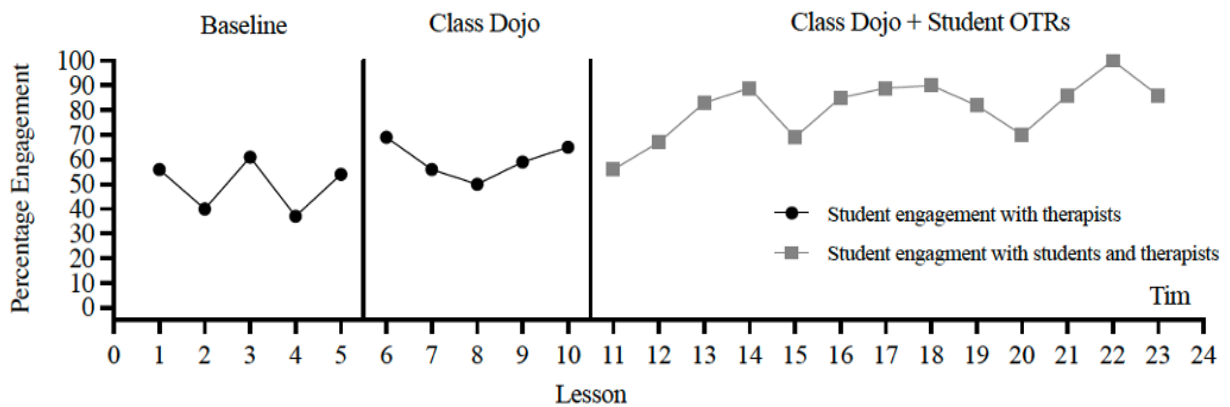


Figure 3. Tim's Engagement during Teletherapy

**OTR Range**

Table 1 displays the average number and range of therapist- and student-delivered OTRs per lesson during baseline, phase 2, and phase 3. On average, therapists delivered a higher number of OTRs during baseline lessons, relative to the number of OTRs delivered in subsequent phases, which were fairly consistent. Albert and Chris delivered a relatively similar number of OTRs to group members during Phase 3.



Table 1. Average Number and Range of Therapist- and Student-delivered OTRs per Lesson

	Baseline	Phase 2	Phase 3
	<i>M</i> (range)	<i>M</i> (range)	<i>M</i> (range)
Therapist-delivered OTR			
Albert	30.80 (22 –43)	12.20 (9 –16)	10.39 (6 –12)
Chris	22.70 (18 –28)	9.30 (7 –12)	7.44 (4 –11)
Tim	30.60 (21 –48)	16.00 (13 –19)	12.88 (7 –18)
Student-delivered OTR			
Chris	/	/	5.30 (5–6)
Albert	/	/	6.20 (5–9)
Tim	/	/	/

Note: Slashes “/” indicate that a particular student(s) did not deliver OTRs during that phase

### Pre and Post SEL Measures

Caregivers completed the *Strong Kids Symptom Test* (parent form) before and after therapy. Table 2 displays each caregivers’ pre- and post-measure data for their child.

Table 2. Caregivers’ Pre and Post Strong Kids Symptom Test

Items	Chris		Albert		Tim	
	Pre	Post	Pre	Post	Pre	Post
1. My child has very little that he/she likes to do	3	3	2	1	1	1
2. My child can’t deal with his/her problems	3	3	3	4	3	4
3. My child argues with other people	4	3	3	3	1	3
4. My child gets mad that he/she breaks or throws things	2	3	4	2	3	3
5. My child worries about things	4	4	3	2	2	4
6. My child feels depressed	2	2	1	1	1	1
7. My child thinks that things don’t work out for them	3	2	2	2	2	2
8. My child gets headaches	1	1	1	1	1	1
9. My child feels sick to their stomach	2	2	1	1	2	2
10. My child argues with me or my spouse	4	3	3	2	1	1
Total Score	28	26	23	19	17	22

Overall, small decreases in symptom severity were observed for Albert and Chris, whereas Tim's caregiver reported a small increase in symptom severity. An item-specific analysis informs where exact changes in symptom severity occurred. For Chris, scores for each question either remained the same or decreased between pre-post measures, except for item 4 which revealed that his caregiver reported a small increase in property destruction. Changes in Albert's scores across each item varied, with a notable decrease in property destruction (item 4) and small increase in difficulty problem solving (item 2). For Tim, his caregiver reported a notable increase in arguing (item 3) and worrying (item 5), which was a significant contributing factor for the five-point increase in his total score.

## **Discussion**

The purpose of this exploratory case study was to assess the extent to which two engagement strategies (e.g., Class Dojo and OTRs) would help elementary-aged students at-risk for EBD to engage during group teletherapy. Overall, Albert and Chris displayed acceptable to very high rates of engagement at the beginning and throughout teletherapy, with meaningful increases in engagement following the introduction of Class Dojo. Tim, however, initially struggled to engage, with minor improvements following the Class Dojo contingency. It was not until Albert and Chris delivered OTRs that Tim's rates of engagement steadily increased. Importantly, attendance rates were high for each student, with Chris missing the most lessons due to conflicts with his online classroom schedule. High rates of attendance during group teletherapy may indicate that the students perceived certain aspects of our programming as reinforcing; however, the novelty of this line of study leaves much to be said in terms of detailing the specific components that resulted in treatment outcomes and teletherapy engagement. In the following sections, we describe our teletherapy programming in greater detail and discuss the use of technology during teletherapy as it relates to the outcomes profiled in the current case study.

### **Class Dojo during Teletherapy**

Consistent with prior Class Dojo research (Dillon et al., 2019; Lum et al., 2017; Rivera, 2019), Albert and Chris engagement with therapist-delivered OTRs increased following the introduction of Class Dojo contingency. When the contingency was removed for these two students, they continued to engage at high levels with therapists. Continued engagement during the reversal phase may have resulted from the continued delivery of BSP, which was the only source of reinforcement that remained constant across phases. Although this lack of functional control hinders our ability to determine the extent to which Class Dojo resulted in increased engagement, the high rates of attendance and high levels of engagement observed are socially valid and practically relevant.

Regarding treatment integrity, therapists strongly adhered to teletherapy procedures, especially with regard to the use of Class Dojo. For 23 of the 24 lessons, a co-therapist moderated Class Dojo, documenting each instance the therapist verbally signaled that a student had earned a point. During the one lesson, in which the co-therapist was unavailable, the therapist was responsible for all teletherapy procedures (e.g., delivering OTRs, providing BSP, documenting Class Dojo points, and reward time). The therapist adapted by having three windows open on

his computer to simultaneously moderate Class Dojo through its website, conduct teletherapy via Zoom, and review the lesson plan in a word document. Fortunately, the therapist had dual monitors that allowed him to position the Class Dojo website on a separate monitor, thus, freeing up what would have been a very cluttered, single screen. Even with dual monitors, the therapist found it challenging and mildly disruptive to provide points because it required him to momentarily pause the group to access the Class Dojo screen, document the point, then return to the lesson. Although it is possible for one therapist or educator to facilitate all teletherapy procedures detailed in this study, the co-therapist played an instrumental in the seamless allocation of points during teletherapy.

### **OTRs during Teletherapy**

While the absence of a true baseline for OTRs precluded our ability to evaluate a functional relation between OTRs and student engagement, the results of the current study provide preliminary evidence that, for the students in the current study, OTRs delivered during group teletherapy have potential to increase students' rate of engagement. Meaningful improvements in Tim's engagement were observed when therapists and students delivered OTRs, compared to therapists' only. Tim's improved engagement in light of increased OTRs parallels the findings of prior student-engagement research (Jones et al., 2008; Nguyen et al., 2016). Had we removed reinforcement for engagement with therapist- and student-delivered OTRs (i.e., reversal), evidence of a functional relationship may have resulted, though, at the expense of therapeutic gains.

Delivering OTRs during teletherapy was feasible; however, one aspect of their delivery that merits discussion regards the therapist's lack of control over each students' environment. Obtaining the attention of a student plays an important role in OTR effectiveness. Oftentimes, student attention is easily influenced by the environmental stimuli present in the learning environment, such as noise or other distractions. Despite the students' and therapists' best efforts to establish a private and quiet location, there were numerous lessons when family members were observed talking in the background, siblings running around nearby rooms making noise, and, on occasion, a caregiver asking the student a question during a lesson. In these situations, delivering OTRs sometimes required the therapist to redirect and repeat. To the greatest extent possible, students should experience teletherapy in a private area devoid of distractions. To accomplish this, we recommend that the therapist discuss with each caregiver the importance of privacy, confidentiality, and how distractions have the potential to hinder treatment gains.

### **Teletherapy Attendance**

Albert and Tim attended 23 out of the 24 lessons delivered, whereas Chris attended 14 lessons. Prior to the first lesson, students were informed that reward access was solely contingent upon logging into the therapy lesson. It is challenging to determine why attendance rates were so high, given the non-experimental design used. It is possible, however, that high rates of attendance were attributed to one of three factors: (a) Albert and Chris having graduated from day-treatment services with positive outcomes, (b) social deprivation amid social distancing protocols and temporary school closures, or (c) caregivers' encouragement to attend the lessons. In

any case, each factor provides educators with guidance on the contextual variables that have potential to increase teletherapy attendance.

### **Virtual Rewards**

Student-determined, virtual rewards were feasible to utilize during the last five minutes of each lesson. First and foremost, anecdotal evidence suggested that the students highly preferred the digital spinner, evidenced by their verbal expressions of interest and excitement and nonverbal behaviors (e.g., physical excitement, smiling, clapping). Secondly, in a virtual setting, it is paramount that students are able to engage with the reward, which can easily turn into a challenging endeavor. The rewards in this study included National Geographic® animal quiz, show-and-tell, eye spy, tic-tac-toe on the Zoom whiteboard function, and preferred YouTube videos shared via the Zoom share screen feature. YouTube videos were the most feasible and most sought-after reward; however, collectively agreeing to one video did pose a challenge at times. When a dispute occurred, the therapist would either (a) present two videos lasting two and one-half minutes each, totaling five minutes or (b) ensure that the other video would be presented the next time a YouTube video is selected as a reward.

The most challenging reward was tic-tac-toe. This reward requires a one-on-one interaction, meaning that other students must wait for their turn. In addition, the whiteboard function was added to Zoom as part of a recent update. The students in the current study were unable to engage with the whiteboard, requiring the therapist to heavily facilitate the game at the expense of student engagement. It is possible that if each student had the most recent version of Zoom, this issue would not have occurred. Even so, some students may require additional training or guidance on how to use some of the more advanced Zoom functions, such as the whiteboard.

### **Implications**

Educators must continually engage in online instruction to deliver a positive educational experience to their students. Higher levels of comfort with and competency in online instruction has the potential to aid educators (e.g., teachers, school psychologists, paraeducators) in their delivery of evidence-based instruction and antecedent/consequent strategies commonly delivered within in-person educational settings. It is natural for anyone practicing or working in a new environment to perceive their efforts as too rigid or stilted. As with any new skill, it is important to engage in deliberate and repetitive practice to achieve a level of automaticity and fluency (Brabec, 2020) consistent with that of what a seasoned educator would likely exhibit.

With little empirical research to draw from, educators and clinicians may feel lost in their new role facilitating an online teaching space. The present study demonstrated that students with behavioral and emotional challenges can demonstrate high levels of engagement during teletherapy, and the feasibility of using various engagement strategies (e.g., OTRs, Class Dojo, peer interaction) in an online format. When in-person delivery is neither advised nor permitted, students with acute social-emotional and behavioral needs can continue to receive necessary services through telehealth, as shown in the current case study. Furthermore, although programming increased peer interactions during online instruction may seem daunting, there are strategies available to

teachers or clinicians who provide remote instruction to larger numbers of individuals. For example, Zoom includes a break-out-room function that allows the teacher to allocate students to different groups and designate specific group sizes. In order to moderate group activities, a co-therapist or paraeducator with administrative Zoom capabilities can move between groups to ensure continued monitoring. Although this may not be an ideal or feasible approach for some, the following section provides suggestions for future research into the use of engagement strategies during online instruction.

## **Limitations and Future Studies**

The results of the current study should be interpreted in light of some limitations. First, the ABA and non-experimental ABC design did not meet What Works Clearinghouse (WWC; Kratochwill et al., 2013) single case design standards, which precluded us from observing a clear functional relationship between engagement strategies and student outcomes. Future studies should consider using a more rigorous research design (e.g., multiple baseline) with a larger sample of students while remaining mindful of the impact phase reversals may have on students' treatment or educational gains. In addition, the high numbers of OTRs issued during baseline hindered our ability to address the first research question related to the feasibility of delivering OTRs in a virtual space. Although we defined OTRs as a *directive* to engage, the high number of OTRs delivered during baseline resulted from therapists' issuance of questions and directives. Therapists modified their OTR delivery during subsequent phases by delivering them in the form of directives only.

Second, there are issues related to external validity. Although we did obtain caregiver-report on their child's behavior following teletherapy, a more valid metric of skill generalization, such as direct observation of the students' improvement in the home or classroom setting, would be beneficial.

The third limitation regards the lack of control each therapist was able to exert over the teletherapy setting, particularly the students' home environment. Notwithstanding this notable limitation, successful demonstrations of engagement were observed. If possible, future studies should ensure a discussion with caregivers takes place regarding the importance of providing their child with a quiet and private learning environment and provide recommendations to caregivers if they question the feasibility of such a task.

The fourth limitation regards the lack of baseline IOA. Unfortunately, the links to recorded baseline videos on the online storage platform expired, which underscores the importance of taking multiple precautions when handling digitally recorded data. Lastly, although not a limitation, future studies should consider exploring the impact of different technologies on student engagement, such as Plickers®, Kahoot, Flipgrid, and Nearpod.

## **Conclusion**

With increased demands for online therapy and other social-emotional supports, school-based service providers (e.g., school psychologists, social workers, school counselors, educators) should continue to learn innovative digital strategies to support students who receive special education services in an online format. Online

engagement can be challenging, but the results of the current study suggest preliminary support for the use of two engagement strategies during group teletherapy for students at-risk for EBD. The current study is an initial attempt to explore engagement strategies during online instruction. As the line of study continues to grow, more convincing outcomes and guidance on how to engage both neurotypical and elementary-aged students at-risk for EBD will hopefully result.

## References

- Adamson, R. M., & Lewis, T. J. (2017). A comparison of three opportunity-to-respond strategies on the academic engaged time among high school students who present with challenging behavior. *Behavioral Disorders, 42*(2), 41-51. <https://doi.org/10.1177/0198742916688644>.
- Barkley, E. F. (2010). *Student engagement techniques: A handbook for college faculty*. Jossey-Bass.
- Bains, R. M., & Diallo, A. F. (2016). Mental health services in school-based health centers: Systematic review. *The Journal of School Nursing, 32*, 8-19. <https://doi.org/10.1177/1059840515590607>.
- Batastini, A. B., & Morgan, R. D. (2016). Connecting the disconnected: Preliminary results and lessons learned from a telepsychology initiative with special management inmates. *Psychological Services, 13*, 283-291. <https://doi.org/10.1037/ser0000078/>.
- Carlson, L. E., Lounsberry, J. J., Maciejewski, O., Wright, K., Collacutt, V., & Taenzer, P. (2012). Telehealth-delivered group smoking cessation for rural and urban participants: Feasibility and cessation rates. *Addictive Behavior, 37*, 108-114. <https://doi.org/10.1016/j.addbeh.2011.09.011>.
- Cooper, J. O., Heron, T. E., & Heward, W. L. (2020). *Applied behavior analysis* (3rd ed.). Pearson.
- Council for Exceptional Children. (1987). Academy for effective instruction: *Working with mildly handicapped students*. Author.
- Dillon, M. B. M., Radley, K. C., Tingstrom, D. H., Dart, E. H., & Barry, C. T. (2019). The effects of tootling via class dojo on student behavior in elementary classrooms. *School Psychology Review, 48*, 18-30.
- Dishion, T. J., Spracklem, K. M., Andrews, D. W., & Patterson, G. R. (1996). Deviancy training in male adolescent friendships. *Behavior Therapy, 27*, 373-390. .
- Family Education Rights Privacy Act, 20, U.S.C. § 1232g. Retrieved July 16, 2020 from <https://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html>.
- Frueh, B. C., Monnier, J., Yim, E., Grubaugh, A. L., Hamner, M. B., & Knapp, R. G. (2007). A randomized trial of telepsychiatry for post-traumatic stress disorder. *Journal of Telemedicine and Telecare, 13*(3), 142-147. <https://doi.org/10.1258/135763307780677604>.
- Gentry, M. T., Clark, M. M., & Rumman, T. A. (2018). Evidence for telehealth group-based treatment: A systematic review. *Journal of Telemedicine and Telecare, 25*(6), 327-342. <https://doi.org/10.1177/1357633X18775855>.
- Gettinger, M., & Stoiber, K. C. (2014). Increasing opportunities to respond to print during storybook reading: Effects of evocative print-referencing techniques. *Early Childhood Research Quarterly, 29*, 283-297
- Green, J. H., Passareli, R. E., Smith-Millman, M. K., Wagers, K., Kalomiris, A. E., & Scott, M. N. (2018). A study of an adapted social-emotional learning: Small group curriculum in a school setting. *Psychology in the Schools, 56*, 109-125. <https://doi.org/10.1002/pits.22180>.

- Haydon, T., Mancil, G. R., & VanLoan, C. (2009). The effects of opportunities to respond on the on-task behavior for a student emitting disruptive behaviors in a general education classroom: A case study. *Education and Treatment of Children, 32*, 267-278. <https://www.jstor.org/stable/42900022>
- Health Insurance Portability and Accountability Act, Pub L. No. 104-191 (1996). Retrieved July 16, 2020 from <https://www.cdc.gov/phlp/publications/topic/hipaa.html>.
- Higgins, J. W., Williams, R. L., & McLaughlin, T. F. (2001). The effects of a token economy employing instructional consequences for a third-grade student with learning disabilities: A data-based case study. *Education and Treatment of Children, 24*, 99–106. <https://www.jstor.org/stable/42899646>
- Ivy, J. W., Meindl, J. N., Overly, E., & Robson, K. M. (2017). Token economy: A systematic review of procedural descriptions. *Behavior Modification, 41*(5), 708–737. <https://doi.org/10.1177/0145445517699559>.
- Izquierdo, R., Morin, P. C., Bratt, K., Moreau, Z., Meyer, S., Ploutz-Snyder, R., & Weinstock, R. S. (2009). School-centered telemedicine for children with type 1 diabetes mellitus. *The Journal of Pediatrics, 155*, 374-379. <https://doi.org/10.1016/j.jpeds.2009.03.014>.
- Jones, R. D., Marrazo, M. J., & Love, C. J. (2008). Student engagement—creating a culture of academic achievement. *International Center for Leadership in Education*.
- Juvonen, J., Espinoza, G., & Knifsend, C. (2012). The role of peer relationships in student academic and extracurricular engagement. *Handbook of Research on Student Engagement*. (pp. 387-401). Springer+Business Media.
- Kearns, J. W., Bowerman, D., Kemmis, K., Izquierdo, R. E., Wade, M., & Weinstock, R. S. (2012). Group diabetes education administered through telemedicine: Tools used and lessons learned. *Telemedicine and eHealth, 18*, 347-353. <https://doi.org/10.1089/tmj.2011.0165>
- Kennedy, K., & Archambault, L. (2012). Offering preservice teachers field experiences in K-12 online learning: A national survey of teacher educator programs. *Journal of Teaching Education, 63*(3), 185-200. <https://doi.org/10.1177/0022487111433651>.
- Khatri, N., Marziali, E., Tchernikov, I., & Shepherd, N. (2014). Comparing telehealth-based and clinic-based group cognitive behavioral therapy for adults with depression and anxiety: A pilot study. *Clinical Interventions in Aging, 9*, 765–770. <https://doi.org/10.2147/CIA.S57832>
- Kieling C., Baker-Henningham, H., Belfer, P. M., Conti, G., Ertem, I., Omigbodun, O., Rohde, L. A., Srinath, S., Ulker, N., & Rahman, A. (2011). Child and adolescent mental health worldwide: Evidence for action. *The Lancet, 378*(9801), 15150–1525. [https://doi.org/10.1016/S0140-6736\(11\)60827-1](https://doi.org/10.1016/S0140-6736(11)60827-1).
- King, G., Currie, M., & Petersen, P. (2012). Child and parent engagement in the mental health intervention process: A motivational framework. *Child and Adolescent Mental Health, 19*, 2–8. <https://doi.org/10.1111/camh.12015>.
- Kim, H., Munson, M. R., & McKay, M. M. (2012). Engagement in mental health treatment among adolescents and young adults: A systematic review. *Child and Adolescent Social Work Journal, 29*, 241-266. <https://doi.org/10.1007/s10560-012-0256-2>.
- Klimas, A., & McLaughlin, T. F. (2007). The effects of a token economy system to improve social and academic behavior with a rural primary aged child with disabilities. *International Journal of Special Education, 22*(3), 72–77.

- Knight, D., Hensley, V. R., & Waters, B. (1998). Validation of the children's depression scale and the children's depression inventory in a prepubertal sample. *The Journal of Child Psychology and Psychiatry*, 29(6), 853–863. <https://doi.org/10.1111/j.1469-7610.1988.tb007658.x>
- Kratochwill, T. R., Hitchcock, J. H., Horner, R. H., Levin, J. R., Odom, S. L., Rindskopf, D. M., & Shadish, W. R. (2013). Single-case intervention research design standards. *Remedial and Special Education*, 34, 26-38. <https://doi.org/10.1177/0741932512452794>.
- Lum, J. D. K., Tingstrom, D. H., Dufrene, B. A., Radley, K. C., & Lynne, S. (2017). Effects of tootling on classwide disruptive and academically engaged behavior of general-education high school students. *Psychology in the Schools*, 54(4), 370–384. <https://doi.org/10.1002/pits.22002>.
- Lynne, S., Radley, K. C., Dart, E. H., Tingstrom, D. H., Barry, C. T., & Lum, J. D. K. (2017). Use of a technology-enhanced version of the good behavior game in an elementary school setting. *Psychology in the Schools*, 54, 1049–1063. <https://doi.org/10.1002/pits.22043>.
- Maclea-Blevis, A., & Muilenburg, L. (2013). Using class dojo to support student self-regulation. In J. Herrington, A. Couros & V. Irvine (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications*, 2013 (pp.1684-1689). Chesapeake, VA: AACE.
- MacSuga-Gage, A. S., & Simonsen, B. (2015). Examining the effects of teacher-directed opportunities to respond on student outcomes: *A systematic review of the literature*. *Education and Treatment of Children*, 38(2), 211–239. <https://doi.org/10.1353/etc.2015.2009>.
- Maynard, B. R., & Miller, S. V. (2015). Mindfulness-based interventions for improving academic achievement, behavior, and socio-emotional functioning of primary and secondary students: A systematic review. Received from <https://files.eric.ed.gov/fulltext/ED573474.pdf>.
- McGarr, O., & McDonagh, A. (2019). Digital competence in teacher education, *Output 1 of the Erasmus + funded Developing Student Teachers' Digital Competence (DICTE) project*. <https://dicte.oslomet.no/>.
- Merrell, K. W., Juskelis, M. P., Tran, O. K., & Buchanan, R. (2008). Social and emotional learning in the classroom: Evaluation of Strong Kids and Strong Teens on students' social-emotional knowledge and symptoms. *Journal of Applied Psychology*, 24(2), 209–224. <https://doi.org/10.1080/15377900802089981>.
- Merrell, K. W., McClun, L. A., Kempf, K. K. G., & Lund, J. (2002). Using self-report assessment to identify children with internalizing problems: Validity of the internalizing symptoms scale for children. *Journal of Psychoeducational Assessment*, 20, 223–239.
- Morland, L. A., Greene, C. J., Rosen, C. S., et al. (2010). Telemedicine for anger management therapy in a rural population of combat veterans with posttraumatic stress disorder: A randomized noninferiority trial. *Journal of Clinical Psychiatry*, 71, 855–863.
- Mounts, N. S., & Steinberg, L. (1995). An ecological analysis of peer influence on adolescent grade point average and drug use. *Developmental Psychology*, 31, 915–922.
- Nagro, S. A., Hooks, S. D., Fraser, D. W., & Cornelius, K. E. (2018). Whole group response to strategies to promote student engagement inclusive classrooms. *Teaching Exceptional Children*, 48, 243-249. <https://doi.org/10.1177/0040059916640749>.
- Nguyen, T. D., Cannata, M., & Miller, J. (2016). Understanding behavioral engagement: Importance of student interaction with peers and teachers. *The Journal of Educational Research*, 2, 1–12.



- <https://dx.doi.org/10.1080/00220671.2016.1220359>.
- Perry, T. T., Halterman, J. S., Brown, R. H., Lou, C., Randle, S. M., Hunter, C. R., & Rettiganti, M. (2018). Results of an asthma education program delivered via telemedicine in rural schools. *Annals of Allergy, Asthma, & Immunology, 120*(4), 401–408. <https://doi.org/10.1016/j.anai.2018.02.013>.
- Positive Behavioral Interventions & Supports. (2018). Homepage. Retrieved from <https://www.pbis.org>.
- Prince, M. (2004). Does active learning work: A review of the research. *Journal of Engineering Education, 93*(3), 223–231.
- Rayner, M., Dimovski, A., Muscara, F., Yamada, J., Burke, K., McCarthy, M., Hearps, S. J. C., Anderson, V. A., Coe, A., Hayes, L., Walser, R., & Nicholson, J. M. (2016). Participating from the comfort of your living room: Feasibility of a group videoconferencing intervention to reduce distress in parents of children with a serious illness or injury. *Child & Family Behavior Therapy, 38*(3), 209–224. <https://doi.org/10.1080/07317107.2016.1203145>
- Rivera, C. J. (2019). Using class dojo as a mechanism to engage and foster collaboration in university classrooms. *College Teaching, 67*(3), 154–159.
- Saltzman, A. (2014). *A still quiet place: A mindfulness program for teaching children and adolescents to ease stress and difficult emotions*. Harbinger Publications.
- Sanchez, D., Reiner, J. F., Sadlon, R., Price, O. A., & Long, M. W. (2018). Systematic review of school telehealth evaluations. *Journal of School of Nursing, 35*, 61–76. <https://doi.org/10.1177/1059840518817870>.
- Simonsen, B., Fairbanks, S., Briesch, A., Myers, D., & Sugai, G. (2008). Evidence-based practices in classroom management: Consideration for research to practice. *Education and Treatment of Children, 31*, 351–380.
- Simonsen, B., Myers, D., & DeLuca, C. (2010). Teaching teachers to use prompts, opportunities to respond, and specific praise. *Teacher Education and Special Education, 33*, 300–318.
- Skinner, C. H., Pappas, D. N., & Davis, K. A. (2005). Enhancing academic engagement: Providing opportunities for responding and influencing students to choose to respond. *Psychology in the Schools, 42*(4), 389–403. <https://doi.org/10.1002/pits.20065>.
- Spaulding, R. J., Davis, K., & Patterson, J. (2008). A comparison of telehealth and face-to-face presentation for school professionals supporting students with chronic illness. *Journal of Telemedicine and Telecare, 14*, 211–214.
- Stewart, R. W., Orgngo-Aguayo, R. E., & Villalobos, B. (2018). Telehealth patient satisfaction questionnaire. *Unpublished instrument, Department of Psychology and Behavioral Sciences, Medical University of South Carolina, Charleston*.
- Sutherland, K. S., & Wehby, J. H. (2001). Exploring the relationship between increased opportunities to respond to academic requests and the academic and behavioral outcomes of students with EBD: A review. *Remedial and Special Education, 22*(2), 113–121. <https://doi.org/10.1177/074193250102200205>.
- Taylor, R. D., Oberle, E., Durlak, J. A., & Weissberg, R. P. (2017). Promoting positive youth development through school-based social emotional learning interventions: A meta-analysis of follow-up effects. *Child Development, 88*(4), 1156–1171.
- Walker, J. D., & Barry, C. (2018). Assessing and supporting social-skill needs for students with high-incidence disabilities. *Teaching Exceptional Children, 51*(1), 18–30. <https://doi.org/10.1177/0040059918790219>

Whitcomb, S. A., & Damico, D. M. P. (2016). *Merrell's strong start—Pre K (2nd ed.)*. Brookes Publishing.


Zernicke, K. A., Campbell, T. S., Specca, M., McCabe-Ruff, K., Flowers, S., & Carlson, L. E. (2014). A randomized wait-list controlled trial of feasibility and efficacy of an online mindfulness-based cancer recovery program: The eTherapy for cancer applying mindfulness trial. *Psychosomatic Medicine*, 76(4), 257–267. <https://doi.org/10.1097/PSY.0000000000000053>.

---

### Author Information

---

#### **Hunter King**

 <https://orcid.org/0000-0002-8877-7214>

University of Utah


College of Education, 1721 Campus Center Dr.,

SAEC 3202, Salt Lake City, UT, 84112

USA

Contact e-mail: [Hunter.king@utah.edu](mailto:Hunter.king@utah.edu)

#### **Katerra Miller-Johnson**

 <https://orcid.org/0000-0002-7854-0301>


University of Utah

College of Education, 1721 Campus Center Dr.,

SAEC 3202, Salt Lake City, UT, 84112

USA

#### **Keely McCulla**

 <https://orcid.org/0000-0002-1935-1893>


University of Utah

College of Education, 1721 Campus Center Dr.,

SAEC 3202, Salt Lake City, UT, 84112

USA

#### **Aaron J. Fischer**

 <https://orcid.org/0000-0002-3589-8071>


University of Utah

College of Education, 1721 Campus Center Dr.,

SAEC 3202, Salt Lake City, UT, 84112

USA

#### **Shengtian Wu**

 <https://orcid.org/0000-0001-9128-9388>


Illinois State University

DeGarmo Hall Room 435, Campus Box 4620,

Normal, IL 61790-4620

USA

#### **Mikey Miller**

 <https://orcid.org/0000-0002-7842-2284>

University of Utah

College of Education, 1721 Campus Center Dr.,

SAEC 3202, Salt Lake City, UT, 84112

USA

---