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Completing College: Antecedents of Success in Post-secondary Education for Students with Disabilities

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Abstract

The purpose of this study was to determine the antecedent conditions that contribute to completion of postsecondary education (PSE) for students with disabilities, taking into account institutional experiences associated with the development of social integration. A prospective longitudinal design was used to analyze data from the National Longitudinal Transition Study-2 (NLTS2). Findings indicate that PSE completion was significantly predicted by self-advocacy, participation in a work-study program or paid employment, participation in extracurricular activities, and development of vocational skills as a primary transition goal. Transition practitioners should consider the right constellation of factors known to impact the PSE outcomes of youth with disabilities including, self-advocacy and transition goals.

Keywords: Post-secondary Education Success, Disabilities, Completion

Completing College: Antecedents of Success in Post-secondary Education for Students with Disabilities

More students with disabilities are enrolling in higher education than ever before. During that 2015–16 academic year, 19% of male undergraduates and 20% of female undergraduates reported having a disability (Bureau of Labor Statistics, 2016). In 2022, 15% of college students reported having attention deficit disorder (ADD) or attention deficit and hyperactivity disorder **(**American College Health Association, 2022**)**. Conversely, in 1978—3 years after the passage of the Education for All Handicapped Children Act—only 2.6% of undergraduates reported a disability (NCES, 2003). As more students enter college, policy makers, researchers, and higher education leaders are increasingly shifting their focus toward success outcomes such as academic achievement, college persistence, degree receipt, and return on investment. In 2015, for example, the Obama administration launched the *college scorecard* to give students and families data about colleges, such as costs, graduation rate, loan default rate, average amount borrowed, and post completion employment; in doing so, the administration argued that the key to boosting college completion was ensuring that students and families had information to support them in applying to a school that would help students achieve their educational goals (U.S. Department of Education, 2016). Similar efforts have been echoed across state governments. For instance, many states have redirected their attention from simply increasing access to promoting success; to this end, some states link funding to college/university performance on specific success indicators, such as rates of retention, graduation, and job placement (Knight et al., 2018). Since 1979, 26 states, including South Dakota, Tennessee, Florida, and Pennsylvania, have experimented with incorporating success indicators into their processes for determining higher

education funding (Miao, 2012). Among the myriad of PSE success indicators at issue, graduation rates attract the most attention.

Persistence to Graduation for Students with Disabilities

Current data on graduation outcomes for students with disabilities highlight three related but distinct narratives. First, evidence shows that although students with disabilities continue to enroll in PSEs at an increasing rate, few persist till graduation (Belch, 2005; Newman et al., 2011). For example, data from the National Longitudinal Transition Study-2 (NLTS2) show that among students with learning disabilities (LDs) who intended to pursue a college degree, only one third (33%) achieved this goal by completing college within the 5 to 6 years following high school, while less than two-thirds (60%) had enrolled in college at some point during those 5 to 6 years (Yu et al., 2018).

Second, the number of students with disabilities entering PSEs and persisting till graduation remains below that of their peers of a similar age who do not have disabilities (Newman et al., 2011; Williamson et al., 2010). The NLTS2 data indicate that among students in the 2005 cohort working toward any type of postsecondary credential, only 40.7% graduated or received a degree, compared to 52.4% of the general population. However, even though the 4- and 5-year graduation rates for students with disabilities were significantly lower than for their peers without disabilities, the 6-year graduation rates were similar for all students, whether they had a disability or not (Wessel et al., 2009).

Third, as Newman et al. (2011) have noted, completion rates appear to vary significantly by type of PSE setting. For example, at four-year colleges, completion rates for students with disabilities (34%) were lower than for their peers without disabilities (51%). Surprisingly, however, students with disabilities at two-year colleges were more likely to complete their programs (41%) than students without disabilities at four-year colleges (22%). The researchers reported similar trends among vocational schools, noting that students with disabilities who attended postsecondary vocational/business or technical schools were more likely to complete their programs (57%) than their peers with disabilities who enrolled in a 4-year PSE program (34%).

Possible Influences of PSE Success

Before students can graduate, they must first succeed academically and persist through multiple semesters, often over a period of 2 to 8 years. It is therefore reasonable to assume that the three prominent indicators of PSE success—persistence, academic achievement, and graduation—are inextricably linked. Thus, factors that influence one measure of success may directly or indirectly impact others. Some of the factors most frequently associated with PSE success include institutional policies (Knight et al., 2018); precollege experiences, such as rigorous college preparation programs and transition planning; student and family attributes, such as self-advocacy, grade point average (GPA), age, disability, income, and parental expectations; and levels of academic and social integration in college (Foster & DeCaro, 1991; Hodges & Keller, 1999; Newman et al., 2011; Rosenbaum, 2001; Wooseley & Shepler, 2012; Yu et al., 2018).

More specifically, findings from higher education indicate that exposure to rigorous college preparation programs and participation in quality transition planning positively correlate with PSE success outcomes. For example, students are often better prepared for PSE when they have

opportunities to do college-level work, such as through an Advanced Placement (AP) or International Baccalaureate (IB) course, or to participate in dual-enrollment classes (Karp et al., 2007; Speroni, 2011). Recently, Yu et al. (2018) found that to increase the odds that a student with an LD will complete college, that student should first complete a college preparatory curriculum in high school, defined as taking at least four credits in English and three credits each in math, social studies, and science in the general education setting. The researchers noted that students with LDs who had completed such a curriculum were more than 5 times as likely to complete college as their peers who had not. Similarly, Palmer et al. (2017) reported that both academic and nonacademic types of school-sponsored activities had a statistically significant association with postsecondary degree completion. In that study, students with disabilities involved in either type of extracurricular activity were shown to be twice as likely to complete a postsecondary degree as their peers who were not involved in those activities. Other studies have linked early college persistence to the quality of transition plans, as measured by compliance with Indicator 13. For example, Erickson et al. (2014) found that schools with higher Indicator 13 compliance were more likely to have graduates with IEPs who had completed a semester of college, though higher compliance did not significantly predict college enrollment.

The literature on PSE success for students with disabilities has linked student and family attributes, such as parental expectations, gender, age, self-awareness, academic preparation, and self-advocacy, to multiple success outcomes in higher education, including performance, persistence, and satisfaction (Belch, 2004; Daly-Cano et al., 2015; Lombardi et al., 2011; Showers & Kinsman, 2017; Terras et al., 2015; Yssel et al., 2016). For example, O'Neal et al. (2012) examined the main effects of student characteristics and support services on the likelihood of graduation, finding that female students and students who were at least 23 years old were more likely to graduate from college than their peers who were male and younger. Similarly, Fleming et al. (2017) examined the relative contribution of modifiable factors, such as peer support, disability services, faculty teaching, campus climate, and self-advocacy, to academic performance in college students with disabilities, finding that age and self-advocacy were the only significant predictors of academic success among the factors included. These studies provide additional evidence that student-specific factors that are modifiable (e.g., self-advocacy or reading skills) and nonmodifiable (e.g., age) both play a key role in PSE success.

Influences on PSE success rates likely include some combination of student and family attributes, precollege factors, institutional policies, and levels of student's academic and social integration in college. The last is of particular interest: Studies examining PSE completion have suggested that institutional experiences associated with social and academic integration, such as positive peer relationships and involvement in college sports, contribute to the success of students with disabilities (DaDeppo, 2009; Mamiseishvili & Koch, 2011; O'Neal et al., 2012). DaDeppo (2009) investigated the relative influence of background characteristics, precollege achievement, and college integration variables on the academic success and intent to persist of college freshmen and sophomores with LDs. The study revealed that both integration variables (social and academic) were unique predictors of intent to persist. These findings suggest that aside from high school preparation and student attributes, college experiences—as captured by academic and social integration—are promising constructs to help explain the persistence of college students with disabilities.

Conceptual Foundation

This study is built upon the assumption that there exists a longitudinal causal sequence among factors associated with PSE success for students with disabilities, namely, that preentry factors, such as family background and prior schooling, influence institutional experiences, which can in turn lead to persistence (Tinto, 1987, 1993). Consequently, we chose to employ the student integration model (Tinto, 1975, 1987, 1993) to examine PSE success, since it accounts for the transition process from high school to college. According to this model, students' interactions with colleges' social and academic systems are affected by preentry factors, such as students' skills and experiences related to prior schooling, along with their background characteristics, goals/intentions, and commitments. The model further states that students' experiences with these systems influence their commitment to the goal of completion and to the institution they have chosen—hence the decision to persist. Thus, PSE experiences might mediate the relationship between preentry factors and PSE completion.

The Current Study

In examining the complexities of PSE success for students with disabilities, past studies have described the main effects of a variety of variables on PSE success outcomes, including high school grades, gender, and transition goals; however, these studies have paid limited attention to the processes underlying those relationships. Few studies, for example, have pointed to the presence of intervening variables or mechanisms that transmit the effects of antecedent variables onto PSE success outcomes. The relationship between factors associated with PSE success and outcomes such as program completion may be more complex than a simple correlation, that is, it could be modified or informed by the addition of mediators, moderators, suppressors, and confounders (MacKinnon et al., 2000).

Thus, to advance college success theory, research, and practice, scholars must examine more than main effects, which is why we sought to investigate PSE completion in the current study, paying particular attention to potentially mediating factors associated with institutional experiences. More importantly, because PSE completion results from a combination of multiple experiences over time, we examined longitudinal data to describe PSE completion outcomes for students with disabilities. We hope to contribute to a more in-depth understanding of the relationships between predictor variables and PSE completion outcomes, which is an important part of developing K–12 transition programs that are better aligned with the expectations of colleges and universities. Our hypotheses were as follows:

1. PSE completion can be predicted by preentry variables concerning high school achievement, self-advocacy, postschool goals, high school academic courses, participation in extracurricular activities, and participation in employment.

2. Holding demographic factors constant, the relationships between the preentry variables and PSE completion are mediated by institutional experiences associated with social integration.

Method

This study is a secondary analysis of data from the NLTS2, one of seven child-based studies commissioned by the U.S. Department of Education documenting the secondary school experiences and transition to adult roles of youths with disabilities. A follow-up to the original NLTS, the NLTS2 involved more than 11,000 participants who were between 13 and 16 years old as of December 2000. The initial intent of the Stanford Research Institute SRI, (2000), which conducted the survey, was to sample 12,943 youth; however, only 11,272 agreed to participate in the first data collection point (SRI International, 2000b). For the current study, we also sourced information from a variety of respondents using multiple instruments, which gave us an opportunity to answer a wide range of descriptive, longitudinal, and explanatory research questions.

Sample

The participants for this study were drawn from the original sample of students in the NLTS2 who met three further criteria. First, they had to report having enrolled in PSE after leaving high school, whether at a two-year or community college, postsecondary vocational/business or technical school, or a four-year college. Second, they had to be enrolled in PSE during the 2006–07 academic year (Wave 4 of the NLTS2). Third, they had to have a valid value on the dependent measure at the end of the study, that is, they must have completed PSE by Wave 5 of the NLTS2. If students' responses were not available, parents' responses were used. The sample was limited to students who were enrolled in PSE during the Wave 4 data collection period to focus our analysis on tracking students' experiences associated with the development of social integration at the time they were enrolled in college. The final sample for this study consisted of 1,180 students with disabilities who participated in any of the four PSE settings, which represents 47.2% of the original NLTS2 sample. Unweighted sample sizes have been rounded to the nearest 10 throughout this report in compliance with the rules of the Institute for Education Sciences regarding the use of restricted data sets.

Measures

Dependent Measure: PSE Completion

The outcome of interest for PSE completion was whether the youth had ever obtained a diploma, certificate, or license from a PSE setting. This variable corresponded to a combination of responses to the survey question, "Have you gotten a diploma, certificate, or license from (a) a vocational, business, or technical school; (b) a two-year or community college; or (c) a four-year college or university?" The completion variable is a dichotomous variable (0 = "no" and 1 = "yes") set to the youth's response if the youth was interviewed or to the parent's response otherwise.

Predictor Variables

Demographics. Previous studies have considered a wide range of variables representing family backgrounds and student characteristics, including annual family income, gender, race, parents' level of education, language spoken at home, and disability (Chiang et al., 2012; Halpern et al., 1995; Mamiseishvili & Koch, 2011; O'Neal et al., 2012; Wessel et al., 2009). In the current study, data on demographic factors were obtained from the parent survey in Wave 1 of the

NLTS2; the disability label, however, reflects district-designated disabilities as listed in school records.

Skills and Abilities. There is strong consensus among researchers that self-advocacy is a significant factor in PSE success for students with disabilities (Bae, 2007; Cobb et al., 2009). In this study, self-advocacy was measured by the role a student played in IEP meetings. In the Wave 1 parent interview/survey of the NLTS2, parents were asked to select one of the following options to describe their child's role in their IEP: (a) their child was "present in discussions but participated very little or not at all"; (b) their child "provided some input"; (c) their child "took a leadership role, helping set the direction of the discussions, goals and plans"; or (d) they were unaware of any goals.

Prior Schooling. In the current study, school-related variables associated with PSE outcomes included academic achievement, participation in extracurricular activities, participation in advanced mathematics courses, participation in general education English courses, and student satisfaction with the instruction received. Corresponding variables for each of these factors were found in the NLTS2 program survey and Wave 1 parent survey. Academic achievement was measured by students' grade point average available in the transcript data, coded as "GPA earned in all courses in this grade*."*

Goals/Intentions. While transition plans often include a range of goals in the domains of PSE, employment, and independent living, when PSE is a primary goal the odds of enrollment in PSE are significantly increased (Chiang et al., 2012). The corresponding NLTS2 variables that reflect transition goals were obtained from the NLTS2 student's program survey, the information for which was gathered from the teacher most knowledgeable about the student's program of study.

External Commitments. Newman et al. (2011) noted that many students with disabilities engage in employment and education beyond high school. Such commitments may impact students' PSE experiences, especially when students participate in employment while attending school. The variable *"*Any paid job or work study in past year" was used as a measure of participation in employment. This variable has two levels: 0 (no) and 1 (yes).

Mediator Variables. The following NLTS2 variables were selected as proxies for factors associated with the development of social integration:

- how often the youth got together with friends outside of organized activities in the past 12 months;
- how often friends called the youth on the phone in the past 12 months;
- how often the youth takes part in email, instant messaging, or chat rooms;
- how often the youth engaged in hobbies in the past week;
- how often the youth just hung out with friends in the past week; and
- whether the youth was invited to social activities with friends in the past 12 months.

These variables were all taken from the parent/youth surveys conducted in Wave 4 of the NLTS2.

Analytical Approach

The SPSS (Version 26.0) complex samples module was used to perform statistical analyses to obtain point estimates representative of the national population of youth in the NLTS2. As recommended by Valdes et al. (2013), data were weighted using the cross-wave, multisource weight (Wt_Any). To check whether the included samples were biased, cross-tabulation was used to compare the percentage of youth in the primary sample with the percentage of youth who were excluded because they were still enrolled in PSE by Wave 5 or because they were not enrolled during the Wave 4 data collection period. Chi-square analysis was used to summarize the frequency distribution between the primary and excluded samples of demographic variables (age, gender, disability, income, race, language spoken at home, and mother's educational level) and other preentry variables, such as goals and employment; an alpha level of .05 was used to identify significant differences. Logistic regression analysis was used to examine the ability of preentry variables to predict the likelihood of degree attainment for students with disabilities; the variables considered were high school achievement, self-advocacy, postschool goals, high school academic courses, participation in extracurricular activities, and participation in employment.

Mediation Analysis

We used the causal steps approach (Barron & Kenny, 1986) to test our second hypothesis, namely, that the relationships between preentry variables and PSE completion are mediated by institutional experiences associated with the development of social integration. *Mediation* occurs as part of a causal chain of events in which an antecedent (independent) variable affects a mediating variable, which then affects an outcome variable. This relationship exists because it is established through a causal chain of events in which the independent variable influences intermediary variables and this effect follows through to the outcome measure. *Mediating variables* are social, behavioral, psychological, or biological constructs that transmit the effect of one variable to another (MacKinnon et al., 2006). For example, self-advocacy may result in increased participation in social activities in PSE, which could then translate into an increased likelihood of graduation.

A series of regression models (Cohen et al., 2003) was used to examine the relationships among the focal independent variables, the proposed mediator (institutional experiences), and PSE completion, after controlling for the effects of demographic factors. In Model 1, after controlling for demographics, preentry variables were regressed on institutional experiences to examine the link between independent variables and the mediator. In Model 2, after controlling for demographics and preentry variables, institutional experiences were regressed on PSE completion to examine the relationship between the potential mediator and the outcome measure. After controlling for demographics, Model 3 examined PSE as the outcome measure and preentry variables as independent variables. Using PSE completion as the dependent measure, Model 4 examined institutional experiences in addition to preentry variables, after controlling for demographics. To determine the likelihood of a mediation effect for institutional experiences, we examined the difference in coefficient values for preentry variables from Model 3 to Model 4 for each hierarchical regression that predicted PSE completion.

Missing Data

To impute missing data, we employed the deductive imputation approach, which is used when missing responses can be deduced from responses to other items (Brick & Karlton, 1996). The

NLTS2 database used in this study contains responses from multiple surveys, some of which asked the same questions at different points in time. It was therefore possible to deduce a missing item based on the same participant's response in a previous wave. For example, in the program survey for Wave 2, the variable "Instructional settings for language arts (if received): general education classroom" provides data on whether a student received language arts instruction in the general education setting. If a response to that item was missing in Wave 2, its value could be deduced using the response to the similar item in the program survey for Wave 1: the variable "(npr1A3a_1) Instructional settings for language arts (if received): general education classroom."

Results

The sample for this secondary analysis of NLTS2 data consisted of 1,180 students who were enrolled in PSE during the Wave 4 data collection period, representing 47.2% of the original NLTS2 sample. Students in this sample were more likely to be White (72.5%), male (58.9%), and have LDs (70.5%). In the primary sample, more youth came from households with annual incomes exceeding $50,000 (46.8%) than from households of medium income (35.9%) or low income (17.3%). In addition, a large majority of the youth from the primary sample (84.7%) came from families in which only English was spoken at home. Table 1 presents the descriptive characteristics of both the primary sample and their peers who were excluded from this study, that is, those who were not enrolled in PSE during Wave 4 or who had not completed PSE by Wave 5. A comparison of the proportion of youth in the primary sample to peers who were excluded indicated no statistically significant differences. Results are presented in Table 2.

Table 1
Comparative Summary of Student Demographic Characteristics

Characteristic	Primary sample (N = 1,130)		Excluded sample (N = 1,170)	
	Weighted (%)	Unweighted (n)	Weighted (%)	Unweighted (n)
Gender				
Male	58.9	690	55.6	750
Female	41.1	440	44.4	420
Ethnicity				
White	72.5	800	74.9	830
African American	13.6	150	11.4	190
Hispanic	11.1	150	10.7	140
Other	2.8	40	3	30
Household income				
$25,000 or less	17.3	190	29.5	290
$25,001–$50,000	35.9	270	24.9	300

Characteristic	Primary sample (N = 1,130)		Excluded sample (N = 1,170)	
	Weighted (%)	Unweighted (n)	Weighted (%)	Unweighted (n)
More than $50,000	46.8	580	45.6	504
Primary disability				
Learning disability	70.5	100	66.3	130
Speech impairment	6.6	150	4.1	120
Other health impairment	5.3	120	6.6	180
Other disability	17.6	770	23	750
Language other than English spoken at home				
Yes	15.3	200	13.8	180
No	84.7	910	86.2	970
Education status of mother				
Less than high school	19.7	90	9	110
High school graduate or GED	18.2	230	32.2	350
Some college	30.7	330	29.5	310
Bachelor's degree or higher	31.4	410	29.4	310

Note. The primary sample consisted of youth who participated in the National Longitudinal Transition Study-2, who were enrolled in postsecondary education during the Wave 4 data collection period, and who had completed postsecondary education by Wave 5; youth in the excluded sample did not meet at least one of the two latter conditions. Unweighted frequency values (n) have been rounded to the nearest 10, in accordance with requirements of the Institute of Education Sciences. GED = general education development.

Table 2
Predictors of Postsecondary Education Completion

Variable	Wald's F	df	OR	P
Disability	2.285	3	—	.082
Speech impairment vs. LD	—	—	122.84	—
OHI vs. LD	—	—	45.96	—
Other disability vs. LD	—	—	6.77	—
Age (in years)	1.873	3	—	.137

Variable	Wald's *F*	*df*	*OR*	*P*
15 vs. 13 to 14	—	—	10.52	—
16 vs. 13 to 14	—	—	0.90	—
17 vs. 13 to 14	—	—	0.13	—
Ethnicity				
Non-White vs. White	3.056	1	9.67	.083
Income	1.246	2	—	.291
$25,001–$50,000 vs. less than $25,000	—	—	17.93	—
Over $50,000 vs. less than $25,000	—	—	21.63	.477
Gender	1.246	1	2.0	.266
Self-advocacy	4.701	2	—	.011
Did not attend or was present without input vs. took a leadership role	—	—	0.17	—
Provided some input vs. took a leadership role	—	—	0.11**	.006
Grade point average	0.018	1	1.1	.892
Employment	14.039	1	75.19**	.001
Language arts	3.138	1	0.18	.079
Primary goal				
Prepare for postsecondary education	1.222	1	2.36	.479
Develop vocational skills	4.901	1	0.02*	.028
Participated in any extracurricular activities	5.013	1	0.02*	.027

Note. LD = learning disability; OHI = other health impairment.
* $p < .05$. ** $p < .01$.

Predictors of PSE Completion

In our first hypothesis, we argued that PSE completion could be predicted by 12 preentry variables: age, ethnicity, disability, income, gender, self-advocacy, language arts, employment, extracurricular activities, PSE goal, vocational goal, and high school GPA. In line with that hypothesis, we found that a combination of these variables significantly predicted PSE completion, $F = 2.915$, $df = 15$, $n = 313$, $p < .001$. Our model correctly predicted 91.4% of youth who did not complete PSE, 81.4% of youth who did complete PSE, and 87.4% of all cases. In addition, the preentry variables in our regression model accounted for 70% ($R^2 = .700$) of the variance in PSE completion.

We found that four variables in particular significantly predicted PSE completion for students with disabilities. Students who provided input in IEP meetings without taking leadership roles were less likely to receive a diploma, certificate, or license from PSE institutions than students who assumed leadership roles, $p < .05$, $OR = .11$. Students who participated in a work-study program during PSE or paid work while in high school were more likely to complete PSE than those who did not participate, $p < .01$, $OR = 75.19$. Youth who participated in extracurricular activities were less likely to report PSE completion than those who did not participate, $p < .05$, $OR = .02$. Youth whose primary transition goal was to develop vocational skills were less likely to complete PSE than youth who did not have that goal, $p < .05$, $OR = .02$.

Institutional Experiences Associated with the Development of Social Integration

In our second hypothesis, we argued that the relationships between the preentry variables and PSE completion would be mediated by institutional experiences associated with the development of social integration. To test this hypothesis, we employed Baron and Kenny's (1986) three-step procedure for the application of regressions:

1. Regress the mediator onto the independent variable to show that it is possible for the two variables to be causally linked (path a).
2. Regress the dependent variable onto the independent variable to show that this causal relationship is also probable (path c).
3. Regress the dependent variable simultaneously onto the independent variable and the mediator to show that the mediator is related to the dependent variable, even when the independent variable is statistically controlled (path c′).

Our hypothesis of a mediation is supported because paths *a* and *b* accounted for a significant proportion of the effect of the independent variable on the outcome measure.

Mediation Paths

Path a. The first step in the causal step approach is to determine whether the independent variables are significantly related to the potential mediator. To test this, we developed a regression model that estimated the direct effects of the preentry variables on institutional experiences associated with the development of social integration; in addition, all the demographic variables and self-advocacy were recoded and entered into the model as dichotomous variables. The relationships among these variables are presented in Table 3. Significant predictors of institutional experiences associated with social integration included annual household income and gender. Holding other variables constant, male students had lower scores on institutional experiences associated with social integration than female students did, $p < .05$, $\beta = -4.11$, while youth from families with annual incomes of less than $50,000 had higher scores than students from families with greater income, $p < .05$, $\beta = 4.57$.

Paths b and c′. In the second step of Baron and Kenny's (1986) approach, the potential mediator must be shown to be significantly related to the outcome measure, holding other independent variables constant. To test this, we developed a regression model that examined the odds of graduation for students who participated in institutional activities associated with social integration. We did not find a significant relationship between these experiences and graduation,

$p = .924$, meaning that these experiences do not serve as a mediating variable. Consequently, we could not proceed with Baron and Kenny's third step, involving path *c-c′*.

Table 3
Regression Analysis for Predictors of Institutional Experiences Associated with Social Integration (Path a)

Variable	β	Wald's *F*	*df*	*t*	*P*
Age	0.538	0.102	1	0.659	.749
Disability	−1.345	0.499	1	−0.707	.481
Ethnicity	−1.014	0.237		−0.487	.627
Gender	−4.114*	6.691		0.747	.011
Household income	4.566*	4.828		2.197	.029
Self-advocacy	2.975	1.566		2.705	.213
Grade point average	1.848	0.769		0.877	.382
Language arts	1.308	0.153	1	0.391	.696
Employment	0.350	0.044		0.209	.835
Primary goal					
Prepare for postsecondary education	−1.131	0.256		−0.506	.641
Develop vocational skills	2.774	1.436		1.198	.233
Participated in any extracurricular activities	3.509	1.352		1.163	.247

* $p < .05$. ** $p < .01$.

Discussion

The purpose of this study was to explore the antecedent conditions that contribute to PSE completion for students with disabilities, considering institutional experiences associated with the development of social integration. Our first research hypothesis considered the direct effects of preentry variables on PSE completion, while our second hypothesis focused on institutional experiences associated with social integration as potential mediators in the relationship between preentry variables and PSE completion. We identified several patterns of relationships between four preentry variables (self-advocacy, extracurricular activities, vocational transition goal, and employment) and PSE completion for students with disabilities. To examine these relationships, we relied on Tinto's (1975, 1987, 1993) student integration framework, which proposes a causal sequence of events leading to a student's departure from a PSE institution.

Our analysis revealed that the odds of PSE completion were higher for students who demonstrated self-determination skills, as measured by participation in leadership roles in an IEP

during high school. This finding mirrors previous research demonstrating a positive relationship between postschool success and self-determination (Barber, 2012; Getzel, 2014; Ju et al., 2017; Test et al., 2013). For example, in their seminal study, Wehmeyer and Schwartz (1997) found that students whose scores in high school indicated a higher level of self-determination were more likely to have experienced a greater number of positive adult outcomes, including a higher likelihood of being employed and earning more per hour, than those whose scores indicated less self-determination.

Our finding regarding students who took leadership roles in their IEPs is particularly noteworthy given that such roles have also been associated with positive transition experiences and outcomes. For example, Van Dycke (2005) theorized that encouraging students to act in a self-determined manner in IEP meetings would support the development of comprehensive vision statements for the future. It also impacts other IEP team members, in that they gain better knowledge about the meetings and the student (Martin et al., 2004). Similarly, Wagner et al. (2012) noted that student participation in transition planning is a good opportunity for students to learn and demonstrate self-determination.

It is important to highlight, however, that less than 12% of the students included in the current study took leadership roles in their IEPs, a disappointing but unsurprising finding reflected in other research, which shows that even though more students may be attending meetings, few actively participate (Greene et al., 2006; Mason et al., 2004). It is possible that some of the students with disabilities who want to attend PSE are not well prepared to assume leadership roles in IEP meetings: Without direct instruction and support regarding the purposes and procedures of these meetings, students participate relatively little in their IEPs (Martin et al., 2006; Mason et al., 2002).

Our analysis also found that students who participated in a work-study prorgram or in paid work while in high school were more likely to report completing PSE than their peers who did not participate in these activities. This finding is novel in the sense that participation in some type of paid employment has traditionally been associated with improved postschool employment outcomes for youth without disabilities (Carter et al., 2012; Mazzotti et al., 2015; Wagner et al., 2014), not with PSE success for youth with disabilities. To our knowledge, very little research has been conducted regarding this latter area and employment during high school; however, the available research on students in the general population presents a mixed picture of the perils and benefits of paid employment during that period. For example, Holloway (2001) noted that students who balanced school and work by limiting their work hours gained valuable time-management skills that enabled them to work when they went to college. Conversely, other researchers have suggested that high school students who work at paid jobs attain lower levels of academic achievement than their peers and are more likely to have lower academic and career aspirations (Marsh & Kleitman, 2005; Rothstein, 2007). Additional research is needed to clarify the relationship between paid employment and PSE success for students with disabilities.

A third finding of our analysis is that the odds of PSE completion were lower for youth with disabilities who took part in extracurricular activities while enrolled in high school. We were somewhat surprised to encounter these apparent detrimental effects, given the findings of previous studies indicating a positive relationship between extracurricular involvement and

academic performance (Eccles et al., 2003; Fredricks & Eccles, 2006; Mahoney et al., 2003). On the other hand, scholars such as Feldman and Matjasko (2005) have suggested a curvilinear relationship that includes a point at which participation in too many extracurricular activities is detrimental to an individual's well-being. In addition, other research using the NLTS2 data has indicated a lack of association between participation in extracurricular activities and PSE success outcomes, such as Schoffstall et al.'s (2016) study examining students who identified as deaf or hard of hearing; in that study, however, Schoffstall et al. did note that overall involvement in extracurricular activities significantly predicted independent living outcomes. Even though participation in extracurricular activities may be positively correlated with outcomes such as social skills (Antia et al., 2011), independent living, and academic performance, current evidence does not indicate a positive impact of such activities on PSE outcomes.

A fourth finding of our analysis is that the odds of PSE completion were lower for youth whose primary transition goal was to develop vocational skills, which may suggest that PSE success depends on other factors. This finding is interesting because vocational programs generally have a greater focus on preparing individuals for paid or unpaid employment in current or emerging occupations. It is likely that students in our study whose transition experiences focused on developing vocational skills may have met the vocational goal of obtaining employment without necessarily attaining exit credentials in PSE. In addition, among students whose primary transition goal was developing vocational skills, the majority were identified as having ID or autism, which have historically been associated with some of the worst PSE outcomes.

Because there was no significant relationship between the proposed mediators and the outcome measure, a mediation analysis was not tenable. Therefore, it appears that institutional experiences associated with the development of social integration do not serve as a mediating variable in the relationship between preentry variables and PSE completion.

Limitations

The conclusions we have presented should be interpreted in light of this study's limitations. First, this study involved a secondary analysis of data from an existing study; as such, variables were included in this study based on the availability of variables measured in the NLTS2 and their perceived match with the constructs discussed in Tinto's (1975, 1987, 1993) student integration model. This in turn affected our ability to measure institutional experiences associated with the development of social integration, which we were not always able to do adequately, as we often had little choice in selecting variables to define students' social experiences in PSE. Second, due to the large scope of the NLTS2, questions asked about particular experiences often had limited depth. Finally, the sample for this study included students who enrolled in a variety of PSE settings, which could partially explain why we did not find statistically significant associations between certain independent variables and PSE outcome: because the preentry variables we examined likely have different implications for students enrolled in different PSE settings.

Implications for Policy and Practice

Though provisional, findings from this study suggest several courses of action for transition personnel and practitioners who work with students with disabilities who plan to transition to

PSE settings. First, it is important for transition practitioners to consider the right constellation of factors known to impact the PSE outcomes of youth with disabilities. Our analysis of NLTS2 data suggests that PSE outcomes for students with disabilities can be improved if students engage in transition experiences that address self-advocacy, participate in work-study programs or paid employment, and set academic achievement and transition goals related to PSE. In line with this conclusion, IEP teams should offer appropriate guidance to students and families regarding transition goals, given that such goals have serious implications for PSE outcomes.

The strong linkage between active participation in IEP meetings and improved PSE completion rates has implications for school systems as they help students with disabilities and their families to navigate the transition to PSE. Schools should train teachers to identify opportunities for teaching self-advocacy skills through the IEP process. These opportunities should support youth with disabilities in assuming leadership roles, as leading an IEP meeting provides a real-life opportunity for students to learn and practice critical self-determination and other related skills that contribute to PSE success. Currently, there is a growing collection of curricular materials that teachers can use to promote student-led IEPs (Test et al., 2000), as well as strategies they can use to encourage students to play an active role in IEP meetings (Hawbaker, 2007).

The Individuals with Disabilities Act (IDEA; 2004) requires that local education agencies invite youth with disabilities to attend an IEP meeting if a purpose of the meeting will be to consider the student's postsecondary goals and the transition services needed to assist them in reaching those goals. The intention behind this requirement is to ensure the transition process is driven by the student's goals and preferences so that the student's and their family's aspirations for the future are reflected in the transition goals. Our findings, however, indicate that this intention is not being realized for many students served under IDEA; for example, less than 12% of students involved in IEP meetings were reported to take leadership roles. Consequently, federal policy on transition planning should focus on promoting the meaningful involvement of students and families in IEP/transition planning processes.

In response to the need for early employment experiences, state and local policy leaders are encouraged to increase funding for the development and implementation of transition programs, including coordinating services with community partners involved in supporting internships, work experiences, and service learning for students with disabilities. Such opportunities may engage youth and help them make connections between their studies and future PSE and career goals. Policy leaders can also support community partners who employ or provide internship opportunities for students in transition programs by advocating for incentives such as tax breaks.

Though the findings we have presented here are preliminary, they highlight the need for future research to examine their implications in greater detail. Consequently, policy efforts should focus on strengthening support for the field to conduct this research, including through increased funding. Major developments in special education, especially those related to transition planning and self-determination, occurred when the U.S. Department of Education dedicated funding to support research and development in those areas. A priority for the future should be to critically examine the impact of PSE for youth with disabilities as well as the factors that improve PSE completion.

Conclusion

Because individuals who enroll in, but do not complete, a postsecondary program fail to realize the full employment and earnings benefits of being a college graduate (Ma et al., 2016), long-term PSE success continues to be a critical concern among stakeholders. This study examined a range of in-school services, college experiences, and PSE completion among students with disabilities. Although limited conclusions can be drawn from this investigation, our results underscore the importance of students' self-advocacy, as measured by their leadership roles in IEPs, and students' participation in a work-study program or paid employment as factors that can facilitate successful PSE outcomes.

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Teachers' Perceptions of the Effects of Remote Learning

Marissa Cordaro, MPS

Abstract

This study looked to examine the effects of remote learning on teachers' curriculums. In the study, the researcher sought to examine how teachers have had to adjust their curriculums and lessons in this time of remote learning to make sure they are reaching all students. Previous research has been done on this topic that has been both critical and supportive. A major theme amongst the critical research includes that communication has been more challenging, and amongst the supportive research, there is a multitude of technology options available. This type of teaching and learning has been an adjustment for everyone, students and teachers alike. The methodology used was a Google Forms survey because it remained anonymous and was open to all teachers. The survey was left active for seven days and then closed. A Google Forms feature, the frequency of responses, was used as an analytic method.

Teachers' Perceptions of the Effects of Remote Learning

This study sought to examine what the effects of remote learning are on a teacher's curriculum. The study will examine both the strategies that worked well/are working well for teachers in this time of remote learning while also discussing which strategies have not worked. In the study, the researcher also examined how teachers have had to adjust their curriculum in this time of remote learning to make sure that what they are planning to teach can reach all students.

The study is warranted because remote learning is prevalent in our everyday lives today. Elementary, middle, high school and college students have had to adjust their lives to learn in a remote environment. Remote learning is not easy for a college student, so you could only imagine the effects that it has on younger students. This type of teaching and learning is new to all, thus there has been an adjustment period for everyone, students, and teachers alike. Therefore, the study examined the effects on the teachers and the adjustments and changes that they have had to make to their lessons and curriculum.

The method that was used in this study was a survey. The survey remained anonymous and was open to all teachers with a minimum of one year of teaching experience and who have been teaching in this time of remote learning. The survey was conducted using an online format both by distributing it with permission, throughout the district that the researcher works in using a confederate, as well as posting the survey on the researcher's social media.

Bozkurt and Sharma (2020) emphasized how the coronavirus pandemic has affected schools in the switch to remote learning. Due to the pandemic, there are approximately 1.5 billion learners who had to learn remotely because of the closures that took place because of the pandemic (Bozkurt & Sharma, 2020). Bozkurt and Sharma (2020) discussed important definitions. Bozkurt and Sharma, 2020 stated, "online distance education involves more than simply uploading educational content, rather, it is a learning process that provides learners agency, responsibility, flexibility, and choice. It is a complex process that requires careful planning,

designing and determination of aims to create an effective learning ecology" (Bozkurt & Sharma, 2020, p. ii). Teachers are tasked with the responsibility of ensuring that their students are still learning the required content, while also trying to incorporate remote student interaction that will aid in a student's development.

In the article, "Online and remote learning in higher education institutes: A necessity in light of COVID-19 pandemic," Ali (2020) discussed how online learning is necessary during the times that we live in right now. The transition to online learning is a technological adjustment but also a teacher's approach to teaching and the instructional methods they use. The key to success in remote learning is preparation regarding curriculum and assessment practices (Ali, 2020).

Distance and remote education are similar terms but there are differences between them. "Distance education is an interdisciplinary field that has evolved over time and that has served well in responding to learning needs and in guiding open educational practices (Bozkurt, 2019a; 2019b; Zawacki-Richter et al., 2020)" (Bozkurt & Sharma, 2020, p. ii). Remote education means that there is a spatial distance between teachers and learners, while distance education provides different means to engage students in their learning (Bozkurt & Sharma, 2020).

Marshall, Shannon, and Love (2020) discussed how the effects of the pandemic and the switch to remote learning have impacted the teachers. Marshall et al. mentioned that, "previous research has shown that while many teachers find online instruction to be rewarding, those who are new to it tend to report having to deal with increased workloads and a variety of challenges related to using the technology, communicating with students, organizing synchronous sessions, and measuring student outcomes" (Choi & Park, 2006; Conceição, 2006) (Marshall et al., 2020, p. 47). Research studies have shown that online learning has been pleasing for some teachers and more challenging for others. For teachers who are not accustomed to technology and for those who did not have time to learn the technology, the shift to remote learning has given them many challenges that they have had to try to overcome. The switch to remote learning because of the pandemic was admitted by Marshall et al. to be emergency remote teaching because it is a temporary shift, and it was not planned (Marshall et al. 2020). This sudden change has been a challenge for teachers.

The COVID-19 pandemic has been a challenging time for many individuals. During the time of uncertainty, as teachers we can consider what is the heart of a teacher. Koerner discussed this idea that between a teacher and a student, there needs to be connectedness in the relationship (Koerner, 2020). There also must be a connection between the teacher, student, and subject. Koerner proclaimed that connectedness is crucial for successful teaching. Teachers should have an optimistic perspective because it will be more authentic, and it can be an inspiration for our students (Koerner, 2020). As we teach remotely throughout the pandemic, we should take our students' interests into account, and that is what should be used to guide our instruction. Koerner said that, "for educators, regardless of role, our purpose is to connect with other human beings through our teaching" (Koerner, 2020, p. 173). We can positively impact our students through our teaching, which is at the heart of a teacher. In the following section, we will look at previous research on the effects of remote learning on teachers.

Literature Review

Previous research that has been done has proposed that the sudden switch to remote learning has had an impact on teachers, whether supportive or critical. Teachers have experienced many challenges that they have had to overcome, including technological issues, still they have been able to adapt to the technology and make their remote classrooms a fun and engaging place for students. A hindrance of online learning is the decrease in student-teacher action that is strengthened with face-to-face instruction (Park & Kim, 2020). This adaption to online learning has impacted teachers not just in the United States, but worldwide. Two themes emerged throughout examining the research. The following studies reflect the theme of research that is critical of remote learning.

Research that is Critical of Remote Learning

König, Jäger-Biela, and Glutsch (2020) examined how early career teachers maintained social contact with their students and the factors that influenced their teaching while schools remained fully online for the remainder of the 2019-2020 school year. Konig et al. discussed that during remote learning teachers had to utilize a variety of digital tools as well as employ new instructional strategies to help make online learning successful for themselves and their students. Amongst trying to learn the technology, teachers are responsible for trying their best to keep a line of communication open with their students. König et al. mentioned in their article, that it is important to look at a teacher's self-efficacy about the situation because that will be a predictor of the success that remote learning has for the students (König et al., 2020). The findings of their study showed that teacher self-efficacy is important in achieving the goals you aim to achieve. It was also concluded that professional development is necessary for teachers of all career statuses because the results showed that even early career teachers did not have all the digital skills they needed while teaching remotely (König et al., 2020).

Daniel (2020) discussed the challenges that this pandemic has had on education and teachers. Daniel stated that since teachers are going to be teaching remotely, and we do not know the extent of how long it will last, in their curriculum, teachers should include varied assignments putting COVID-19 in different contexts, historical and global. Teachers should also create their assessments first to help design their curriculum. Our education systems have grown in the last five decades, but the biggest challenge has been the COVID-19 crisis (Daniel, 2020). In the article, it discussed how teachers should work with what they know and focus on giving their full attention to trying to reassure students, rather than trying to learn new technology in a short amount of time. Some schools have had plans in place to implement technology more in their teaching practices. Still because they were meant to be enacted systemically, the sudden change to remote learning did not allow for the digital issues to be uncovered and fixed (Daniel, 2020). As a result of this, teachers did not have the proper training. When planning curricula, teachers should make learning interesting for the students by using a multitude of different assignments, while also ensuring that their curriculum is still aligned with the required assessments.

Marshall, Shannon, and Love (2020) noted that while people support online learning as viable, many people still view it as inferior. There are both supporters of remote learning as well as opposers who believe that face-to-face interaction is most important for successful teaching and learning. Marshall et al. (2020) emphasized that this transition to remote learning was not a

normal one due to the major circumstances that caused it, the COVID-19 pandemic. In this study, teachers were surveyed about their experiences teaching remotely. A challenge that most of the teachers faced was that they had never taught online before and many of them did not have the proper training (Marshall et al., 2020). Many teachers faced a challenge of not being able to provide the best instruction partly because they did not have a lot of materials that were in their classrooms. Another challenge that Marshall et al. (2020) discussed was keeping their students motivated.

Bubb and Jones (2020) discussed the perspectives that different stakeholders had during the transition to remote learning because of the coronavirus pandemic. A major concern amongst teachers was the pressures that they faced, due to the pandemic. Bubb and Jones stated, "they were concerned about difficulties caused by their unfamiliarity with how to deliver high quality teaching and learning remotely, without the immediate verbal and non-verbal feedback that the classroom offers" (Bubb & Jones, 2020, p. 210). In the classroom environment, teachers can easily gauge student understanding or difficulties based on facial expressions, body language, and questioning. Bubb and Jones mentioned that the Education Endowment Foundation concluded that during the times of remote learning, the quality of a teacher's instruction is more important than the delivery of the lesson (Bubb & Jones, 2020). Lessons should be meaningful and memorable for students. Educational technology had to be adopted by teachers, and this was harder for schools/districts that did not have a major focus on technology before the pandemic.

The coronavirus pandemic may also be causing anxiety in teachers. Li et al. conducted a study in which they found that school closures exacerbated many negative emotions in teachers. In the study, 88,611 teachers were included, of those, 12,110 showed anxiety during the COVID-19 pandemic. The prevalence of anxiety was higher in women than men, and it is suggested that anxiety may increase greatly because of the pandemic (Li et al., 2020). Most of the participants indicated a level of anxiety, with the most being mild anxiety, and the overall prevalence of anxiety among teachers was 13.67%.

There are 300,000-400,000 public school teachers who live in homes without digital devices or internet access (Martinez & Broemmel, 2020). Leaders and teachers in K-12 schools demonstrated identifying immediate priorities and communicating with the individuals involved during the crisis. In studies surrounding schools in crisis, it was discussed that effective communication is necessary. Before a teacher can help students manage the pandemic we are facing, they must first address and cope with their own anxieties about the situation. Stressors that teachers faced conducting remote learning included the uncertainty of the situation, having to adjust to remote learning and technology tools, as well as a lack of internet access. Many teachers were also concerned with the mental health of their students, and the effects it would have on equity and food supply.

Teachers were considered essential workers during the coronavirus pandemic. Effects on teachers that were identified included confusion and stress. The stress on teachers can lead to teacher burnout in the form of lower confidence in themselves and the possibility of quitting. Remote learning has been a challenge for many teachers, and this, in part, has to do with some teachers having competing responsibilities at home caring for their children or family members (Kim & Asbury, 2020). A teacher's identity is multifaceted, with six components: self-image,

motivation, commitment, self-efficacy, task perception, and job satisfaction. A theme that was found amongst many teachers was the uncertainty of not knowing what was going to happen moving forward. Many teachers had a challenging time because many students did not engage in the activities that they were using. Another source of anxiety for teachers was their concern for vulnerable students. Teachers like to organize and plan; however with the uncertainty of COVID-19, it disrupted this.

There are traditional technologies that teachers use in the classroom, like Smartboards or PowerPoints, but it is the integration of technologies that will create a strong online learning environment (Spoel et al., 2020). Most schools and teachers' technology systems were not prepared to make the switch to remote learning as quickly as it needed to be done. It has been shown that developing lessons to be used with online teaching was more difficult than expected. A factor that plays a role in whether teachers incorporate technology in their classrooms is their perception of technology. Many teachers were unprepared due to the short transition period of switching to remote learning due to COVID-19. After the study was done, teachers mentioned that it was difficult to monitor a student's well-being and if they were learning and understanding.

Many teachers are trained in the traditional approach to teaching, including assessment practices. In recent years, there has been a government presence in providing money for equipment for schools, students, teachers, and administrators to help integrate the technology into education (Leacock & Warrican, 2020). It has been shown that the previous use of technology in education was limited to sole control of it being placed on the teachers, where they would use it to present information to students. When schools had to switch to online teaching, a concern for teachers was how they would give examinations to their students to assess student knowledge. A huge challenge for teachers has been engaging students in online learning as well as knowing and learning and being prepared to teach students using different modes. Teachers who were teaching in the COVID-19 pandemic had to overcome adverse challenges and use technology as a tool in their classroom (Leacock & Warrican, 2020).

Due to the coronavirus pandemic, institutions, and schools must accept technology and make use of it. The concern during this time was if schools could embrace online learning in the enormous realm that would be needed. Areas of difficulty include downloading errors, login issues, and audio and visual problems. Another difficulty is that teachers cannot give all students the personal attention that they need (Dhawan, 2020). During remote learning, it is also hard for our students to practice effectively what we have been teaching them. Teachers are also experiencing stress, fear, anxiety, depression, and insomnia. Remote learning has made it challenging for teachers to communicate directly with their students and to experience human connection. Teachers were tasked with the difficulty of changing the lessons that they would use in the physical classroom to be able to be taught in an online capacity that aligns with the curriculum while engaging students.

Teachers have been critical of remote learning in the sense that there is now decreased interaction, problems with infrastructure, and a lack of equipment. After the health sector, education is the second most affected due to the COVID-19 pandemic. Disadvantages to remote learning include schedule and time limitations, infrastructure issues, economic difficulties, and

network problems (Hebebci et al., 2020). While teachers do not believe that remote learning is as effective as face-to-face instruction, it is necessary during these times to help students continue their education. A major limitation has been that the teachers and the students are not learning in the same environments, and there is not the possibility of student follow-up. There are mixed opinions regarding lesson length.

Remote learning has challenges for all students and teachers, but particularly for those who are disadvantaged. Ferri et al. found technological, pedagogical, and social challenges through their research (Ferri et al., 2020). Technological issues have to do with unstable Internet connections, and if students and teachers do not have the devices needed. Other technological challenges include both the teacher and the student lacking skills in using technology as an educational resource. Pedagogical challenges include a teacher's lack of digital skills, and the absence of a teacher's social presence within the classroom space. Another pedagogical challenge includes having to find interactive materials to engage and motivate students, as well as a limit in providing student feedback. A social challenge includes the lack of interaction between a teacher and their students (Ferri et al., 2020). Ferri et al. mentioned in their article the importance of providing teachers with the adequate training that they need to help support them through this new time of finding interactive online tools to use in their lessons. A challenge that teachers face is how to support special needs students with learning activities that they can achieve.

The switch to remote learning has presented a greater challenge for special education teachers, especially for those with significant support needs. Some of the challenges mentioned include inequity in resources, needing to rely on at-home support, and changes to the definition of what it means to be a teacher (Schuck & Lambert, 2020). Teachers were uncertain about their students' access to resources and the grading process. Another challenge for special education teachers was how to increase student engagement. The inequity of support and resources was a challenge that teachers faced because there was a variation as to how much support students received at home. This was a challenge because some students in the classroom needed a significant level of assistance, and if they did not have support at home, it was difficult for them to make the meeting. Another challenge that occurred was that teachers had to rely on at-home support, and in turn, they were made aware that what their students were learning in school was not being applied in their home environment. Teachers had to adjust their instruction to be taught online, and they were also designing professional development for parents to help them become involved in their child's education while at home (Schuck & Lambert, 2020). A challenge that teachers experienced was how their teaching itself changed. The use of technology took away the relationship between teacher and learner, and it was a barrier to communication. Teachers also were not sure about how to provide their students with accountability and feedback. A sentiment that is felt by many, but also the participants in this study, was loneliness and disconnect. Thus, we need to acknowledge how our teachers are feeling during this time (Schuck & Lambert, 2020).

The COVID-19 pandemic had mental health challenges for children and adolescents. Mental health has significant impacts on children as it affects their emotional well-being and social skills. In "Teachers' perceptions of the impact of COVID-19 pandemic and virtual teaching on the physical and mental health of children in Kashmir: A qualitative study," Bashir et al. (2023)

discussed how the pandemic negatively impacted children and how teachers perceived the switch to remote learning. There were 16 teachers interviewed in this study, and among those, 76% of them were not comfortable with online teaching. Bashir et al. stated, "the majority of the teachers felt that online teaching is not productive as the students are not much serious in online classes and also online classes are found to be less interactive when compared to offline" (Bashir et al., 2023, p. 421). There was a lack of attention when teachers were teaching online. Teachers alike felt that the transition to online teaching was not a comfortable one for them. Online learning due to the COVID-19 pandemic altered the established routines of teaching, leading the students to be less focused. The teachers felt that with the switch to online learning there were barriers in child development. The attention and concentration of the students dropped with online learning. Bashir et al. stated, "on the contrary, in offline classes, students have direct contact with a physical teacher during class. This allows the teacher to read students' body language, and performance by cross-examination and the teacher can find out if they understand what they teach in classes. By assessing children in the classroom, the teacher can teach the student and make them understand in easy ways" (Bashir et al., 2023, p. 423). When in the classroom, there is more student engagement and teachers can better assess the needs of their students. Another category discovered in reviewing the literature was the research that supports remote learning.

Research that Supports Remote Learning

Wright (2021) discussed the benefits of remote learning. Demonstrations in science classes, as mentioned in this article, are crucial because they motivate and engage the students while they are learning science. Wright discussed conducting online science experiments through Google Meets or Zoom provides students with the meaningful and memorable learning that they need (Wright, 2021). During this time that teachers are teaching from home, a document camera can be used to display different instructional tasks to your students, whether it be the experiment or a formula. Wright mentioned that by conducting a live experiment in front of the students, using the Zoom or Google Meets platforms, the students become engaged in the experiment and ask many questions. There are many different technologies that teachers can take advantage of in their remote classrooms. One of these technologies mentioned by Wright was Flipgrid, which is a platform where students can record videos of themselves addressing a particular question. Flipgrid can be used as a tool to build community in your virtual classroom (Wright, 2021). Teachers can then have their students watch their classmate's videos and respond to them to incorporate interactions in their virtual classroom. Science teachers, specifically, can conduct different interactive experiments with their students, which can result in motivating the students to attend the remote class more.

Bubb and Jones (2020) also discussed the teacher's positive experiences with remote learning. Although there have been many uncertainties throughout this crisis, teachers worked their hardest to be positive and provide their students with a sense of normalcy and support them in any way they can (Bubb & Jones, 2020). Federici and Vika (2020) found that many teachers were still able to provide teaching and learning, maintained contact with students and parents, as well as a safe learning environment. Teachers have also been able to keep an open line of communication with their students and parents, leading to a positive learning environment for all. Another positive advantage to remote learning for teachers was that they had more time to plan their lessons. The study that was conducted found that teachers had become more proficient in using digital tools. The authors also discussed how teachers felt that they gave more useful

feedback to students while teaching remotely. Teachers felt that their relationships with parents were stronger. During remote learning, as discussed by Bubb and Jones, teachers incorporated creative activities that would be used to help engage their students (Bubb & Jones, 2020).

Using technology tools has been a benefit for students during the pandemic. The switch to remote learning because of COVID-19 was emergency remote training, defined as "a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances" (Falcone, 2020, p. 312). Content delivery to students was still possible during the switch because of instructional technologies that were made available to students and teachers. While it was difficult to not be able to walk around the classroom, to understand the non-verbal communication of students, if we reflect on this, teachers can realize that if they teach in an authentic way, then you are in the moment with your students. This will then allow teachers to recognize if students are understanding and can foster interactions. Falcone mentioned in her article takeaways that teachers should consider because we are teaching in such uncertain times. The takeaways include no teaching is perfect, experiment with new strategies, and to be authentic (Falcone, 2020). Resilience, as defined by Falcone, is "the ability to adapt to adversity or a stressful life event" (Falcone, 2020, 313). There is a link between positive emotions and resilience. The COVID-19 pandemic and the switch to remote learning is new for everyone, and as teachers, we can use the Dreyfuss model to understand that the change can happen in phases and that it will take us time to learn, but that is okay. The phases include, Novice, Advanced Beginner, Competence, Proficiency, and Expert (Falcone, 2020).

Moving from one medium to another, pedagogically, isn't always a smooth transition. Teachers have been using technologies like Zoom to try to replicate the in-person classroom in the remote teaching environment. Henriksen et al. discussed that Bruner's folk pedagogy concept should be considered when examining the quick switch to remote learning. His four pedagogies are Do, Know, Think, and Manage, and folk pedagogies are automatically a part of our teaching practices. The online context may lack non-verbal cues and situational familiarities, but using the concept of folk pedagogies, there are approaches teachers can use in their remote learning environments. One approach is to conceive teachers as learning designers meaning that they must recreate their lessons and provide students with supporting materials to guide them while they are learning asynchronously (Henriksen et al., 2020). Another approach is to embrace the affordances of video conferencing technologies. Depending on the online platform that you use for teaching, there are distinctive features that you can utilize. An example is the Chat function on Zoom or Google Meets, which can be used for communication back and forth between teachers and students or for students sharing their ideas with students (Henriksen et al., 2020). Teachers can foster communication and collaboration by using Zoom's whiteboard feature. The COVID-19 crisis afforded teachers the ability to examine new strategies and pedagogies that they can use across different platforms, not just in the physical classroom environment, as well as strategies that teachers can use if remote learning needs to occur at another time.

Gudmundsdottir and Hathaway (2020) discussed how 1.5 billion learners were affected by the school closures. Teachers were required to learn how to be an online teacher overnight. The findings showed that even though teachers were inexperienced and unprepared, they did have moderate preparation with digital tools and were willing to do what they could to make online as successful as they could for themselves as well as their students (Gudmundsdottir & Hathaway,

2020). Before the pandemic, it was found that most teachers did not have experience with online teaching. However, the teachers had positive attitudes and were willing to try out new strategies and pedagogical approaches and could cope as online teachers even with little to no experience.

A suggestion given by Marshall and Kostka (2020) was to use a Flipped Learning Approach while using remote learning. Marshall and Kostka defined flipped learning as "a model which inverts the traditional classroom by introducing course concepts before class, allowing educators to use class time to guide each student through active, practical, innovative applications of the course principles" (Marshall & Kostka, 2020, p. 2). Using this approach in the synchronous and asynchronous classroom is interactive and it emphasizes the teacher's role in the classroom. In the synchronous classroom, teachers can assign work to students where they take control to ask the teacher any direct questions that they have while working.

The COVID-19 pandemic has led teachers to find new ways to connect with students and transition to a new format of teaching quickly. Kaden conducted a study in which a single case study was used to examine how the coronavirus pandemic has impacted teachers. The teacher stated that previous experience using educational technology and collaborative administration were key factors in making the transition (Kaden, 2020). It was mentioned in the article how important it was for teachers to establish a routine for the students as well as provide them with timely feedback. Equity was the main focus of the lesson plans for this teacher when conducting remote teaching and connecting with his students during online classes was also important to him.

Bracho was a teacher during two major events in our country's history, one being the 2001 9/11 attacks and now today, the Coronavirus pandemic. Throughout both occurrences, there was a recognition that uplift was an essential part of a teacher's work, which included caring, empowerment, and advocacy (Bracho, 2020). Teacher professionalism was defined by moral and ethical standards in the 19th century. Now, teachers' identities are centered around standardization and testing practices. It is important to consider your students' emotional lives as teachers because teaching is not just about how we deliver lessons. A change that teachers can make to their classes is to incorporate mindfulness practices. The coronavirus pandemic has been an emotionally challenging experience for many teachers and students. We need to connect regularly with our students, take into consideration their emotions, and demonstrate that we care for them.

The COVID-19 pandemic has led to rising unemployment rates. While this is saddening for some, these unemployment rates may improve teacher quality. Teachers who enter the math profession during a weaker economy are more effective than those who enter a strong economy. During a recession, a teacher's pay is hardly ever cut. It was found that teachers who entered during a recession were more effective at raising their students' test scores than teachers who entered a career during a strong economy (West et al., 2020). Although many school districts might not even be considering hiring more teachers because of the monetary troubles that the coronavirus has caused, districts can now strengthen the workforce of their teachers, being that we entered a recession in February. Recessions are challenging for many; however school districts can look at the positive side and hire effective teachers.

Showing that we care for students can be demonstrated in many different forms, and it is especially important in the times that we are currently living in with the coronavirus pandemic. Being cared for is a fundamental human need. Teachers can show that they care for students by modeling, dialogue, practice, and confirmation (Jones, 2020). As teachers, our actions are constantly being observed by our students, therefore, if we show that we are caring, it will model for them that they should care too. Dialogue is two-way communication, and throughout the pandemic, teachers turned to their colleagues for advice and support during this uncertainty. Confirmations of teachers can encourage to their students that they are valued. Confirmation is encouragement for students because they can find goodness in them, motivating them to grow and develop. Teachers can help build character in their students by providing them with confirmations (Jones, 2020). It is crucial that during the pandemic, which has caused uncertainty for students and teachers alike, teachers focus on caring for their students and one another.

The findings of the study done by Park and Kim show that an interactive communication tool can help promote interactions between teachers and students (Park & Kim, 2020). Teachers are encouraged to use interactive tools to support student engagement. It has been shown that an advantage of computers is that there is an increase in student engagement. Looking at education through a constructivist perspective, teachers are recommended to create student-focused, collaborative environments because students learn best when participating. For students to be able to participate in effective interactions, there needs to be effective communication. The teachers' most important role during remote learning is to build their presence in the content, discussion, and activities they create (Park & Kim, 2020). There is a positive association between student satisfaction and teacher-student interaction. There is a direct relationship between a student's sense of teacher-presence during remote learning and student engagement in the material.

Teachers have been supportive of remote learning because education was still able to be conducted in a scheduled format. A benefit of remote learning is that it has flexible learning environments. There are many advantages to remote learning, including, sustainability of education, it provides lifelong learning, and the reduction of education costs (Hebebci et al., 2020). Remote learning offers shorter lessons and activities done outside of the classroom. Teachers can use remote learning as a time where they work on improving themselves and their teaching practices to incorporate more educational technologies.

Teachers who worked during remote learning appreciated effective communication from their administration. Teachers value student connections; thus, many of them tried to provide support to their students, especially at the beginning of the pandemic (Martinez & Broemmel, 2020). Many teachers had positive views on their self-efficacy due to the pandemic. It is important to recognize that teachers are committed to their profession and their students, and this crisis has even made some more committed.

Many teachers have turned to using social media to aid in the transition to remote teaching and learning. The social media site that was most frequently used was Twitter, and the two most popular hashtags were #RemoteTeaching and #RemoteLearning. Hashtags and Twitter were used to meet teachers' social, cognitive, and affective needs. Trust et al. discussed the benefits of using social media during unprecedented times. According to research, social media has been

shown to enable timely and situated learning for teachers (Trust et al., 2020). Through these hashtags, 36,788 tweets were made, and the final set for this study included 10,444. Most of the tweets were neutral or positive, and they focused on posting resources, using technology for teaching and remote learning, as well as specific advice on using different technologies, including Zoom, Google Meets, and more (Trust et al., 2020). Teachers used Twitter as a means of expressing encouragement for other teachers and sharing their experiences to help those reading. The results of this study showed that Twitter was used to support the transition to remote learning since teachers had to change their approach to teaching.

Ferri et al. (2020) discussed both the opportunities and the challenges that came about from the coronavirus. Remote learning is important in education because it still provides interaction, although it may not be done in person. While remote learning is not ideal for many, it has allowed individuals to teach and learn without an interruption to education (Ferri et al., 2020). Remote learning has created new opportunities as well as the ability to reflect on what is working within your educational system. It is important that through your remote learning environment, you build a sense of community and have interactive lessons that are engaging for students but also allow them to learn about their classmates and work with them. A positive of remote learning is that it can be used to complement face-to-face lessons.

While the two special education teachers included in these author's research do not favor remote learning, they believe that there is hope for it, as there is increased communication between teachers and parents (Schuck & Lambert, 2020). Remote learning, in general, can be beneficial to students, however the researchers are unaware of the extent of those benefits regarding remote learning with the coronavirus pandemic. These general benefits include having direct access to course materials and appreciating the flexibility in the online classroom.

Christensen and Alexander (2020) discussed how a school leadership team decided in 2006 that they would implement one Distance Learning Day a year to be prepared if a pandemic causes school buildings to be closed long term. A school can prepare for this by having teachers undergo professional development on technology tools. A decade ago, and still now, technology is an essential part of education, especially when the buildings are closed (Christensen & Alexander, 2020). When teachers were creating their lesson plans for the Distance Learning Day, they also incorporated activities that did not need to be done online, and they gave their students guidelines and expectations about the assignment. For a Distance Learning Day to be successful, teachers, students, and parents must be prepared. The benefits teachers reported about the Distance Learning Day included student autonomy, problem-solving and improved technology skills. Most of the teachers also reported that they were prepared, and teachers were more successful if they did not think that it was just another task that they had to do. A Distance Learning Day allows for self-directed learning, improved problem-solving skills, and increased communication with students and teachers. When teachers prepare these lessons, they determine what tools and resources are needed to teach remotely (Christensen & Alexander, 2020). When there is early planning, the confidence of the teachers rises.

When the switch to remote learning occurred due to the coronavirus pandemic, it was the first time teaching online for many teachers (Summers, 2020). A goal of remote learning was to find ways to create a more inclusive and equitable environment. Providing equity isn't just in terms

of physical objects, for example, computers and the internet, but it is also about creating an environment that is welcoming and supportive of all students. If teachers are trained in social emotional learning, it can help them build equity and self-efficacy to engage their students, regardless of the learning environment. Social-emotional learning is important because it helps us manage stress, become resilient, and be optimistic during uncertain times. It is helpful to know that if teachers participate in a virtual learning session, and they are disengaged, there is a good chance that their students will also be disengaged. In the next section, we will investigate the study's methodology.

Methodology

When this researcher conducted this study, they used a quantitative approach. The researcher used a survey designed to determine the effects that remote learning/teaching had on teachers due to the COVID-19 pandemic. The researcher chose to use a survey for the study because a survey allows people to remain anonymous and to feel more comfortable with giving honest answers, and it can reach more teachers. The participants in this survey include 63 teachers, with a majority of 68.3% being female, and almost all, 93.7% with a General Ed Certification. Teachers who participated in this study worked in elementary, middle, and high schools. Teacher demographics were derived from the data in the survey. Most of the respondents taught at the sixth-grade level, 27%. The results of the survey indicate that 79.4% of the respondents have greater than ten years of teaching experience.

For the sample, the researcher used a convenient/random sample group. The participants for the study were teachers, male or female, with a minimum of one year of teaching experience, and who have been teaching during this time of remote learning. This group was chosen because if they have at least one year of teaching experience, then they taught using face-to-face instruction before the pandemic and can relate to how the pandemic has impacted them and how they had to change their teaching. To ensure that a random sample group was being used, the link to the survey was posted on the researcher's Facebook account, as well as a confederate was used to distribute the survey in school buildings of the district where the researcher works.

The tentative timeline for data collection was that it took about five weeks to prepare the survey prior to its release. Once released, the survey was disseminated through the school and social media and was open for seven days before closing. The instrument that was used to collect the researcher's data was a Google Forms survey. The data was analyzed using Google Forms. Since Google Forms shows each item broken down into each individual question, it will show you the breakdown of each respondent's answers; it will be placed into pie charts and can be put into a spreadsheet for analysis. The data being analyzed revealed strategies that have worked and those that have not worked for teachers during this time of remote learning. The data analysis also provided a better understanding of the effects that COVID-19 has had on teachers and the changes that they have made to their curriculum and determine whether there are any correlations in teachers' responses.

Nasr (2020) discussed how during this time, many teachers can be compared to students in the sense that this time is new to them, along with having to learn about recent technology. Many teachers had to re-create their former lessons that were designed to be used face-to-face to be able to be used during remote learning across computers. It became a challenge for many

science and math teachers regarding how to deliver instruction remotely. The COVID-19 pandemic placed teachers in a distinct position, as students themselves, learning how to navigate online teaching. Although many teachers may not be comfortable with it, they had to use technology to help remote learning be successful. A method that a secondary science teacher used was creating self-paced modules that accommodated diverse learners (Nasr, 2020). A challenge for STEM teachers in using technology is that it is beneficial to help students learn; however, it is a disadvantage to authentic learning. The traditional classroom assessments, multiple choice and short answer, can no longer be used, rather group collaborations, video recordings, or photographs are used to assess students while learning remotely. Teachers can utilize the technologies that are popular with their students, encouraging their participation and creativity (Nasr, 2020). This time of COVID-19 is a challenge for both educators and students alike, thus creating an environment of care and humans-first, showing students that their teachers support them and will be flexible during these uncertainties. Connection and flexibility are two crucial characteristics to have in your remote learning environment. During the pandemic, teachers were students, and they learned and grew in using technology while needing to teach remotely.

The criteria used in designing this survey included 29 items to be answered using a Likert Scale. The Likert Scale was five point ratings including; Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly Agree (5); Never (1), Once a Month (2), Weekly (3), Few Times a Week (4), Daily (5); Strongly Disagree (1), Disagree (2), Don't Use/Never Use (3), Agree (4), and Strongly Agree (5); No Experience (1), Slight Experience (2), Some Experience (3), Moderate Experience (4), A Great Amount of Experience (5); and Never (1), Rarely (2), Occasionally (3), Moderately (4), All the Time (5). The focus of the study was on the experiences with different technologies, strategies, and adjustments to lesson delivery. Item 7 discussed assessing student learning, which comes from both Leacock and Warrican (2020), and Nasr (2020). Item 10 discussed online learning tools, which comes from Bubb and Jones (2020), Henriksen (2020) and Marshall and Kostka (2020), and item 15 discussed technologies, which came from Dhawan (2020), Henriksen (2020) and Trust (2020). Item 11 asked about the use of Flipgrid, and that comes from Trust (2020) and Wright (2021). Item 12 mentioned how it was challenging to maintain communication and motivation, which comes from Dhawan (2020), Hebebci (2020), Konig et al. (2020), Marshall et al. (2020), Martinez and Broemmel (2021), Spoel (2020), and Ferri (2020). Item 14 discussed if teachers felt they had more time to plan their lessons, which comes from Bubb and Jones (2020), and Kim and Asbury (2020). Item 17 talked about a pedagogy of care, which comes from both Jones (2020) and Nasr (2020). Item 18 talked about differentiating instruction, which comes from Marshall et al. (2020) and Spoel (2020). Item 21 compared remote learning with face-to-face instruction, which comes from Hebebci (2020) and Marshall et al. (2020). Item 22 asked teachers if they turned to social media, which comes from Trust (2020). Item 25 talked about establishing a routine, which comes from Kaden (2020) and Schuck & Lambert (2020). Item 27 discussed social emotional learning, which comes from Bracho and Kaden (2020). Item 28 discussed setting time limits, which comes from Dhawan (2020).

For this researcher's study, the researcher used questions to determine the effects that the COVID-19 pandemic had on teachers, focusing on what strategies worked for them and how they had to change their curriculum to adjust to the new teaching environment. These items

were developed by focusing on whether the teacher's turned to social media to find support during these times, if the teachers plan to use technology in their classrooms in the future, and the lesson delivery format. In addition to these questions the researcher also asked a few demographic qualifying questions so that the data can be accurately categorized. The study was conducted anonymously by using Google Forms, in which the researcher does not have access to the participant's email addresses or any other identifying characteristics. The study was also anonymous because the link was posted on social media, allowing anyone who meets the criteria to participate, and the distribution within the schools was done by a confederate who had access to the school staff, not the researcher. The respondents only participated if they felt comfortable doing so. The frequency of responses was used as an analytic method. In the next section, we will examine the results of the study.

Results

This survey aimed to determine the effects that COVID-19 has had on teachers and what strategies they use in the classroom and the ones they do not. A total of 63 respondents participated in the survey, with 68.3% being female, 30.2% male, and 1.6% who preferred not to answer. When respondents were asked if they were new or veteran teachers, 89.9% responded that they were veterans, and 11.1% were new teachers. Most of the respondents, 79.4%, indicated that they have more than ten years of teaching experience, 9.5% have between five and nine years, 4.8% have three to five years, and 6.3% have between one and three years of experience. Figure 1a indicates the grade level taught by the respondents, with the most being sixth grade teachers. Figure 1b indicates the subject area of the respondents, with a majority responding "Other". An overwhelming majority of the teachers, 93.7%, have a general ed certification, with only 6.3% of the respondents having a special ed certification.

Figure 1a: Grade Level Taught by Respondents

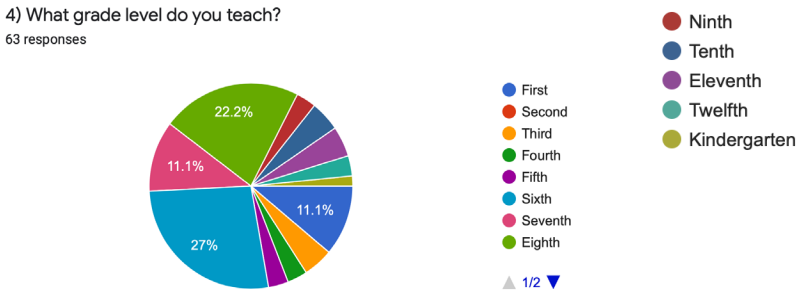


Figure 1b: Subject Area Taught by Respondent

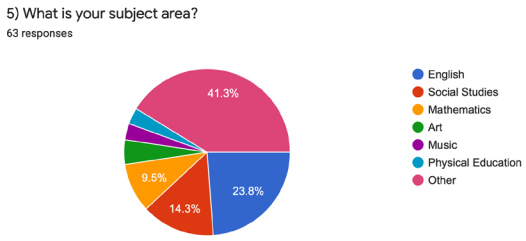


Table 1
Challenges Teachers Encountered During Remote Learning

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
7	3.2%	6.3%	17.5%	41.3%	31.7%
10	0%	6.3%	28.6%	27%	38.1%
16	0%	1.6%	12.7%	33.3%	52.4%
17	0%	1.6%	11.1%	31.7%	55.6%
18	7.9%	17.5%	33.3%	25.4%	15.9%
19	58.7%	27%	7.9%	6.3%	0%

Key: Column One Represents the Item Number; Row One Represents the Likert Scale

In item seven, respondents were asked if they felt it was hard to assess student learning when engaged in remote instruction, and as shown in Table 1, there was a clear majority of teachers who agreed with that statement. Respondents were asked in item ten if they felt it was challenging to maintain communication and motivation with their students during remote learning, and a majority agreed, with some responding neutral. Most respondents agreed with item sixteen, which states that it was more challenging to differentiate instruction when doing remote teaching. Item seventeen asked if respondents felt that there was a big adjustment to their curriculum and lesson delivery, and as shown in Table 1, most teachers strongly agreed with that statement. There were mixed results for item eighteen, as some respondents slightly agreed that remote learning has had a negative impact on them that affects their teaching in the classroom, and many respondents responded neutral. Item nineteen stated that remote learning is as effective as face-to-face instruction, and as shown in Table 1, most respondents strongly disagreed with this statement.

Table 2
Technology

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
11	15.9%	12.7%	28.6%	23.8%	19%
14	47.6%	17.5%	27%	3.2%	4.8%
24	11.1%	4.8%	15.9%	25.4%	42.9%

Key: Column 1 Represents the Item Number; Row 1 Represents the Likert Scale

Respondents were asked in item eleven if they made instructional video recordings of themselves during remote learning, explaining lessons and other materials to their students. Many of the respondents agreed with this statement or were neutral. Item fourteen asked respondents to indicate if they incorporated popular student social media as a creative approach to assessment, and as shown in the table, there was a strong majority in disagreement with this statement. A strong majority of respondents indicated on item twenty-four that they used multiple devices in their online meetings during remote learning.

Table 3
Feelings on Essential Remote Learning Elements

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
12	14.3%	34.9%	12.7%	19%	19%
15	0%	0%	7.9%	14.3%	77.8%
23	1.6%	0%	1.6%	12.7%	84.1%
25	0%	1.6%	12.7%	38.1%	47.6%

Key: Column 1 Represents the Item Number; Row 1 Represents the Likert Scale

Item twelve asked respondents if they felt that they had more time to plan their lessons while preparing for remote learning at home, and there was not a clear majority. A strong majority of teachers felt that it was very important to have a pedagogy of care during this time of remote teaching, as shown in Table 3 for item fifteen. Respondents were asked in item twenty-three if they felt that establishing a routine is critical for student's success in remote learning, and there was a clear majority strongly agreeing to this statement. For item twenty-five, most respondents agreed that you should focus on your students' social emotional learning at the beginning of your online class meeting.

Figure 2: Online Learning Tools

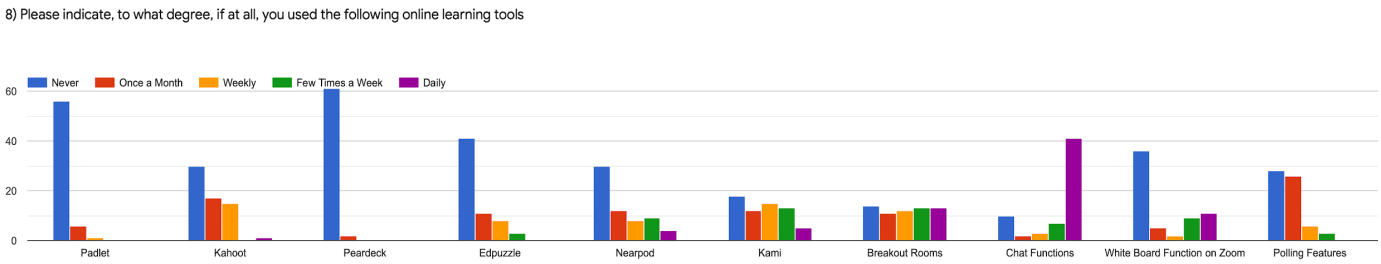


Figure 2 indicates to what degree respondents used the online learning tools. As shown, a strong majority of respondents never used Peardeck, and more than half of respondents used the Chat Functions during their online meetings.

Figure 3: Flipgrid Usage

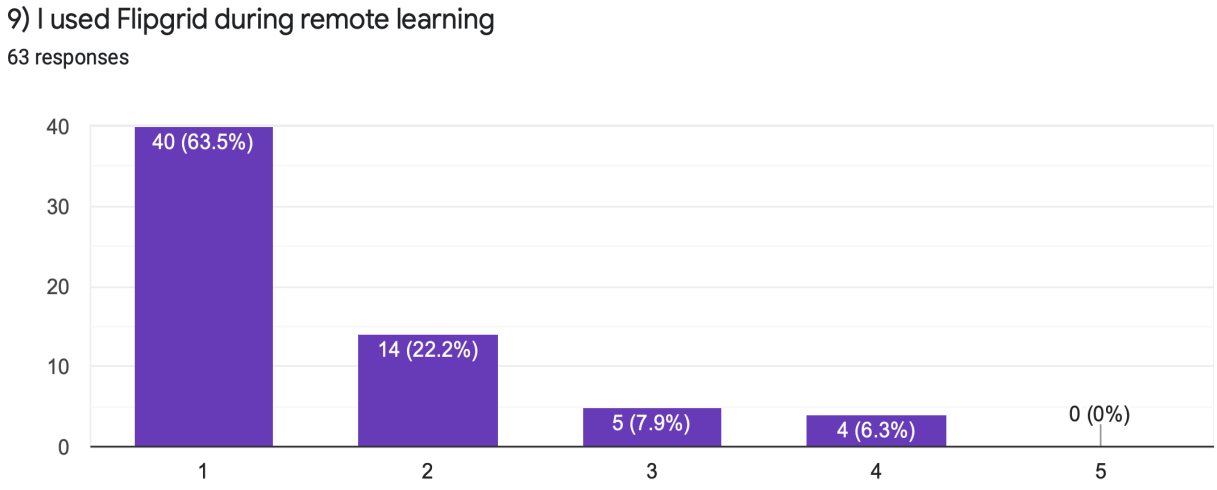
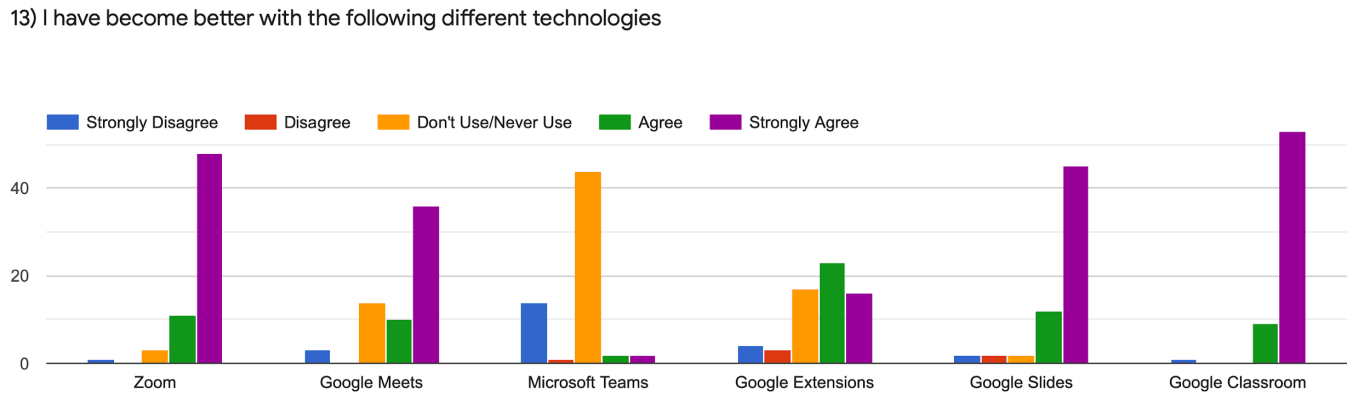


Figure 3 shows the extent of the usage of Flipgrid during remote learning. As shown, a strong majority disagreed with using Flipgrid in their remote classrooms with their students.

Figure 4 shows teachers responses as to whether they agree or disagree with whether they became better with different technologies. Forty-eight respondents indicated that they strongly agreed that they have become better with Zoom, while forty-four indicated that they never used or don't use Microsoft Teams.

Figure 4: Technologies Use



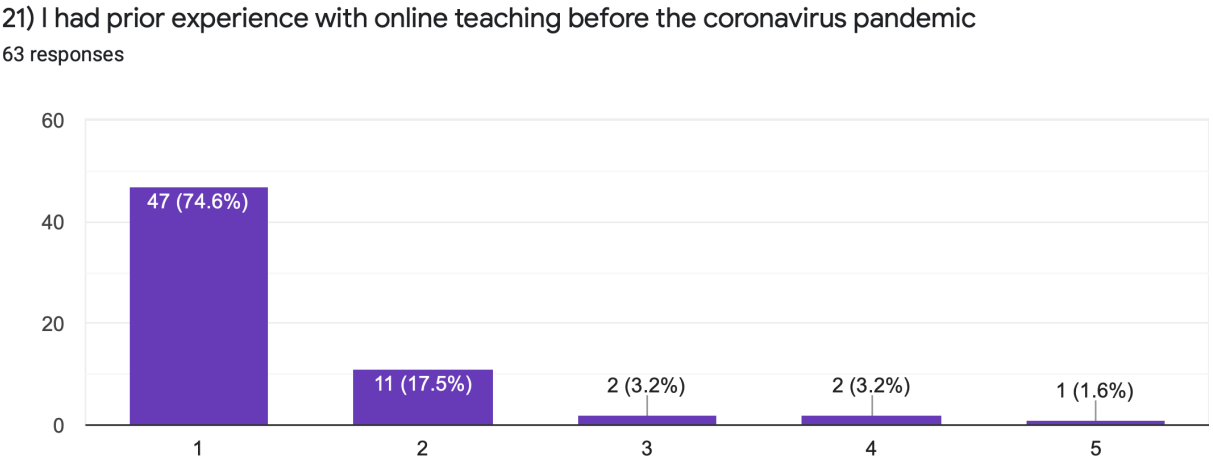
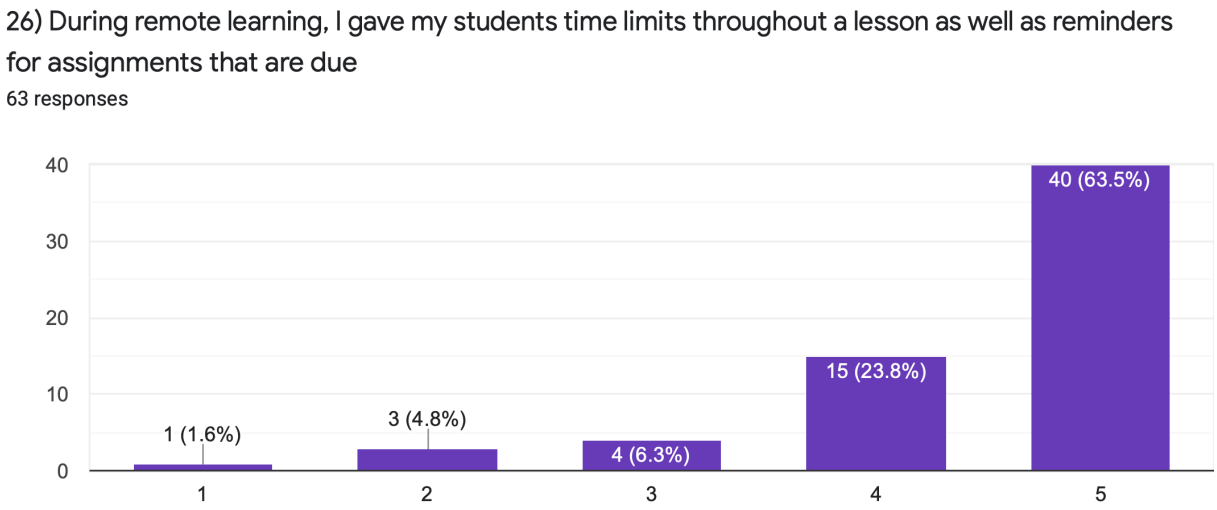


Figure 5: Experience with Online Teaching

Teachers were asked to respond as to whether they had prior experience with online teaching before the coronavirus pandemic. A strong majority, 74.6% of respondents, indicated they had no experience with online teaching before the pandemic.

Figure 6: Time Limits and Reminders Throughout Lessons



Respondents were asked if they gave their students time limits throughout a lesson as well as reminders of assignments that were due. As shown in Figure 6, most respondents agree that they provided their students with these time limits and reminders to help make them aware of what was expected.

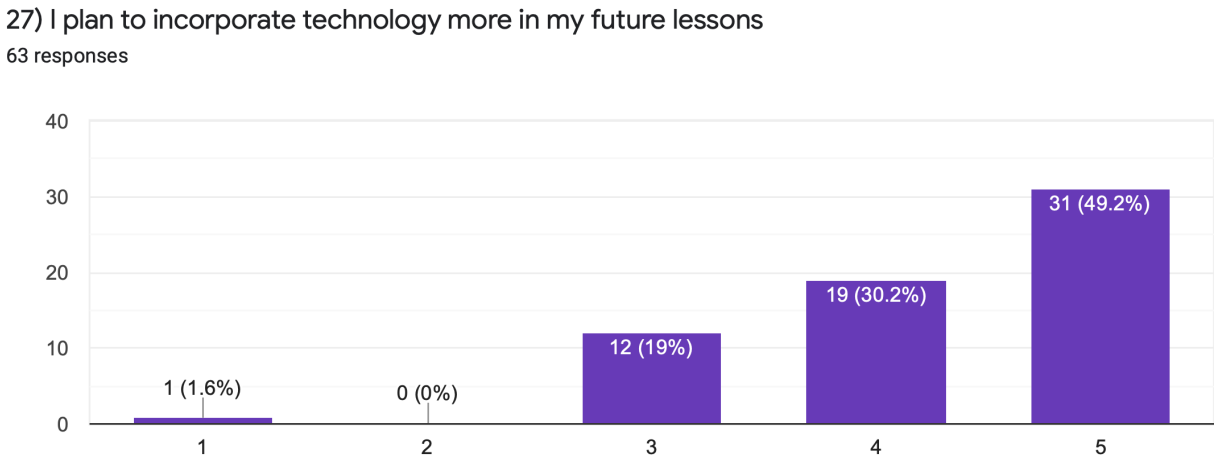


Figure 7: Post-Pandemic Outlook

Remote learning has been a prominent part of many teachers' careers during the past year. Since many teachers were tasked with having to switch all their lessons to an online format in a brief period of time, the researcher wanted to gather data on whether or not teachers would incorporate technology into their future lessons. As shown in Figure 7, most teachers responded that they agree and will plan to use technology more in their lessons. In the following section, the conclusions from the research study will be discussed.

Conclusions

At the conclusion of this survey, online tools and technologies that teachers found helpful and not helpful were indicated. An important finding in this study was to what degree teachers used online learning tools. Teachers reported using Chat Functions daily, while never using *Padlet*, *Peardeck*, or *Edpuzzle*. Contrary to the researcher's thought, many teachers did not use *Kahoot* as frequently as was hypothesized. The researcher hypothesized that many teachers would have indicated that they used *Kahoot* daily because it is a fun, engaging, and interactive assessment form to involve students in the lesson. Only one respondent indicated that they used Kahoot daily. The Breakout Rooms learning tool was evenly distributed in terms of responses, which was a surprise to the researcher, who thought that they would have been used more in order to foster collaboration and communication amongst the students in the remote learning environment.

Another significant finding of this study was item nine which asked if teachers used *Flipgrid* during remote learning. Most respondents strongly disagreed with this statement, which countered what the researcher thought. The researcher predicted that more teachers would use *Flipgrid*, as it is becoming a more popular online resource that teachers use. *Flipgrid,* allows students to record videos of themselves answering a question, and it can help to build community in your virtual classroom by having the students watch and comment on the videos of their classmates.

Item thirteen produced a significant finding of this survey. Based on the study's results as shown in Figure 4, most respondents, 48, indicated that they have become better with Zoom, and most respondents indicated that they have become better with Google Slides and Google Classroom, 45 and 53 respondents, respectively. This shows that teachers know how to use these effectively as teaching tools, while other tools, like Microsoft Teams, are not as beneficial.

Item fourteen was a significant finding and has implications for this research. Many teachers disagreed with the statement that they incorporated popular student social media as a creative approach to assessment. Because social media is so familiar to many students; the researcher thought that during the times of uncertainty that we faced, the teachers would want to incorporate a form of assessment that is the most familiar and that students are comfortable with. The implications of the responses to this item are that incorporating student social media is not recommended and not good practice to use as an approach to assessing students during remote learning.

Item eighteen had mixed results of respondents. Some respondents indicated a slight agreement, while many others responded as neutral. Despite the hypothesized outcome, which was that most teachers would indicate that they agreed or strongly agreed with the statement, in fact, the respondents indicated a neutral view in general, thus having no majority. A noteworthy item of this survey was item twenty-one. This is significant because it underscores what was thought by the researcher, that most respondents would not have prior experience with online teaching before having to teach during remote learning.

Item twenty-five has significant implications. The results from this question show how important it is for teachers to incorporate an activity or do-now question that focuses on their students' social emotional learning to help get them centered. Focusing on a student's social emotional learning is important for teachers to include because it shows that we are there to support our students during these unprecedented times when they may feel anxious and nervous about the uncertainties of the situation.

The first limitation of this study is that the participant sample did not include whether the teachers taught in a private or public school, as well as the location of their school, urban, suburban, or rural. This data could have helped to determine if the same tools were used across different types of schools and communities or if there would be a strong difference between community location and tools. Another limitation of the study was that when asked about the subject area that the respondents taught, the option of "Other" did not give them the ability to type a response. If teachers were able to type their subject area if it were not included, it would have given the researcher the opportunity to examine the subject area with the tools and technologies that were used or not used. A third limitation of this study is that the respondents are limited to the schools that the confederate distributed the survey to. If sent to the whole district rather than select schools, the researcher could have reached a wider audience.

Recommendations for future research include determining whether the implications of remote learning now will still be in effect in later years. The research can examine if teachers are still using online tools, such as *Google*, or *Zoom*, and if they had the option, would they want to continue doing remote learning or face-to-face instruction? A future study can also be designed in a way where some participants were interviewed to gather firsthand experiences in relation to the questions being asked that you otherwise might not get from just the survey questions.

Remote learning was a new experience that teachers and students had to adapt to. Teachers were tasked with having to re-create all their face-to-face lessons to online lessons. There are different tools and technologies that teachers can use, and some that are used most frequently by teachers as shown in the results from this study, are Zoom, Chat Functions, Google Meets, Google Slides, and Google Classroom. Most respondents strongly disagree with the statement that remote learning is as effective as face-to-face instruction, however, a majority also indicate that they strongly agree that they plan to incorporate more technology in their future lessons.

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If you would like a copy of the survey, you can reach out to me via email at marissacordaro14@gmail.com.

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Marissa Cordaro, MPS, obtained her degree from Manhattanville College. She received her general education certifications in the areas of fifth-twelfth grade and her special education certifications in the areas of seventh-twelfth grade, which influenced her research. She is a seventh grade, Math and Special Education, middle school teacher.

Seclusion and Restraint: A Scoping Review of the Peer-Reviewed Published Literature Since the GAO Congressional Hearing of 2009 Through the End of the 2020 COVID-19 Pandemic

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Abstract

Aversive procedures such as seclusion and restraint are generally viewed as emergency only procedures in school settings. However, they are still used too often to respond to student behaviors in schools. The purpose of this scoping review was to determine which types of documents have been published in peer-reviewed journals, the degree of progress that has been made toward the reduction in the inappropriate use of seclusion and restraints, and how these practices have impacted students with emotional and behavioral disorders (EBD) and/or emotional disturbance (ED). Our summary includes the type of article, antecedent and preventative variables, parent and student perspectives, policies, preventative measures, and legal cases in the literature across 32 peer-reviewed articles from 2009 to 2022. Key findings reveal an increase in the use of seclusion and restraint procedures, despite growing awareness and attention within the education sector. Additionally, the ongoing lack of staff training in emergency procedures suggest that the small number of staff employing these measures may be causing greater harm than previously reported in prior years. Further, we found individuals with disabilities (in particular students ED) and students of color or with linguistic diversity were much more likely to be secluded or restrained in school than their peers. Finally, the varied documents present within the peer-reviewed literature suggest an ongoing interest in advocating for students and their families who have experienced seclusion and/or restraints in school settings. Recommendations for research, practice, and policy are discussed.

Keywords: Seclusion and restraint, GAO hearing, special education, children with disabilities, aversives, behavior modification, educational law, equity in education, behavior, ED, EBD

Seclusion and Restraint: A Scoping Review of the Peer-Reviewed Published Literature Since the GAO Congressional Hearing of 2009 Through the End of the 2020 COVID-19 Pandemic

For decades, the use of seclusion and restraint practices on children have been topics of concerned discussion, legal proceedings and safety. Primarily, this is because children and staff alike have been repeatedly injured by unsafe and untrained (many well-meaning) individuals. Others have lost their lives because of situations that could have been easily avoided. Seclusion

and restraint have specific definitions (see below) and the need for specific language addressing the concerns raised by parents, educators, staff and other special education experts is long overdue. Seclusion and restraint practices have been recognized as aversive practices, and when used by someone with malintent, they can constitute abuse. In response to complaints, investigations, and litigation by concerned parents and advocates, many disciplines (e.g., psychiatry, military) have enacted policy or placed strict restrictions on the practice. However, it is not true within many educational contexts. This is particularly salient in this era as it relates to discussions surrounding proper methodology for supporting children with varied diagnoses in classrooms across school campuses. That stated, it is commonly understood across educational contexts, regardless of location, seclusion and restraint practices are a last resort (even when used properly); to be reserved for situations of imminent danger. Even today, children across America are subject to abuse through the misuse of these often dangerous procedures.

The project presented in the following pages examines the peer-reviewed literature produced from the 2009 Government Accountability Office's (GAO) congressional hearing through January of 2022. We identified 32 documents that met our inclusion criteria (see below). Salient laws supporting children with disabilities in schools and recurrent themes found within the peer-reviewed literature are identified and recommendations for further research are discussed.

Purpose

The purpose of this scoping review is to examine the findings published within peer-reviewed literature on the seclusion and/or restraint of individuals with disabilities in classroom contexts. Additionally, we provide the reader with a summary of the legislation leading up to and following the GAO's Congressional Hearing of 2009, reporting on the investigation of seclusion and restraint practices. The brief legal overview includes salient proceedings and laws that have provided the backdrop for, or have encouraged the forward motion toward safety in educational settings. The date range chosen for this research begins with the 2009 GAO hearing and ends in 2020-22 at the end of (and due to) the COVID-19 pandemic. We sought to discover:

1. What types of articles have been published within the peer-reviewed literature on this topic since the GAO Congressional Hearing of 2009?

2. What progress (or lack thereof) does the peer-reviewed literature assert has been achieved on behalf of students with disabilities surrounding the misuse and abuse inflicted by improper seclusion and restraint practices since the GAO Congressional Hearing of 2009?

3. What do the data reveal about students who have been diagnosed with emotional and behavioral disorders (EBD) broadly, and students with emotional disturbance (ED) specifically?

Definitions are included below. Methods, relevant findings and themes within the published articles and included studies are discussed. Lastly, recommendations for future research and practice are presented for consideration.

Definitions

Seclusion and Restraint. Specific language including explicit definitions are rarely mentioned in federal law regarding seclusion and restraint in schools; however, the *Every Student Succeeds Act* (ESSA, 2015) Conference Report uses the term "aversive behavioral interventions" when referring to seclusion and restraint (p. 451). For the purpose of this review, both seclusion and restraint will be used as they are in the *ESSA*, interchangeably with "aversive behavioral interventions" and "aversive practices" when addressed together. Definitions commonly utilized by special educators (specifically) and the discipline of education (in general) are provided from the Office of Civil Rights' Civil Rights' Data Collection (CRDC) and the Council for Children with Behavior Disorders (CCBD).

The definition of "seclusion" from the *CCBD's Position Summary of the Use of Seclusion in School Settings* (2009):

> The involuntary confinement of a student alone in a room or area from which the student is physically prevented from leaving. This includes situations where a door is locked as well as where the door is blocked by other objects or held by staff. Any time a student is involuntarily alone in a room and prevented from leaving should be considered seclusion regardless of the intended purpose or the name applied to this procedure or the name of the place where the student is secluded (p. 235).

The U.S. Department of Education Restraint and Seclusion: Resource Document includes the definition provided by the Office of Civil Rights' CRDC. It breaks the definition of restraint into two categories (physical and mechanical), leaving out chemical restraint.

> *Seclusion.* The involuntary confinement of a student alone in a room or area from which the student is physically prevented from leaving. It does not include a timeout, which is a behavior management technique that is part of an approved program, involves the monitored separation of the student in a non-locked setting, and is implemented for the purpose of calming (USDE, 2012, p. 10).

Physical restraint will also be defined in the same manner from the *CCBD's Position Summary of the Use of Physical Restraint Procedures in School Settings* (2009) and the Office of Civil Rights' CRDC. The CCBD separates physical restraint into three subcategories: physical restraint, mechanical restraint, and chemical restraint.

> Physical restraint refers to the restriction of an individual's use or normal access to their physical body (e.g., freedom of movement) by one or more people (CCBD, 2009a, p. 224). Mechanical restraint is "…the use of any device or object (e.g., tape, ropes, weights, weighted blankets) to limit an individual's body movement to prevent or manage out-of-control behavior . Chemical restraints refer to the use of "…medication to control behavior or to restrict a patient's freedom of movement" (CCBD, 2009a, p. 223).

The Office of Civil Rights parses out physical, mechanical and chemical restraint definitions.

> *Physical restraint.* A personal restriction that immobilizes or reduces the ability of a

> student to move his or her torso, arms, legs, or head freely. The term physical restraint does not include a physical escort. Physical escort means a temporary touching or holding of the hand, wrist, arm, shoulder, or back for the purpose of inducing a student who is acting out to walk to a safe location.

For the purpose of this review, mechanical restraint excludes mechanical assistance provided by braces, harnesses or the like that assist an individual with day-to-day functions or medically necessary (i.e., due to uncontrolled self-harming movement).

Methods

Search Strategy

A library strategist was consulted to examine the most appropriate approach to searching the peer-reviewed literature on the topic. Three databases were recommended: Academic Search Ultimate, APA PsychInfo, and ERIC. The search strategy included two conceptual investigations. The first concept included a search of the seclusion and restraint literature itself. The second concept focused on K-12 educational settings. See Table 1 for a list of databases, subject terms, and search terms.

Table 1
Search Strategy and Terminology

Database	Concept	Subject Headings	Title and Abstract Terms
ERIC	Seclusion and Restraint	none returned	seclusion AND restraint*
	K-12 Settings	elementary education OR secondary education OR special education OR elementary schools OR secondary schools OR High schools OR junior high schools OR middle schools OR private schools OR charter schools	schools OR (elementary or secondary) N1 (school* OR education) OR "middle school* OR "junior high" OR "high school*" OR "private school*" OR "charter school*" OR "special education"
APA PsychInfo	Seclusion and Restraint	physical restraint	(seclusion AND restraint*)
	K-12 Settings	elementary education OR secondary education OR special education OR elementary schools OR High schools OR junior high schools OR middle schools OR charter schools	schools OR (elementary or secondary) N1 (school* OR education) OR "middle school*" OR "junior high" OR "high school*" OR "private school*" OR "charter school*" OR "special education"

Database	Concept	Subject Headings	Title and Abstract Terms
Academic Search Ultimate	Seclusion and Restraint	physical restraint & seclusion of students	(seclusion AND restraint*)
	K-12 Settings	elementary education OR secondary education OR special education OR elementary schools OR secondary schools OR High schools OR junior high schools OR middle schools OR private schools OR charter schools	schools OR (elementary or secondary) N1 (school* OR education) OR "middle school* OR "junior high" OR "high school*" OR "private school*" OR "charter school*" OR "special education"

Article Selection and Inter-Rater Reliability (IRR)

Screening. Each article's title and abstract were first screened according to the inclusion criteria. During the title and abstract screening 100% of the initial documents pulled were screened by the author and at least one trained IRR evaluator. Trained evaluators (n=4) were either doctoral or undergraduate students who expressed interest in the topic. Each evaluator was trained on procedures within a group session over Zoom, where three article titles and abstracts were evaluated by example. Two articles were then screened and coded together as a group. Lastly, everyone was asked to screen enough titles and abstracts individually to ensure a minimum of 30% fidelity.

IRR - Type and Results. We chose to utilize an IRR percentage method. This method calculates the number of agreed-upon entries, divides it by the total number of entries and multiplies that number by 100. The initial IRR achieved 97% agreement (as calculated in Rayyan). This means that both raters agreed upon 97% of the articles chosen for inclusion (or exclusion) at the title and abstract level. Discrepancies surrounding the remaining 3% of articles were resolved through discussion, after which 100% agreement was achieved. This process was followed through the full text screening and also when coding the final articles.

Inclusion and Exclusion Criteria

Date Range. The investigation into peer-reviewed literature published after the 2009 GAO congressional hearing created a natural date range limitation. The final literature search occurred in January of 2022 and included possible entries from January of 2009 through that date. The hearing itself did not occur until May of 2009, however, we decided to include literature from the first part of the year to provide a clean cutoff date. Upon further investigation, the inclusion of the first part of 2009 was moot because no articles made it into the review prior to a 2010 publication. Further, to focus on the most recent peer-reviewed literature, the last five years (2018-2022) were given their own thematic focus.

Document Type. Policy reviews, legal reviews, journal articles and studies were included. White papers from national and federal organizations (e.g., CEC and the U.S. Department of Education, respectively) were not included in the review itself. However, they have been referenced in

definitions (e.g., CCBD) and legal framework. Further, this review did not extend to the grey literature, dissertation investigations or journals/studies that were not peer-reviewed.

Geography. The review was limited to schools and literature either occurring in or written concerning seclusion and restraint occurrences within the U.S. (e.g., literature regarding seclusion and restraint in the United Kingdom was excluded). This limitation was applied because the geographical limitation coincided with the limited legal overview provided. Legal matters outside of the U.S. was a factor beyond the scope of this review.

Language. The search was limited to those articles and documents published in English.

Peer-review. The purpose of this project is to investigate the peer-reviewed literature published after 2009. This filter was employed during the search process and limited the search results during the initial pull of possible entries.

Setting. The setting was limited to K-12 special education, general education and alternative classrooms as noted above. School settings included K-12 public, private or charter schools, alternative school settings and special education schools. Homeschool, online educational systems, or hybrid educational settings (definitions pre-COVID) were not included. Psychiatric (both inpatient and outpatient) and juvenile justice educational facilities were excluded.

Coding. Each document was coded for date range, primary purpose of the article, document theme, whether ethnicity was reported, and primary findings. IRR was conducted for all codes to ensure fidelity. Data were reviewed and themes collected for inclusion into the review.

Results. The data reviewed within the 32 articles included in the review ranged from 2009 to 2020-22, although historical data were referenced throughout (see Table 2). The primary purposes of each article fell into one or more of four categories: a) descriptive analyses (*n*=10), b) educational practice considerations (*n*=6), c) legal reviews (case law review; *n*=10), or d) policy (updates or commentaries; (*n*=5). Some articles warranted dual categorizations (e.g., Lake, 2021; Meadows & Conners, 2021), and were referenced in their primary category (see Table 2).

Table 2
Timeline of Included Articles

Author(s)	Publication Details			
	Publication Year	Article Type*	Data Range	Primary Task*
Lake, D.	2022	DA, E	2017-2018	Teacher sensemaking after S&R education
Meadows & Conners	2021	DA, E	2014-2018	ELL S&R information and preventative strategies
Van Acker et al.	2021	DA	NR	Policy Reporting

Author(s)	Publication Details			
	Publication Year	Article Type*	Data Range	Primary Task*
Connolly et al.	2020	DA, LR	1997-2013	Legal review to find S&R predictors
Gage et al.	2020	DA	2018 - on	Extending Gagnon et al. (2017)
Katsiyannis et al.	2020	DA	2015-2016	Disproportionality analysis of SWD, minorities and boys
Azizoglu, H.	2019	LR	NR	Legal amendments
Prince & Gothberg.	2019	LR	2018	1-Year legal review
Beaudoin & Moore	2018	DA	Previous literature	Parent account and experiences
French & Wojcicki	2018	DA	NR – 5 years	Frequency, duration and rate of injury
Walker & Pinkelman	2018	DA	2018	Response to Beaudoin & Moore
Gagnon et al.	2017	DA, P	2009-2012	Trends and policy implications
Jewell et al.	2017	LR, E	2011-2012	Policy and law evolution to inform educators
Katsiyannis et al.	2017	LR	1997-2016	Legal implications for principals.
Marx & Baker	2017	P	2012-2016	State alignment to USDOE 15 principles
Nelson, L.	2017	LR	NR	Article 16 to define S&R use as abuse
Trader et al.	2017	E	NR	Inclusion and PBIS Strategies
Scheuermann et al.	2016	DA, E	NR	Professional Practice and Ethical Issues
Bernard-Brak et al.	2014	DA, P	2009-2010	Data analysis to predict S&R
Bon & Zirkel	2014a	LR	NR	Legal case review and framework of legal theories
Bon & Zirkel	2014b	LR	NR	Systematic framework analysis of case law
Simonsen et al.	2014	E	NR	Ethical Guidelines

Author(s)	Publication Details			
	Publication Year	Article Type*	Data Range	Primary Task*
Freeman & Sugai	2013	LR, P	2010-2011	State policy changes
Gust & Sianko	2012	DA	NR	Informational Article
Katsiyannis et al.	2012	LR	2010	Case law review
LeBel et al.	2012	DA, E	NR	Recommendations for practice
Miller et al.	2011	LR	NR	Advocate for IDEA amendment
Villani et al.	2011	DA	2002-2007	Analysis of monitoring methods
Kaplan et al.	2010	LR	NR	Advocate for private right of action for SWD
Mohr et al.	2010	DA	2010	Suggestions for school nurses
Westling et al.	2010	DA	Previous literature	Survey of parent and teacher procedures/practices

Note: *The authors assigned the *Article Type and Primary Task* categories for the purpose of this review. *DA=Descriptive Analysis, E=Education or Professional Practice, LR=Legal Review, P=Policy; NR=Not Reported, S&R=Seclusion and Restraint, SWD=Students with Disabilities*

Review of the Literature Since the GAO Congressional Hearing of 2009

A total of 32 documents were found to meet inclusion criteria, with topics ranging from reviews of legal cases, studies on a single state's district policies (Van Acker et al., 2020), to a grounded theory analysis, which reports seven potential antecedents to seclusion and restraint events (Connolly et al., 2019). Authors highlighted current practices to illuminate opportunities for improvement (e.g., Marx et al., 2017) and others presented codes or stand-alone recommendations. for professional practice (e.g., Scheuermann et al., 2016; Walker & Pinkelman, 2018). Still other researchers analyzed legal cases for patterns and antecedents (e.g., Azizoglu, 2019; Connolly, 2019) or reported insight from an injured child's family perspective (e.g., Beaudoin & Moore, 2018).

The literature revealed other diverse approaches to the topic. Studies investigated smaller populations (e.g., single school; Villani et al., 2012), while other articles analyzed national disability data (e.g., Gagnon et al., 2017; Katsiyannis et al., 2020). Refreshingly, some authors investigated disproportionality (Katsiyannis et al., 2020; Meadows & Conners, 2021) and reported on data regarding population demographics beyond that of disability status alone (e.g., French & Wojcicki, 2018; Gagnon et al., 2017; Katsiyannis et al., 2012; Katsiyannis et al., 2020; Scheuermann et al., 2016).

All 32 research teams (or individual authors) indicated the need for seclusion and restraint reform in some manner, many of whom also provide strategies to employ and antecedents to avoid (e.g., Connolly et al., 2019). All authors reported the prevalence of a *false belief* (and subsequent issues that follow) that seclusion and restraint are a benefit to students outside the use for imminent danger, though many mention the opposing view (e.g., Nelson, 2017). Additionally, legal cases and policy implications are reviewed and discussed by authors, adding to the discussion of safety in public schools for students with disabilities. Each will be briefly referenced as relevant themes are discussed.

Article Category

The 32 documents were identified into one of four categories: a) descriptive analysis, b) education or professional practice, c) legal review, or d) policy. The categories assigned were intended to provide thematic organization; however, each article provided further data to the literature and common findings and recommendations are provided. Some articles could be placed within more than one category because they offered a broader scope of insight or inquiry (e.g., Gagon et al., 2017; Jewell et al., 2017; LeBel et al., 2012; Scheuermann et al., 2016). Recommendations from researchers going forward contained themes of their own. Some advocated for changes to policy or law (e.g., Azizoglu, 2010; Miller, 2011). Others conducted analyses of both legal cases and datasets, to determine potential antecedents to seclusion and restraint (e.g., Bernard-Brak et al., 2014; Katsayannis et al., 2020). Still others investigated relevant descriptions and data, examining perspectives for consideration when recommending practice strategies and policy (e.g., Beaudoin & Moore, 2018; Westling et al., 2010).

Background

Importance

The United States serves over 16% of our child population (7.2 million children) through special education services; alongside an additional 3% through accommodations made in response to the *Americans with Disabilities Act* (Section 504 plans; National Center for Education Statistics [NCES], 2020; Institute on Disability, 2021). Currently, schools adhere to guidelines in response to the *Individuals with Disabilities in Education Act* (IDEA). There are 13 disability categories under IDEA, one of which is emotional disturbance (ED). As a note, students with ED are often included under the broad umbrella term *emotional and behavioral disorders* (EBD). Students who have been diagnosed with EBD (e.g., via a behavioral screening tool) may or may not have been identified as ED under IDEA.

Information disseminated by governing agencies (e.g., U.S. Department of Education) on the use of aversive behavioral interventions are still being employed as a form of behavior modification in American classrooms today. In fact, there are those who argue that seclusion and restraint should be a regular part of school life, asserting their incorporation into the IEP of various young people under their care. The argument for the use of seclusion and restraint on children, especially those with behavior diagnoses continue, despite the research indicating no therapeutic benefit or lasting positive behavior change (e.g., Gage et al., 2020; U.S. Department of Education, 2012). In fact, research has repeatedly shown that psychological trauma, physical injury and even death may result (e.g., Ryan et al., 2009). These facts are deeply concerning and impact children, families and educators across our country. It was our intent to discover what the

peer-reviewed literature was indicating in terms of improvements, trends and other facts that may be illuminated since the GAO hearing. There is much to be learned from the experts in the field. However, the statistics are still unacceptable.

Statistics

The Office of Civil Rights (OCR; OCR, 2017-2018) reported that over 80% of students physically restrained (*n*=71,204) were students served under IDEA (*n*=57,080). Of the 27,499 students subjected to seclusion in the same time frame, 21,253 (77.3%) of them were also students with disabilities (OCR, 2017-2018). Researchers assert that the available data may actually underrepresent true occurrences of seclusion and restraint events (e.g., Van Acker et al., 2021) and confirm that active change is still necessary to achieve a reduction in the number and percentage of individuals with disabilities who experience aversive measures at school outside of their emergency use.

The above data on seclusion and restraints are staggering and yet the education system is headed in the wrong direction. Restraint frequency overall increased by 11,987 occurrences in 2017-18. This is up from 59,217 such occurrences in 2015-2016, of which 75.9% were students with disabilities. The total number of seclusion events for the same time period was 27,499 (OCR, 2017-2018). Although the total number of students *experiencing* seclusion decreased from 31,224 in 2015-16 (*n*= 3,725); the total number of *students with disabilities* who experienced seclusion increased. The number rose by 524 students in 2017-18 from 20,729 in 2015-16 (OCR, 2022). Consider further, these numbers do not include mechanical restraint data, which may include instances where classroom staff misuse devices typically employed to assist students with disabilities with their posture, sitting, or standing. In total, the number of children experiencing seclusion and restraints within the United States in one school year is likely well over 128,284 children. These data do not account for multiple events experienced by the same student. It is probable that students who were secluded were also counted in the students who were restrained.

Authors investigating commonalities among occurrences of seclusion and restraint assert children who are educated in alternative education school settings (e.g., school settings for individuals with disabilities) are almost “guaranteed” to be secluded or restrained (Gage, 2020, p. 3). Supporting this statement, other researchers investigating possible school-level predictors found that students in special education settings are seven times more likely to be restrained and four more times as likely to be secluded than their typically developing peers (Gage et al., 2020). Considering the vast numbers of children with disabilities served in schools (*n*=7,281,881) and who have experienced seclusion or restraint in the United States, the potential for injury and death is staggering (Institute on Disability, 2021; NCES, 2020). Whether one includes multiple occurrences experienced by a single student, or the increased likelihood within alternative environments, the number of children impacted by seclusion and restraint are entirely too large especially when alternative interventions, such as evidence-based practices for de-escalation and prevention have been cited for decades (e.g., Freeman & Sugai, 2013; Miller, 2103).

The Government Accountability Office Investigation on Seclusion and Restraints

In 2009, the GAO was tasked by Congress to investigate the validity of reports of student injury and death at the hand of individuals working in school settings using seclusion and restraint processes. Specifically, they were given a mandate to:

> (a) provide an overview of seclusions and restraint laws applicable to children in public and private schools;
> (b) verify whether allegations of student death and abuse from the use of these methods are widespread; and
> (c) examine the facts and circumstances surrounding cases where a student died or suffered abuse as a result of being secluded or restrained. (GAO-09-719T, 2009, abstract)

Themes emerged within the ten legislative cases examined in their investigation. Among their more alarming findings were first, that personnel were not adequately trained in seclusion and restraint safety procedures. Second, the aversives were used on individuals with disabilities who were not physically aggressive. The report also indicated that parents were often unaware of the practice or even the possibility that such practices existed, and as such did not provide consent (GAO, 2009). Unfortunately, they are not isolated in their findings. Legal examinations of cases brought to court (where students experienced seclusion or restraint) support that there are still places where seclusion and restraint are used as disciplinary measures, and often without parental knowledge and/or consent (e.g., Beaudoin & Moore, 2018; Bon & Zirkel, 2014a).

In general, schools have been tasked to limit and restrict the use of aversive measures to last resort events. The literature alongside the reports provided from states, however, still indicates that untrained personnel are both injuring school children and are themselves being injured. One report from the National Disability Rights Network (NDRN) told the story of a 7-year-old child who died when "several adult staff members" placed her in a prone restraint (Westling et al., 2010, p. 116). The reason given for the action was that she was "blowing bubbles in her milk and then broke the time-out rules" (p. 116). In their article *Living Without Restraint: One Parent's Reflections and Recommendations for Supporting At-Risk Individuals with Developmental Disabilities*, Beaudoin and Moore (2018) share insight into the life of a young person who was reportedly placed into a prone restraint (physically held down, face to the floor, often with an adult sitting or lying on top of the child with force) over 30 times. This happened, within just over a two-month period (p. 155). The family reported no knowledge of the frequency or the procedures themselves, indicating that no consent was given. The parents of the child now warn educators and administrators of the dangers that can result. Their son was admitted to a psychiatric ward shortly after his removal from the environment and "insisted on wearing the martial arts helmet every waking minute of every day for the next six years" (Beaudoin & Moore, 2018, p. 156). These may be examples of extreme cases, but they represent real situations occurring in our schools by individuals who may or may not understand what they are doing. Either way, the potential for extreme physical and emotional damage is present.

Seclusion and Restraint - What Are the Arguments?

Discussions within the literature surrounding the legitimacy, efficacy and/or safety around seclusion and restraint practices in school settings are represented across a spectrum. The primary opinion within the discipline as a whole is that aversives are not standard procedure

outside of emergency use. However, there are those who are wholly against the practices (e.g., Azizoglu, 2019; Miller, 2011). Gust and Sianko (2014) posit that there are also those who believe they are necessary as a regular part of school operations. Somewhere in the middle are individuals who hold to a moderate view, using seclusion and restraint in everyday disciplinary management of behavior and for imminent danger situations as an exception.

Against. The literature reviewed reports those who oppose seclusion and restraint in any form are primarily parents, law professionals, special education experts and other child advocates. They are calling for the immediate suspension of all uses, stating that aversive encounters with students should never be allowed (e.g., Azizoglu, 2019; Miller, 2011). Arguments against seclusion and restraint also arise from those who have experiences resulting in injury (physically or psychologically) or death (e.g., Gagnon et al., 2017). Data align with the common opinion within education as a whole that the regulation and/or elimination of aversive practices is warranted. Authors provide more evidence toward this end and provide evidence that students with disabilities (especially those with EBD) are disproportionately overrepresented in seclusion and restraint statistics. The trends are increasingly alarming (e.g., Azizoglu, 2010; Katsiyannis, et al., 2020; OCR, 2022). Disproportionality extends beyond disability to English language learners (ELL) as well. Tragically, the emergent bilinguals "who make up approximately 10% of students nationwide", made up over 20% of the seclusion and restraint data in California alone (Meadows & Conners, 2021, p. 171).

Authors posit further that the evidence provided by pro-seclusion individuals who have used the argument that recurring events are rare, has been largely anecdotal (e.g., Bon & Zirkel, 2014a). The data do not support this assertion. The use of seclusion and/or restraints are considered deviations from the definition of appropriate classroom support (whether in general education or special education settings) for individuals with disabilities when used outside of the definition provided above by the Council for Children with Behavior Disorders (CCBD). One would hope that educators would not deviate from the appropriate procedures in any case, but (although they are in the minority) tragically there are still those who advocate for their continued use in schools.

For. In contrast to those who wish to eliminate seclusion and restraint altogether, there are school administrators and district representatives who hold to the belief that the procedures are necessary in everyday processes such as disciplinary actions (e.g., American Association of School Administrators [AASA]). This persists although experts from many disciplines, including education, have suggested strategies for improving academic (e.g., peer-tutoring) and behavioral outcomes (e.g., self-monitoring, token economies). Evidence surrounding the best practices for emergency situations becomes effectively irrelevant if students continue being secluded or restrained as a tool to assert disciplinary action (e.g., for not obeying) or for pedagogical (behavior modification) use in classrooms (e.g., Blankenship et al., 2007). Further, authors report that the same pro-aversive group may also advocate for the addition of aversive procedures within Individualized Education Programs (IEPs). This can be additionally problematic for families of injured children. In more than one legal review, authors agree that legal decisions for the plaintiffs (children and their families) are not often favorable and that "courts generally defer to the IEP" (e.g., Bon & Zirkel, 2014a, p. 523). These reports emphasize another reason to remove seclusion and restraint from IEP, which is a legal document. Still, some administrations

and other individuals argue that seclusion and restraints are effective behavioral modification tools (e.g., Gust & Sianko, 2012). However, it is important to underscore that research indicates otherwise (e.g., Katsiyannis, 2017).

Increased Incidents with Students with ED

Relatedly, advocates for the use of seclusion and restraint in school settings often cite cases where self-injury or harming others is imminent, especially involving those students who are at risk for who have been identified with ED (e.g., Katsiyannis et al., 2017). The argument is that students' behaviors are so uncontrollable that they "need" this practice to function in school settings. While in general there are emergency situations where appropriately trained personnel may need to intervene, outside of these narrow parameters, these same opinions may fuel the ideology that students with disabilities may not be able to "function" in certain settings and so are placed elsewhere. Self-contained classrooms have been appropriate for some, and that is certainly the preference. However, statistics indicate an overwhelming number of children diagnosed with an emotional disturbance (ED; 12.4%) are being served in segregated (by behavior) settings (NCES, 2017). Currently, only 48.5% of students with ED spend 80% or more of their school time in general education settings (see Table 3; NCES, 2020). Further, these individuals are the most likely of all the IDEA disability categories to be housed in a juvenile detention facility (e.g., Katsiyannis et al., 2017; NCES, 2020).

Table 3

Percentage of time in General Education Classrooms and Alternative Setting by Disability

Disability	Percentage of Students Educated within Specific Learning Contexts					
	Less than 40%	40% to 79%	80% or more	Separate School for Disabilities	Residential Facility	Correctional Facility
Autism	33.2%	33.2%	39.7%	7.0%	0.4%	*
Deaf-Blindness	36.7%	36.7%	23.6%	18.1%	5.1%	0.0
Developmental Delay	14.7%	14.7%	64.7%	0.8%	*	*
Emotional Disturbance	17.7%	17.5%	48.5%	12.4%	1.2%	1.2%
Hearing Impairment	10.8%	15.1%	62.4%	7.9%	2.1%	*
Intellectual Disability	49.0%	27.2%	16.9%	5.7%	0.3%	0.1%
Multiple Disabilities	45.6%	17.1%	13.7%	18.1%	1.3%	0.1%
Orthopedic Impairment	22.5%	15.5%	53.6%	4.2%	0.1%	*
Other Health Impairment	8.7%	20.7%	66.6%	1.7%	0.2%	0.2%
Specific Learning Disability	4.8%	21.9%	71.4%	0.4%	*	0.2%

Disability	Percentage of Students Educated within Specific Learning Contexts					
	Less than 40%	40% to 79%	80% or more	Separate School for Disabilities	Residential Facility	Correctional Facility
Speech or Language Impairment	4.0%	4.8%	87.4%	0.2%	*	*
Traumatic Brain Injury	19.6%	21.7%	50.8%	4.8%	0.6%	0.1%
Visual Impairment	9.4%	12.3%	67.9%	5.8%	2.6%	*

*Note: Adapted from the National Center for Education Statistics (2017); * = Rounded to zero*

Historically, the inappropriate seclusion or segregation of students has been challenged before. Discussions in support of and against segregated settings have commenced since the conversation began as provided by *Mills vs. District of Columbia* in 1972. Indeed, through the *Rehabilitation Act of 1973*, students were given the right to the necessary accommodations needed for successful learning environments, however school districts still pushed back, denying students with disability access claiming shortage of funds, equipment, and training (Yell, 2019). This is particularly salient because, once again, research is showing lack of training to be a key element in the number of injuries to both staff and students who participate in seclusion and restraint procedures (e.g., GAO, 2009). However, as reported in the statistics above, students who receive special education (not all in self-contained or alternative settings) have a much greater likelihood of experiencing seclusion or restraint than their peers. Further, many of those students are reported to have an EBD diagnosis or receive services under ED in school.

Interestingly, much of the current literature leaves out students who have been diagnosed with severe behavior disorders. While it is understood that students of all disabilities experience seclusion and restraint within the literature, it is particularly problematic for students with ED. They are often those who exhibit externalized behaviors that result in classroom disruptions (Huefner, 2015). Research confirms that these are also the students who are most likely to be unlawfully secluded or restrained (e.g., Katsiyannis et al., 2017). Even so, the propensity toward the use of seclusion and restraint for behavioral modification or because a student refuses to comply has yet to be addressed in federal law with any language specificity (e.g., Katsiyannis et al., 2017).

Terminology and the Interpretation of Language

Terminology and language are at the center of certain issues facing the field of special education, including how, where and when seclusion and restraint should (or should not be used) for students with severe disabilities. The conversation is intimately related in that students with disabilities are provided specific individualized education programs (IEPs) and taught by professionals who have been trained to provide curricular access strategies, through which their academic, social, behavioral, and sometimes medical needs are supported. Should there be confusion surrounding definitions or the importance of communication with students themselves, the results may be an increase in the number of seclusion and restraint events we see in the

public school system. The lack of firm universal definitions, on which professionals making decisions about children can rely, only serves to compound the challenge.

In some ways, changes in terminology may be viewed through a positive lens. “It is important to realize that the definition of a scientific concept is not fixed but constantly changing as the observations that apply to the concept are enriched” (Stanovich, 2019, p. 30). Changing terminology may suggest that the field of special education is growing and evolving with the literature and with a greater breadth of knowledge. Encouragingly, like the laws supporting greater access of appropriate educational contexts for students with disabilities, the terminology used to describe EBD has changed over the decades. As early as 1874, a book was published on possible pathological sources or “emotional and physical maladjustment” (Weger, 1874). In the early 1900’s one author titled his article *For Bad Boys* (Wilson, 1907), while another used “children’s problems” to describe undesirable behavior (Jelliffe, 1963). In the 1950’s and 1960’s ED or EBD used to be referred to using personal descriptors (e.g., mentally retarded) and students who were more “difficult” were labeled “uneducable” (Dudley-Marling & Burns, 2014). In 1960, Eli Bower coined the definition for emotional handicaps that served as the foundation of the definition of ED within IDEA legislation (Means, 2019). The definition was a broad umbrella that covered emotional, behavioral, and social problems including “autism, schizophrenia, socially maladjusted, and conduct disordered” (Albrecht et al., 2009, p. 12). We may still see some of those terms in IDEA definitions today. It was not too long after that children at risk for or diagnosed with the aforementioned were referred to as “problem types of children” (Lorion, et al., 1974) who had “acting out problems” (Cowen et al., 1979).

Thankfully, in recent decades we have professionals who work with, and study child behavior have made progress. The 1990 revision of the ESSA to IDEA also included a change in terminology. The phrase “handicapped children” was changed to “children with disabilities” (Silva et al., 2017). In addition, the American Psychiatric Association (APA) updated their Diagnostic and Statistical Manual of Mental Disorders to a fifth edition (5th ed.; DSM-5). It is the handbook used by psychologists, psychiatrists, and other mental health professionals (American Psychiatric Association, 2013). In the update, the APA has made changes specifically impacting the definitions of what constitutes an emotional or behavioral disorder under the umbrella of Child Mental Disorder Classification (Section 3). For example, Social (Pragmatic) Communication Disorder (SCD) is now listed under Neurodevelopmental Disorders, which manifests in the lack of successful communication, acquisition of language, or appropriate conversational skill (DSM-5, 3.1.1). This change in terminology directly impacts schools in that the definition of those who now fall diagnostically under SCD may not qualify under the IDEA disability category of autism. Those children are then likely to be eliminated from support altogether, or (due to the behavioral nature of the new diagnosis) qualify under the IDEA designation of ED.

In their systematic review, Nickel et al. (2017) note that word choice directly correlates to more aggressive treatment choices. Emotional disturbance can carry a negative connotation. Authors further recommend the use of more conservative terminology so parents can make decisions based on data rather than psychological stressors that may accompany the use of terms associated with conditions that have been shown to be overdiagnosed or overtreated (Nickel et al., 2017). Specific, descriptive language within appropriate interventions using universally understood

terms that are created with an understanding of multi-disciplinary input, should be developed and used to better inform decisions for all students. Today, most professionals use people-first language (e.g., APA Manual, discriminatory free language) and there are more and more people making decisions who consider the whole child and not a behavior in isolation. There are more people in places of influence calling for action and accountability to keep students safe and learning.

Legislation and Educational Access

In 2022, it may seem ridiculous or even criminal to consider refusing an equal opportunity for an education to any child in the United States—let alone allowing physical or psychological harm to come to them in the classroom. However, research reveals that thousands of children are still excluded from participation, secluded, or restrained each year (OCR, 2022). Consider, it was not long ago that arguments ensued, and as a result, legislation passed to ensure that all children were able to have access to a Free and Public Education (FAPE) through *P.L. 94-142* (*Education for All Handicapped Children Act*, 1975), which was the precursor to IDEA.. Before legislation impacting the practices and policies around inclusion and the more recent GAO congressional hearing and *H.R. 927* (2009) addressing seclusion and restraint practices, access for individuals with disabilities was initiated on the coattails of *Brown v. Board of Education* (1954, hereafter *Brown*). Today, we view educational access as a right for every child in the United States.

Students with Disabilities in the Classroom

Accountability mandates regarding the use of seclusion and restraint in school settings would not have been possible had it not been for decades of debates surrounding the access for students with disabilities in classroom settings. Discussions range from the right to receive the same opportunities that students without disabilities enjoy to the decisions surrounding percentages of time in certain learning environments and more restrictive placements. By the mid-twentieth century, states had implemented compulsory education laws (1952) even though many excluded students with disabilities and people of diverse ethnic or linguistic backgrounds (Yell, 2019). During *Brown*, the prosecutor used the 14th amendment to argue before Chief Justice Warren that is the right of all people to learn in integrated settings regardless of their racial differences (e.g., Blankenship et al., 2007; Yell, 2019). In the late 1950's, the federal government stepped up to provide funds to the states, which was allocated for the training of "teachers of children with mental retardation" through the passage of the *Education of Mentally Retarded Children Act* (1958) and the *Training of Professional Personnel Act* (1959) (Yell, 2019, p. 42-43). This legislation served as another stepping stone toward access to the general education classroom and began the effort to equip teachers of students with disabilities.

The Elementary and Secondary Education Act (ESSA) was first passed in 1965 and although it did not directly impact all students with disabilities, the funding to support disadvantaged populations (e.g., high poverty areas) and state programs or facilities who assisted students with disabilities who attended state funded schools for "the deaf, blind and retarded" was clear (p. 43). Support for individuals with disabilities in the classroom continued in the following years as *Mills v. District of Columbia* (1972) provided children with disabilities the right to access education with preference to the general education setting (Huefner, 2015). Similarly, *Pennsylvania Association for Retarded Children* (*PARC) v. Pennsylvania* (1972) in concert with *Mills*, contributed early decisions toward providing individuals with disabilities the right to an

education, the foundation for manifestation determination meetings (notice before removal from general education), and individualized and adequate education no matter where it takes place (e.g., Blankenship et al., 2007; Huefner, 2015, p. 216).

Following, in 1973, *Section 504 of The Rehabilitation Act (hereafter Section 504)* was passed, and clearly articulated school requirements by prohibiting discrimination based on disability or medical diagnosis, mandating interventions and prevention measures when discrimination or harassment was suspected. *The Rehabilitation Act* (1973) is a foundational piece of legislation when discussing seclusion and restraint practices. The act mandates that students with disabilities have the same access as other students to all facilities and activities typically conducted on or off campus (Silva et al., 2017; Yell, 2019). Further, it is a civil rights act, which is supposed to help protect students from being over-represented in disciplinary statistics, though the same shows more needs to be accomplished (NCES, 2020). Importantly, *Section 504* did not allocate more federal funding to schools who would comply with its measures. Rather, it served (and serves) as a threshold for student support for schools serving students with disabilities, where those who do not comply may have their federal funding cut off (e.g., Silva et al., 2017).

Two years later, *The Education for All Handicapped Children Act – PL 94-142* (1975) was passed. The *Education for All Handicapped Children Act* was the foundation of what we know today as the *Individuals with Disabilities Education Act [IDEA]* (1990, amended in 1997 and again in 2004) (Blankenship et al., 2007; Yell, 2019). It included some of the most salient provisions for students with disabilities to date. Students with disabilities are guaranteed a discrimination-free assessment process, an active and up to date individualized education program (IEP) and a free, appropriate public education (FAPE) in the least restrictive environment (LRE) (e.g., Silva et al., 2017; Yell, 2019). In addition to civil rights progress, these guarantees became the foundation on which the advocates for the removal of seclusion and restraint in public schools stand. Even so, the current data indicates that students with disabilities and those from linguistically and ethnically diverse backgrounds are more likely to be disciplined disproportionately (e.g., Gage et al., 2020; Katsiyannis et al., 2012).

Seclusion and Restraints and a Scoping Legal History

The case *Daniel R. R. vs. The State Board of Education* further informs the discussion surrounding both the use of aversive procedures and inclusion because severe behavior that disrupts classrooms must now be considered when deciding LRE (Huefner, 2015, p. 222). LRE is infringed upon when a child is secluded. Seclusion, by its very application, is disqualified from being labeled as a student's least restrictive environment. Although seclusion is supposed to be reserved for emergency use only, authors report that historical legislation has shown it has been used as a convenience for educators or staff who did not want to "deal" with a student or a punishment for things such as non-compliant, non-aggressive behavior. (e.g., Trader et al., 2017).

In the 1990's, support for individuals with disabilities extended to older individuals through the *Americans with Disabilities Act* (1990), which guaranteed equal employment opportunities throughout government agencies (Silva et al, 2017, p 26). Title II of the ADA "prohibits disability discrimination by public entities, including public schools, school districts, public charter schools and magnet schools" (CRDC, 2019, www.orcdata.ed.gov). Given statistics that

show the overrepresentation of students with disabilities in seclusion and restraint events, Title II becomes a legal cornerstone for advocates who would remove the procedures from educational settings.

The amendment of IDEA in 1997, addressed the topic of disproportionate disciplining of students with disability (Yell, 2019). Here the strategic implementation of positive behavior supports was introduced as well as the requirement for the Individualized Education Program (IEP) team to make placement determinations (manifestation determinations) should a school choose to expel or refuse access to a student with disabilities for over 10 days. This process was also to determine whether the discipline was due to disability or due to a behavioral choice (e.g., Yell, 2019). The amendment also provided a list of behaviors that would warrant a 45-day removal (e.g., severe bodily harm to another person), even when that behavior was due to disability (Yell, 2019, p. 74).

A few years later in the early 2000's brought another piece of legislation through the *No Child Left Behind Act* (2001). However, due to the high stakes testing requirements, labels of "failing schools," among other disproven components, contributed to the increase in the push back from teachers. In 2004, President George W. Bush reauthorized IDEA, in which included revisions to individualized family service plans (IFSPs), added a child find component for states that mandated the intentional search for students within subpopulations or high-risk areas, included a mandate for states to implement an early childhood transition system, updated procedural safeguards (e.g., parental mediation rights, both criminal and civil in nature), and clarified definitions surrounding terms (e.g., developmental delay).

One challenge within the IDEA revision has been the definition of functional behavior assessments (FBAs) as a disciplinary intervention that happens after a child has been in trouble with the school (NDRN, 2022). This is particularly inappropriate because (as stated previously) FBAs are evidence-based practices for the discovery of the function or source of the behavior (Freeman & Sugai, 2013). The reauthorization also included early intervention services (e.g., ASL, vision specialists, dietitians, assistive technology; IDEA, 2004), removed the Federal Interagency Coordinating Council (FICC), and established the State Interagency Coordinating Council (SICC), where each state appoints a council specifically called to support IDEA Part C (*Individuals with Disabilities Education Improvement Act* [IDEIA], 2004). Finally, revisions mandated the states to prove that they have policies and procedures in place to "ensure meaningful involvement" of wards of the state, rural communities, and children with disabilities (IDEIA Reauthorized Statute, Part C, Amendments in IDEIA 2004). The state policies surrounding wards of the state are of particular interest to students with severe behavioral disorders because many of the more severe disabilities are educated in outside settings and up to 14.8% of the population (e.g., residential correctional facilities; see Table 3).

It was a landmark year for legal emphasis on seclusion and restraint in 2009 as the GAO congressional hearing occurred in March. The previous January, the National Disability Rights Network published the article *School is Not Supposed to Hurt*. Recently (February, 2022) the same supported a letter from the Alliance to Prevent Restraint, Aversive Interventions, and Seclusion (APRAIS) that is set to go before the House Education Committee. The letter indicates

several issues that are still glaringly apparent such as the lack of defined parameters for when and how restraint and seclusion should be used in schools (APRAIS, 2022).

Shortly following, in March of 2010 *H.R. 4247*, or the *Keeping All Students Safe Act* was introduced and regulated the use of mechanical and chemical restraints or restrict a student's ability to breathe (e.g., Gust & Sianko, 2010). The act also proposed to stop the aversive measures from being included in IEPs. Pushback came from major organizations like the AASA. They asserted that the procedures were a necessary and life-saving part of certain students' educational experience (AASA, 2012), others disagree (e.g., Mohr et al., 2010). A revision of the *Act* was initiated in 2011, which allowed seclusion and restraint to be part of a student's behavior intervention plan (BIP) or IEP for those with a two-year history of violent behavior (e.g., Gust & Sianko, 2010; Katsiyannis et al., 2012). This change made room for seclusion and restraint as planned interventions, and set a dangerous precedent for untrained or uninformed staff to use outside of the danger of immediate harm. In 2019, U.S. Secretary of Education Betsy DeVos began an initiative to investigate and regulate state reporting on seclusion and restraint in schools (www.ed.gov). Progress is being made, but for this population must also consider attitudes, processes and systems when determining whether behaviors are due to disability or defiance (e.g., Wienen et al., 2018).

Results

Descriptive Analyses

Calls for Changes and Alternative Supports. The GAO itself reports that there is still little oversight or quality checks for discrepancies in current processes (GAO, 2020). Their recent publication *K-12 Education: Education Needs to Address Significant Quality Issues with its Restraint and Seclusion Data* has provided a list of improvement recommendations for the Department of Education (see Table 4).

Table 4
U.S. Department of Education: 15 Principles for Restraints and Seclusion

Principle	Details
1	Every effort should be made to prevent the need for the use of restraint and for the use of seclusion.
2	Schools should never use mechanical restraints to restrict a child's freedom of movement, and schools should never use a drug or medication to control behavior or restrict freedom of movement (except as authorized by a licensed physician or other qualified health professional).
3	Physical restraint or seclusion should not be used except in situations where the child's behavior poses imminent danger of serious physical harm to self or others and other interventions are ineffective and should be discontinued as soon as imminent danger of serious physical harm to self or others has dissipated.
4	Policies restricting the use of restraint and seclusion should apply to all children, not just children with disabilities.
5	Any behavioral intervention must be consistent with the child's rights to be treated with dignity and to be free from abuse.
6	Restraint or seclusion should never be used as punishment or discipline (e.g., placing in seclusion for out-of-seat behavior), as a means of coercion or retaliation, or as a convenience.
7	Restraint or seclusion should never be used in a manner that restricts a child's breathing or harms the child.
8	The use of restraint or seclusion, particularly when there is repeated use for an individual child, multiple uses within the same classroom, or multiple uses by the same individual, should trigger a review and, if appropriate, revision of strategies currently in place to address dangerous behavior; if positive behavioral strategies are not in place, staff should consider developing them.
9	Behavioral strategies to address dangerous behavior that results in the use of restraint or seclusion should address the underlying cause or purpose of the dangerous behavior.
10	Teachers and other personnel should be trained regularly on the appropriate use of effective alternatives to physical restraint and seclusion, such as positive behavioral interventions and supports and, only for cases involving imminent danger of serious physical harm, on the safe use of physical restraint and seclusion.
11	Every instance in which restraint or seclusion is used should be carefully and continuously and visually monitored to ensure the appropriateness of its use and safety of the child, other children, teachers, and other personnel.
12	Parents should be informed of the policies on restraint and seclusion at their child's school or other educational setting, as well as applicable Federal, State, or local laws.
13	Parents should be notified as soon as possible following each instance in which restraint or seclusion is used with their child.

Principle	Details
14	Policies regarding the use of restraint and seclusion should be reviewed regularly and updated as appropriate.
15	Policies regarding the use of restraint and seclusion should provide that each incident involving the use of restraint or seclusion should be documented in writing and provide for the collection of specific data that would enable teachers, staff, and other personnel to understand and implement the preceding principles.

Note: Source of Principle Details were quoted directly from the U.S. Department of Education (2012).

Antecedent and Preventative Variables. Part of regulating the use of seclusion and restraint in school settings is understanding what may lead to the use of them in the first place. Considering this, we investigated whether researchers included data that were found to preclude the usage of aversive measures or prevent them. Fourteen of the 32 articles reported antecedents with varying detail. Among them were those that did not thematically align into the descriptive analysis category for this project, underscoring the interest in finding not only quantitative data (e.g., frequency and population), but conditions that might lend to the overuse of aversive techniques in the first place (e.g., Connolly et al., 2019). Connolly et al. (2019) also found during their review of case law that the percentage of students who received free and reduced lunch, a context of a "self-contained special education classroom setting" and "ineffective behavioral management" (p. 97) were largely present in hearings for seclusion and restraint complaints.

Bernard-Brak et al. (2014) conducted a probability analysis (Poisson) that resulted in four statistically significant characteristics present for schools who reported seclusion and restraint. They were:

a) the percentage of students on free or reduced lunch plans;
b) the presence of a state law forbidding corporal punishment;
c) magnet school status; and
d) a state law "regulating restraint in the schools" (p. 467).

Gage et al. (2020) investigated the CRDC 2015-2016 dataset to discover percentages of schools that reported seclusion and restraint events and possible school-level predictors for the use of seclusion and restraint. They found that students with disabilities are four times more likely to be secluded than their peers and seven times as likely to be physically restrained. Surprisingly, they also asserted that students who spent their days in special education schools (as opposed to special education classes) were almost guaranteed to be secluded or restrained (e.g., Gage et al., 2020).

Parent and Student Perspectives. Beaudoin and Moore (2018) and Westling et al. (2010) illuminated the issue from perspectives of the parents and those within classrooms who see the real-world impact. Both teams call for alternative methods using de-escalation techniques. Authors provide non-examples that respondents observed while in the classroom including

"four-point holds – one adult holding each limb" (Westling et al., 2010, Table 2) and warn about the potential physical and psychological damage that may result and ask for higher regulation and accountability when necessary (Beaudoin & Moore, 2018).

Policy and Prevention

Alternatively, some authors reported preventative measures rather than the antecedents. Freeman and Sugai (2013) relate several methods to prevent the need for seclusion or restraint even among those students with the most complex behaviors within their study of state policy and legislation. Recommendations include policy requirements during limited, emergency-only use such as, "continuous face-to-face monitoring of the restrained student" and "debriefing" (Freeman & Sugai, 2013, p. 429). They and other authors also reported themes across policy documents including "de-escalation training…[the use of] FBA" (p. 429) and School-Wide Positive Behavior Interventions and Supports (SW-PBIS) years earlier (Sugai & Horner, 2006). While progress has been made in awareness, action is still wanting as evidenced by statistics of growing aversive events (OCR, 2020). Walker and Pinkelman (2018) added that SW-PBIS must be consistent so that seclusion and restraint "becomes unnecessary" (p. 166). They advocated for a multi-disciplinary, multi-person team of professionals who know the student and understand her needs and quality of life. To do so effectively, authors recommend the use of functional behavior assessments (FBAs) to help identify why behaviors occur (Walker & Pinkelman, 2018).

Accountability. National associations and government committees (e.g., the House Appropriations Committee, 2018) have repeatedly called for changes and reform when it comes to accountability practices surrounding seclusion and restraint (e.g., GAO, 2020). As the administrative professionals were visited by the GAO, they indicated that the requirement to look through their district data caused them to discover areas and geographies where their teachers and staff needed more training and where more staffing and greater student supports were necessary (GAO, 2020). In its latest report, the GAO found the following:

> a) quality checks for accountability and accuracy only applied to "very large districts" even though discrepancies were widespread in "districts of all sizes" (GAO, 2020, p. 1);
> b) nothing was in place to examine outliers (very high or low reporting); and
> c) definitions of important terminology (e.g., the word 'alone' in the context of seclusion) have been inconsistently interpreted and therefore reported.

Accountability applies to staff training as well. Once staff are trained in de-escalation techniques and behavior interventions, the accountability must be there to ensure fidelity remains. Once definitions are clearly articulated, staff can be trained on the protocols. Van Acker et al. (2020) provided an analysis of the district policies for a single state without a policy for seclusion and restraint (p. 40). Gage et al. (2020) continued work initiated by Gagnon et al. in 2017, asking about the percentages and characteristics of schools who reported more than one seclusion or restraint event.

Explicit Language. Supporting the suggestion for explicit language, Bon and Zirkel (2014) advocate for the use of ABA language when describing and evaluating seclusion. Authors posit that "a continuum of ascending restrictiveness" (p. 509) for seclusion be utilized as follows:

a) *Inclusion time-out* – where the student is in the classroom and, thus, continues to have the ability to see and hear what is going on in the classroom;
b) *Exclusion time-out* – where the student is in an area outside the classroom but with access to students or staff in another location;
c) *Isolation time-out* – where the student is alone without immediate access to others but not locked. In the designated location; and
d) *Seclusion* – where the student is confined alone in a locked area.

Whether a school chooses to employ the continuum recommended by the authors or not, the clarity of definitions surrounding what is going on and where the students and staff are located during the proposed continuum is written in terms that most people can easily understand. Further advocating for the positive impact of explicit language, Bernard-Brak et al. (2014) discovered a higher probability for seclusion and restraint in schools within states without a corresponding policy forbidding corporal punishment.

Legal Cases in the Literature

Connolly et al. (2019) utilized a grounded theory method to describe and quantify legal cases on seclusion. They found patterns in the literature such as "loose legal boundaries" (p. 89), where expectations and policy were without defined parameters. Another commonality were testimonies or, "expert recommendations" – also without definitions; specifically, as to whom or what expertise qualifies an individual to be considered an expert (p. 96). Further, special education settings were found to be the contexts for all cases within their study (p. 96). This is not surprising considering there were significant complexities "compounded by challenging behavioral manifestations," which were not managed effectively (p. 97). And predictably, the descriptions teachers gave of behaviors during hearings were largely negative in connotation (p. 98).

The final antecedent for seclusion and restraint reported by authors was that of rationalizing the use of seclusion at all. The latter were divided into whether the reason for the use of seclusion was a safety measure or reasons that were not safety-related (e.g., noncompliance, positive experience, and property destruction; p. 98). The fact that seclusion was used for discipline and noncompliance is further evidence for accountability and authors (2019) recommend it be reserved for "imminent risk of harm" (p. 99). In a review of court cases, Prince and Gothberg (2019) commented on a potential correlational condition among their literature. Namely, the lack of appropriate planning or actions preventing seclusion and restraint in light of IDEA's requirement to provide appropriate supports for children with disabilities. Should schools appropriately plan and follow PBIS guidelines, they imply, could result in a decrease in seclusion and restraint events for students with disabilities.

Recommendations for Practice in Literature

Proper training of education staff and support personnel has indeed been linked as one of the strategies that improvements might be made throughout seclusion and restraint literature (e.g., Walker & Pinkelman, 2018). It follows that when individuals are properly supported, the "need" for the employment of emergency aversive measures such as seclusion and restraint will also be less no matter where the education is taking place. Educator training on de-escalation techniques, and other teacher-focused support has been shown to mitigate the use of seclusion and restraints

(e.g., Gagnon, 2017, p. 67; Walker & Pinkelman, 2018). Teachers have not been shown be fully equipped when encountering severe behavior in classroom settings, which has resulted in unnecessary seclusion or restraint procedures being performed (e.g., Huefner, 2015, p. 219; Kratochwill et al., 2004; Walker & Pinkelman, 2018).

Relatedly, in a recent study, Lake (2022) investigated sensemaking of seclusion and restraint policy by teachers living in Michigan after they received education surrounding seclusion and restraint policy changes. They considered the policies implemented by Michigan state and the process their teachers go through before implementing a new policy or regulation. Authors also assert that teachers themselves go through a cognitive process based on past experiences, personalized interpretation of policy and managing personal emotions (Lake, 2022, p. 7). This finding builds upon other research, acknowledging that addressing a lack of self-efficacy in one's classroom can be daunting, but when approached from an appreciative perspective, teachers may be pushing back due to their genuine concern for properly or excellently doing the work of an educator. Findings included educators' (e.g., paraprofessionals and special educators, not general education teachers) increased use of de-escalation techniques, proactive engagement with students, and an increase in the "desire to be more proactive avoid or minimize the need for seclusion and restraint" (Lake, 2022, p. 11).

Trader and colleagues (2017) provide a list of contributive factors to be considered by practitioners. They are:

> a) The inclusion of students with significant emotional and behavioral needs in general education settings;
> b) the lack of specialized support for students in these settings; and
> c) the limited training provided to teachers and school staff to address intensive behavior support needs. (p. 76)

Alarmingly, the authors reported that the majority of students who are secluded or restrained fall between the ages of 6-10 years. These data confirmed the same indicated by the analysis of frequency conducted by Villani et al. (2012).

Lastly, authors investigate the disproportionality of students with disability and varying ethnic backgrounds in disciplinary statistics (Katsiyannis et al., 2020). Using risk ratio analyses, they found that controlling for size of district, a student with a disability (SWD) was over three times more likely to be secluded or restrained than their peers. Further, Black students were 156% more likely to be secluded or restrained, but schools with "more Black or Hispanic students secluded less Black students" than other schools. Interestingly, there was no difference between elementary or middle schools for this group, whereas in schools where less Black children attend, the majority of seclusion and restraints happened in elementary school settings (p. 275).

School or Administrative Policy. Teacher training has been shown to be effective in reducing the frequency and severity of aversive procedures, but it is not the only suggested alternative. Another recommendation for education surrounded the awareness of state and national policy (e.g., Azizoglu, 2010; Connolly et al., 2019; Jewell et al., 2017; Kaplan, 2010). Marx and Baker

(2017) indicated that at the time of their analysis "38 states had legislation and 45 states had policy related to seclusion and restraint available" (p. 28).

One study examined whether a single state's district data on seclusion and restraint policy incorporates the 15 recommendations found in the US Department of Education's reference document (Van Acker et al., 2021). Further, they discovered that school districts did not create school or district specific policy guidelines. Rather, many of the districts had almost identical policies and contracted out to companies who wrote policy documents for them and "made minor alterations" (p. 44). This is surprising considering that enrollment size of the school district size may moderate whether the district addressed the 15 principles set forth by the US Department of Education (see Table 2).

Discussion

The purpose of this scoping review was to investigate the peer-reviewed literature surrounding seclusion and restraint procedures within educational contexts since the GAO Congressional Hearing of 2009. We investigated the emergent themes and found that the practice of seclusion and restraints continues to rise despite the recent increase in awareness. Further, authors continue to report a lack of training among those who misuse seclusion and restraint procedures (e.g., outside of absolute emergencies). We found the overrepresentation of culturally and linguistically diverse students in the seclusion and restraint literature. However, demographic data were inconsistently reported across articles, which may have provided better insight into these discrepancies. Additionally, students with disabilities, specifically ED, constitute a majority of all seclusion and/or restraint procedures. More accountability measures need to be put in place to ensure students are safe, staff are adequately trained, and parents are informed if and when an emergent situation occurs, supporting our educational environments so learning may occur in safety. This section has been organized to address limitations, recommendations for practice, policy, and future research.

Limitations

Timeline and Grey Literature. We acknowledge that the COVID-19 pandemic may have impacted the ability for authors to obtain articles or studies that would have otherwise been included in this scoping review. We further acknowledge that this review did not include grey literature, in which there may be other studies or articles relevant to the discussion surrounding the research questions investigated.

Recommendations for Practice

Teacher Training and Education on Policy. Teacher education continues to be a significant factor in the frequency of or misuse of seclusion and restraint practices. As such, we highly recommend prioritizing teacher education on the negative effects of aversive procedures on students as well as state and district policy of aversive procedures. Supporting teachers in today's inclusive classrooms should also mandate policy change toward the protection of the students and the teachers themselves. Specific strategies that target support for educators may include emotional intelligence training as well as mastery of de-escalation techniques, common external behaviors and alternative classroom management (e.g., standing rather than sitting). In response to the literature surrounding the efficacy of FBAs, we recommend teachers receive training in the

principles of behavior analysis, including how to recognize environmental variables influencing behavior and to implement behavior support strategies aligned with the FBA results. Collaboration with trained behavior analysts can help ensure appropriate interventions and prevent the inadvertent reinforcement of harmful or unwanted behaviors. Building on the literature by Lake (2022), we recommend that teachers be informed regarding state and district policy and skilled in classroom management. Lake (2022) found that teachers "implemented new regulations and made sense of seclusion and restraint in the new regulatory context" (p. 8). No matter the student population, if a teacher is unable or unskilled in classroom management, there is a high probability that effective teaching or engaged learning are not taking place. Teacher perceptions of a lack of training provided by employers support this recommendation.

Educator Resources. Further, we recommend the proactive effort from teachers and administrators to find educational resources, and increase effective collaboration with other veteran general or special education teachers to increase self-efficacy in classroom management. If the perception is that teachers do not feel qualified, and IDEA (2004) mandates highly qualified individuals to educate students with special needs, the likelihood that new educators employ proper classroom management strategies and techniques is low, and stress can increase (e.g., Gidlund, 2017). Given the support strategies recommended in the literature (e.g., Hoagwood et al., 2007; Kratochwill et al., 2004), we recommend the active pursuit of partnership with community members and other individuals who regularly interact with students who have been diagnosed with severe EBD as they are likely to be the students with whom the teachers interact in high-risk situations.

Additionally, schools that are found to disproportionately seclude or restrain students of color or of linguistic diversity, we recommend personnel be trained in strengths-based approaches to student learning. This individualized approach takes into consideration a student's cultural, linguistic, academic, medical and social history and mindfully implements strategies to set them up for success. We also recommend personal reflection and for staff to take into account the unique circumstances. For example, whether the offense was caused by the child's disability, their disciplinary history including the number of offenses, and whether the child understood the consequences of their behavior. These and other considerations should be carefully weighed when considering disciplinary, placement, or redirective actions that impact the child (e.g., IDEA, Part B, §§300.531). Finally, we recommend teachers intentionally partner with outside services and sources of help including, but not limited to the student's family.

Educator Health. Also, we recommend teachers understand and communicate their needs, both physically (e.g., paraeducator supports, more time to prepare) and mentally (e.g., what they are able to handle and what they are not). Since the correlation of seclusion and restraint with lack of training is thematically represented across the literature and not all educators receive the necessary training to manage a classroom that serves individuals with behavior disorders, we recommend open communication with supervisory administration and colleagues. We further encourage teachers to avoid the negative conversations about students through the misapplied assumption of malicious motive, which has the potential to taint the opinions of other teachers (Gidlund, 2018).

Clinical Support and Guardian Information. Researchers and professionals from the field of special education agree that clinical support in school settings may provide students with disabilities the necessary support they need for academic and social success given that the percentage of students with behavioral challenges is growing (e.g., Freeman & Sugai, 2013). One potential contributor to this increase is that some students may have been placed within learning environments that are not well suited for their individual needs (e.g., high stimulus), where the likelihood for disruptive behavior or emergency situations increase dramatically. Another reason may be that with certain diagnoses (e.g., ED or autism) and for some children who are ELL, communication between student and teacher may be significantly hindered. The lack of communication may decrease the threshold for what educators or paraeducators perceive as a "dangerous" or "deviant" behavior. Couple this situation with anyone unfamiliar with de-escalation techniques, rapport building strategies or other preventative measures and there is a much higher likelihood of an unnecessary escalation that may develop into a perceived "emergency." The literature shows that the interpretation of what constitutes an emergent situation is often more subjective or broadly applied (e.g., a paraeducator may hold down a student in their seat when they do not obey the mand to "stay seated"), and may open doors for repeat occurrences. Further, Yell et al. (2018) assert that for individuals diagnosed with mental health needs, psychotherapy, counseling, and some residential services may be covered at school expense. However, many parents and even school professionals either do not know these services exist or are simply uninformed that they are available to them (Connolly et al., 2019). The data provided strongly demonstrate that further work needs to be done to effectively support individuals with ED and other disabilities in classroom settings in an intentional effort to reduce/eliminate seclusion and restraint in this high-incidence population altogether.

Policy

Implications for Policy-Makers. The terminology chosen to describe disorders or disabilities matters. The impact of word choice has been shown to influence how practitioners manage conditions, whether considering the best treatment or the most appropriate strategy to achieve targeted outcomes (e.g., Nickel et al., 2017). Studies have shown that negative verbiage used to describe inclusionary settings and students with EBD only serve to perpetuate negative postures toward having students with disabilities in general education classrooms in general (e.g., Gidlund, 2018). In light of the increase in diagnoses of EBD or other health impairment (e.g., ADHD), the authors recommend a change in the terminology (e.g., ED) to something with a less-negative connotation. The implication is that *my child is disturbed* and may be frightening to parents especially when making decisions surrounding behavior intervention plans (BIPs), PBIS and best placements.

Further, the language used in federal law should be made clear. Teachers should not have to rely on subjective inference when in high-risk environments, and neither should students be subjected to the emotional landscape of undisciplined educators or staff. The verb secluding should not be described as "on a continuum" without clear definitions of what that means (Bon & Zirkel, 2014). The topic of terminology warrants more investigation as to how it might apply in educational contexts.

Implications for Parents. Parents, by law, need to be informed when seclusion and restraint procedures are implemented on their child. IDEA mandates this, but the accountability has fallen

short. We recommend, along with other authors in this review (e.g., Jewell et al., 2017), a more accurate accountability system that tracks school and district timelines for parent contact and the dispersing of information that is not subject to falsification. Further, training for parents is as critical to a child's wellbeing as a well-trained special education teacher. Parent training in behavior management by a knowledgeable therapist has proven to improve behavior in children with severe behavior disorders (Center for Disease Control [CDC], 2020). Parents may take advantage of community support and online resources to supplement their knowledge. Lastly, we recommend, whenever possible, respite care for parents through community agencies or nonprofit organizations to provide relief.

Recommendations for Future Research

Studies that were included in reviews, or reviews of reviews, indicated that many times data were not disaggregated by ethnicity or disability. The lack of disaggregation limited the interpretation and inference for application for individuals specifically looking for strategies (e.g., McKenna et al., 2019). This is particularly problematic and even concerning given the overrepresentation of individuals of color or with linguistic diversity in the data. We recommend that in future research syntheses and in individual studies, special education researchers disaggregate data by disability, ethnicity, gender and age group (at minimum) for a more thorough analysis of possible implications. We also suggest another line of research into possible "hidden curricula" within the teaching profession as a whole and within special education in particular. If we can gather data on automatic or readiness criteria that veteran teachers, administrators, or special education professors expect, we can better equip new teachers for the field and limit seclusion and restraint occurrences.

Research across disciplines has shown that a student's emotional, mental, and academic well-being will not be supported by a single factor (e.g., Kratochwill et al., 2004; Tottenham, 2019). However, only a handful of scoping and systematic reviews focused on students with ED (and only a few parsed out severe ED) that included both mental health and academic outcomes in addition to reducing unwanted behavior (e.g., Hoagwood et al., 2007). As such, we recommend conducting additional research surrounding the genesis of extreme behavior as well as strategies that are specifically targeted for the tier III level of MTSS and in which context students best respond.

Conclusion

Consistent with the findings presented in the articles within this scoping review, we recommend that changes be made to language, policy, and practice to reduce the number of seclusion and restraint occurrences in public schools – especially for the overrepresented groups mentioned in this review. In particular, students with severe EBD should be supported appropriately and intentional measures taken (e.g., FBAs and teacher training) to ensure their safety and success in school. Future dialogue around a continuum of support for students with the most severe behavior warrants a broadened definition of "appropriate supports" (e.g., psychiatrists, alternative settings when appropriate). The continuum of support should be provided to students and families to best serve the population of students with EBD in school contexts (e.g., Kratochwill et al., 2004; Yell et al., 2018). Further, the reduction of confusing terminology, and

policy adjustments that increase accountability and enforcement needed to protect students and families from harm will hopefully result in data trends that show a decreased number of occurrences as well as more favorable outcomes for students with and without disabilities. The more voices we can get at the table of discussion, the more disciplines we can source for pertinent information. The various experts committed to change will help educate and equip all students. Lastly, we underscore the importance of educator training to actively reduce the number of occurrences of seclusion and/or restraint in public schools. They are the ones who are on the front line of interaction and learning for children. Teachers should be supported, educated, and given the proper resources to ensure their classrooms are safe for themselves and for every child who enters.

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Modeling Co-Teaching for Collaborative Proficiency

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Abstract

Co-taught lessons representing four co-teaching models (One-Teach, One-Observe; One-Teach, One-Assist; Station-Teaching; Team-Teaching) were developed and implemented by one science education faculty, one mathematics education faculty, and one special education faculty as part of the one-semester science and mathematics education coursework for K-6 preservice teachers. Procedures for implementation of the co-teaching models are described. Focus-group interview data were gathered from a purposeful sample of 10 preservice teachers to explore the participants' perceptions concerning the benefits of modeled co-teaching to their own collaborative preparation. Findings reveal that the preservice teachers viewed co-teaching favorably in terms of increasing their own knowledge of and ability to implement collaborative teaching practices.

Keywords: co-teaching, cooperative learning, teachers and teaching, teacher education, special education, teacher knowledge, special education pedagogy

Modeling Co-Teaching for Collaborative Proficiency

Improving access and support for students with disabilities within the general education curriculum is both a goal and a legislative mandate for schools and teachers. In general education classrooms, co-teaching between general and special educators can benefit all students—those with and without special needs (McDuffie et al., 2009). Equitable learning opportunities and curriculum access for all students are further promoted by co-teaching. Preparing teachers to meet diverse educational needs within the same classroom is the task of teacher preparation programs where authentic collaborative experiences must be provided to facilitate future instructional implementation (Blanton et al., 2017). As schools adopt more inclusive practices and more special needs students are placed in general education classrooms, there is an even greater need to prepare preservice teachers (PST) for teaching roles that require collaboration and co-teaching (Friend et al., 2010; Ricci & Fingon, 2018).

While the approach of combining general and special education training has shown promise in preparing PSTs for more effective inclusive practices (Gehrke & Cocchiarella, 2013; Lautenbach & Heyder, 2019; Ricci & Fingon, 2018), few university programs provide such combined training to PSTs (Allday et al., 2013; Harvey et al., 2010; Mandinach et al., 2015).
Thus, the purpose of this study was to explore the implementation of co-teaching in two redesigned science and mathematics education courses and the perceptions of PSTs concerning the benefits of co-teaching to their own collaborative preparation.

Literature review

Research on co-teaching in K-12 classrooms

Co-teaching is an instructional strategy in which two teachers, traditionally one general educator and one special educator, jointly deliver instruction to students (Friend et al., 2010). General educators bring discipline-specific (i.e., mathematics, science) expertise to the partnership, while special educators contribute expertise focused on enriching the learning experiences of individual students with disabilities (Strogilos et al., 2022).

The six models of co-teaching (Friend et al., 2010) represent various instructional arrangements to leverage the available expertise of both the general educator and the special educator. *One-teach, one-observe* involves one teacher taking the lead in delivering instruction while the other teacher observes student progress or behavior. *One-teach, one-assist* is similar in that one teacher takes the lead for instruction, but in this model, the other teacher circulates to provide support for individual students, answering questions or providing other one-on-one instructional support. *Station-teaching*, similar to learning centers, includes one station set up for student independent work, while each of the other two stations is led by one of the co-teachers. The students rotate through each station, so all benefit from the expertise of both co-teachers and are provided independent practice time as well. *Parallel-teaching* involves both co-teachers teaching the same material simultaneously to two equal groups of students, thereby increasing attention and opportunities to respond for each student. *Alternative-teaching* is similar, but instead of equal groups, one co-teacher delivers instruction to a large group of students while the other co-teacher works with a small group needing additional support. Finally, *team-teaching* involves both co-teachers interactively delivering instruction to the whole class.

According to Solis et al. (2012), co-teachers should use variations of grouping arrangements to enhance instructional design and delivery. However, research on the implementation of co-teaching in K-12 classrooms suggests that one-teach, one-observe and one-teach, one-assist are the models most commonly used in practice (Strogilos et al., 2022). While some have expressed concern that these two models may underutilize the co-teacher in the support role, the prevalence of use suggests the need to include one-teach, one-observe and one-teach, one-assist models in preservice training on co-teaching.

Research on co-teaching in university teacher preparation programs

Co-teaching has been identified as an effective teacher preparation strategy based on data collected from both PSTs and their university instructors who participated in co-teaching (Bacharach et al., 2007). The university instructors had favorable responses to co-teaching, and the PSTs, who were the consumers of co-taught instruction, reported that being exposed to two different sets of expertise and experiences on topics was beneficial. While the vast majority of teacher preparation programs claim to offer such coursework, Mandinach et al. (2015) found that instruction provided in teacher preparation programs did not reflect the recommended range of data collection techniques, with teachers frequently feeling unprepared to gather and use informal data about their students to guide their own practice.

According to Harvey et al. (2010), faculty noted that all of the PSTs participating in an introductory special education course and relevant field experiences were provided opportunities

for collaboration and cross-disciplinary learning. Special education faculty were in strong agreement that a collaboration course was offered to special education PSTs, while elementary education and curriculum and instruction faculty indicated less agreement that their PSTs were offered access to such a course. Responses from all participants indicated inconsistent access to courses that were taught across programs or in an interdisciplinary manner. Moreover, 70% of all participants reported that their programs offered no teacher-education co-taught classes but identified that such a course (co-taught by general education and special education faculty) would be beneficial to their development as inclusive teachers.

Further examining the state of inclusion coursework offered to PSTs in elementary teacher education programs in colleges and universities, Allday et al. (2013) identified elementary teachers as needing a "wide range of skills and dispositions" (p. 301), including skills in collaboration and differentiating instruction, to effectively support the diverse group of learners they encounter in their general education classrooms. Findings indicated that only 6% of the teacher education programs represented required a course on collaboration. The average amount of coursework dedicated to collaboration between general education and special education teachers was less than 0.3% of the overall course load for elementary PSTs. Moreover, coursework dedicated to inclusion or differentiated instruction accounted for an average of only 1.9% of elementary PSTs' overall course load.

In a similar study, Gehrke and Cocchiarella (2013) explored aspects of teacher-preparation coursework and field experiences related to PSTs' ability to support inclusion in practice. While the majority of participants reported being able to identify characteristics of inclusion in an academic sense (i.e., the definition of the structure of inclusion presented in a textbook), approximately half reported receiving instruction on how to implement inclusion practices in a classroom. Results indicated that PSTs were concerned with developing the skills to implement inclusion rather than simply knowing the textbook definition. Furthermore, PSTs found that engaging in collaborative learning activities was essential to improving comprehension of inclusion and gaining practical implementation strategies. According to findings that are consistent with Arndt and Liles (2010), university coursework frequently leaves PSTs with a "separate spheres" framework that does not integrate general and special education. To give PSTs real-world collaborative experiences, more opportunities for collaboration are suggested, as well as modeled co-teaching.

Ricci and Fingon (2018) and Yopp et al. (2014) also noted the value of providing opportunities for PSTs to engage in co-teaching experiences. Ricci and Fingon (2018) explored co-taught sessions within two teacher preparation courses on reading/language arts instruction in which general and special education faculty delivered content while modeling the process of co-teaching. A culminating activity for the PSTs was a lesson planning assignment in which partners co-planned differentiated reading instruction that could be delivered to diverse learners in K-12 classrooms. Data revealed that the co-taught sessions increased PSTs' knowledge, practical information from both a general and special education perspective was shared, and the overall delivery of content was effective. A significant increase in the PSTs' perceptions of their own collaboration skills from the beginning to the end of co-taught instruction was also noted.

In order to improve PSTs' capacity to support conceptual understanding of mathematics topics through co-teaching, Yopp et al. (2014) used co-teaching in a secondary mathematics teacher preparation program to train mathematics PSTs for middle or high school positions in high-need urban schools. The majority of PSTs found co-teaching to be an effective model for enhancing their own teaching of mathematics, which led to better learning experiences for students. The PSTs identified other ways in which participating in co-teaching prepared them for their own classrooms, including being better prepared to work collaboratively with paraprofessionals, special educators, and other general educators across content areas. In addition, a high percentage of PSTs reported success with implementing the one teach, one observe (90%), and one teach, one assist (100%) models of co-teaching.

In summary, research suggests that university teacher-preparation faculty can implement co-teaching to improve the readiness of PSTs to deliver effective collaborative instruction that better addresses the needs of students with disabilities accessing the general education curriculum. Further, consideration of how university co-teaching is implemented and PSTs' perceptions of that implementation are necessary for effective use of the co-teaching strategy.

Context of the study

The K-6 program in this study is unique as the PSTs are prepared, through coursework and field experiences, for general education and special education settings. In an effort to better prepare elementary PSTs to plan and implement integrated Science, Technology, Engineering, and Mathematics (STEM) education, the mathematics and science methods of instruction courses were revised to include integrated mathematics and science pedagogy using four of Friend et al.'s (2010) six co-teaching models.

One-teach, one-observe

The one-teach, one-observe co-teaching model was demonstrated during an integrated science and mathematics lesson on camouflage and fraction number sense. The science and mathematics faculty worked together to accomplish the "one-teach" part of the model, and the special education faculty the "one-observe" part of the model. The lesson began with a prompt from the math educator, "Have you ever worn camouflage?" with PSTs placing sticky notes on a large one-factor Venn Diagram. The mathematics educator then engaged students in discussion comparing the fraction of students who reported having worn camouflage before and those who had not, asking such questions as "How might the fractions have been different if we were in a different region of the country or in a more urban setting versus rural?" The science educator then provided an in-depth treatment of camouflage, focusing on different modes of camouflage (ex., color, pattern, texture) that creatures use to both protect themselves from predators and improve their predatory abilities.

The special educator engaged in active observation of both the PSTs and the instructors while the science and mathematics educators were providing content instruction. Modeling how a co-teacher can observe their own colleague to obtain valuable data for reflecting on and improving instruction, the special educator recorded frequency counts, first of the types of questions the science educator asked the PSTs and second of the frequency with which PSTs were given opportunities to respond (OTR). To take frequency count data on the type of questions asked, the

special educator first identified four categories of questions: yes/no, short answer (e.g., 1- to 3-word response), extended short answer (e.g., 1-2 sentence response), and open-ended answer (any extended response of more than two sentences). Next, the special educator, sitting in the back of the room, noted the time and began recording with tally marks every time the science educator asked one of the four types of questions. This was all done inconspicuously, so the PSTs were not aware that the special educator was doing anything more than casual observation of the class. A similar procedure was followed for the observation of OTR provided by the mathematics educator. First, the special educator identified the back row of PSTs as a targeted group that may not receive the same OTR as others in the class. In doing this, the special educator modeled how a co-teacher could record and use observational data to compare OTR provided to a specific targeted group of students, such as students with an IEP, students with a communication goal, students at risk for failure, etc. Again, the special educator sat in the back of the room and appeared to casually observe classroom activities. The time was noted, and the special educator recorded tally marks every time the mathematics educator called on a preservice teacher in the back row or a preservice teacher sitting elsewhere in the class.

Having already modeled the collection of frequency (or event-recording) data, the special educator next modeled duration recording in his observation of the PSTs. First, the special educator recorded duration data for PSTs accessing personal devices during science instruction. The special educator identified one row of PSTs as a representative sample, noted the time, and then began observation. The special educator was positioned at the back of the classroom and chose a row of PSTs that could be observed accurately and inconspicuously. Cell phones and laptop computers were the two primary device types that PSTs were seen using, and the duration of time that PSTs accessed the devices was recorded in seconds and minutes.

The concept of duration recording was also modeled through a hands-on activity in which PSTs had to camouflage small pieces of paper using color and/or texture before pasting them in the classroom for their peers to find within a set amount of time. This more interactive lesson allowed the special educator to model observing behavioral data on a particular target preservice teacher. The special educator identified interpersonal communication as the target behavior and recorded duration data for any time the target preservice teacher conversed with a peer or peers. Duration data were categorized based on the number of words spoken (1-3 words, 4-12, 13-30, 31+). A comparison student (preservice teacher) was chosen, and duration data were collected in the same way for this preservice teacher to establish a point of reference against which the data collected from the target student (preservice teacher) could be evaluated (Lee et al., 2020). In order for the demonstration to be useful for class discussion, the special educator chose a particularly quiet student to be the target student and a particularly gregarious student as the comparison. Note that this was done for purposes of demonstration, and the PSTs were told that choosing a typical rather than an exceptional comparison student may be preferred in practice.

After gathering information from teachers and the PSTs through observation, the special educator addressed the PSTs to explain what had been modeled. The special educator engaged the PSTs in a brief discussion of the six models of co-teaching (Friend et al., 2010), emphasizing the prevalence of the one-teach, one-assist and the one-teach, one-observe models and the importance of active observation when utilizing those models in particular. A discussion on active observation, including various types of data recording strategies, followed. In order to give

the PSTs an authentic example of how to gather such data and how instruction can be informed by reflecting on that data, the special educator was able to present the real observational data that was captured during the instructional activities.

One-teach, one-assist

The one-teach, one-assist co-teaching model was demonstrated during a hands-on learning activity called "Birds and Worms" appropriate for 3rd-grade students. The science and mathematics educators worked together to accomplish the "one-teach" part of the model, and the special education educator modeled the "one-assist" part of the model. The Birds and Worms activity began with the PSTs being divided into teams of six. In each of three rounds, the "Birds" (PSTs) took turns to find "Worms" (e.g., marshmallows, toothpicks, dog food) representing various levels of camouflage scattered in a predesigned area outdoors that included both a grassy area and a flower bed area with pine straw. Each round was restricted to a one minute in which all team members had to find a worm or not. At the end of each round, the PSTs recorded data on the number of worms of each type they had found (including no worm found). After all three rounds were completed, those data were used to create and compare fractions using fraction strips and a number line.

During the activity, the special educator circulated among groups to actively assist PSTs by re-explaining rules, answering questions about the activity, checking to ensure that data were recorded correctly, etc. The special educator also modeled how an assisting co-teacher could fulfill an important role in behavior management during such an activity in an elementary class. Upon returning to the classroom at the completion of the activity, the science and mathematics educators taught interactively, each making content connections. The mathematics educator guided the PSTs through representing the number of "found worms" as a fraction, first visually through the use of fraction strips and then numerically with fraction notation. The science educator used questions such as, "Why do you think a large fraction of marshmallows were found so quickly?" and "What might explain why a small fraction of toothpicks were found despite their light color?" to integrate the science concept of camouflage with the exercises in representing fractions.

The special educator then led the PSTs in a discussion on differentiated instruction and what part of the activity might be amended to better facilitate learning for all students, providing an example of considering the number of "worms" provided, which would ultimately become the denominator of the fractions. If the teacher wished the students to make their own fraction strips (as was done in the modeled activity), then a denominator such as 4 or 8 would allow students to simply fold their strips in half to create accurate fractions, whereas a denominator of 6 would be more difficult for students to represent accurately and could lead to misconceptions regarding equivalent fractions. The special educator discussed providing explicit science instruction emphasizing aspects of camouflage other than color since those other aspects of camouflage (texture, pattern, shape) were what the PSTs had demonstrated less familiarity with during class discussion. The special educator also pointed out how human behavior exhibited by the PSTs during the activity (e.g., purposely trying to find the most difficult or well-camouflaged worms) could impact the demonstration of how camouflage affects animals in a predator- prey relationship in nature. The special educator encouraged the PSTs to explicitly teach any core concepts that PSTs were expected to gain from the hands-on activity, rather than relying solely

on implicit exposure to those concepts through participation in the learning activity alone and also discussed instances where misconceptions may have occurred.

Team-teaching

The team-teaching model was demonstrated during a lecture on standards and learning progressions at the elementary level. All three faculty (mathematics, science, and special education) led whole-group instruction together, offering various perspectives on standards and learning progressions (Friend et al., 2010). The mathematics educator emphasized how mathematics skills and concepts build upon each other and how teachers need to give attention to background knowledge and pre-requisite skills to increase access and facilitate success for all students. Attention was also given to the importance of developing a conceptual understanding of mathematics rather than focusing primarily on procedural fluency with rote computations.

The science educator noted the spiral nature of science standards where students may work on the same general standard across several grades, but their understanding of the topic would become more complex and nuanced over time. An example that the science educator in the current study used was the pollution and contamination of water sources. For younger elementary students, the teacher's goal may be simply to introduce students to the idea of polluted water sources and establish the understanding that pollution can travel from one location to impact another. For older students, concepts such as measuring the pH of soil and water and mapping those data would represent a more complex learning activity related to the same general standard explored in younger grades.

The special educator extended the mathematics discussion to include background knowledge and pre-requisite skills. The special educator offered a competing perspective on the balance between conceptual understanding and procedural fluency by reminding the PSTs of the importance of explicit instruction for students with disabilities (Lee et al., 2020). Specific features of explicit instruction that facilitate positive learning outcomes for students with learning disabilities include modeling the steps for solving problems, sufficient practice opportunities, ongoing feedback, use of various visuals and work examples, and explicit strategy instruction (Lee et al., 2020). As the use of math manipulatives was a key feature of the mathematics educator's discussion in the current study, Satsangi et al.'s (2018) description of the successful integration of math manipulatives and explicit instruction for students with disabilities offers insight into how the PSTs might accomplish explicit instruction in their own classrooms.

The special educator transitioned the PSTs from the discussion of the spiral nature of science standards to a discussion of alternate achievement standards for students with disabilities. Federal legislation provides that states may assess students with significant cognitive disabilities using alternate achievement standards. Alternate achievement standards are based upon general education standards for each subject but are modified based on the learning needs of cognitively disabled students who are persistent low performers even when provided high-quality instruction. The special educator discussed challenges related to reliance on alternate achievement standards, including a lack of access to functional skills for severely disabled students who may then be underprepared for post-secondary independent living outcomes.

Station-teaching

The station-teaching co-teaching model was demonstrated during a feedback session in which the elementary PSTs received guidance and instruction on how to properly create an integrated STEM five-day lesson plan utilizing principles of Universal Design for Learning (UDL). Universal Design for Learning (CAST, 2018) offers guidelines for teachers to incorporate into their lesson plans to increase access for students with and without disabilities across three areas: representation (offering multiple and flexible ways of representing content to students), engagement (using various means to motivate students and increase engagement in learning tasks), and action and expression (varying how students can communicate their learning and express what they know).

In modeling station teaching, two were facilitated by the science and mathematics faculty, where the PSTs could access content-specific expertise to inform their understanding of the mathematics and science standards. The PSTs were also able to receive guidance regarding the integration of science and mathematics content in their lesson. The special education faculty facilitated a third station for the PSTs to access expertise related to differentiation and UDL guidelines. Special attention was given to breaking down mathematical problem-solving procedures (e.g., scaffolded instruction) and providing students with tools to facilitate memorization (e.g., mnemonics) of science terminology. Attention was also given to creating alternative assessments that appropriately assessed content standards while reducing reading and writing demands (e.g., activity-based assessments). The fourth station was set aside for independent work, as recommended by Friend et al. (2010), where PSTs were able to develop their lesson plans aside their peers with whom they could engage in brainstorming or peer review. The PSTs rotated in groups through the four stations, experiencing the benefits of the station-teaching co-teaching model as one way by which students can access the unique expertise of separate co-teachers.

Method

In the current study, a grounded theory approach was used to explore the perceptions of PSTs regarding the benefits of exposure to modeled co-teaching in the PSTs' own preparation for providing instruction to mixed groups of general and special education students. The grounded theory approach was chosen because it offers a systematic process for collecting and analyzing qualitative data in order to explain a process, action, or interaction (Creswell, 2002) – in the case of the current study, the process of PSTs developing collaborative expertise and skills. In their foundational work on grounded theory, Glaser and Strauss (1967) note the need for gathering and analyzing actual field data from participants, and Charmaz (2006) stressed the value of participants' perceptions as authentic data needed to develop theories or explanations. Specific research questions were:

1. What were the perceptions of preservice teachers regarding the benefits of being exposed to modeled co-teaching by general education and special education faculty in teacher preparation coursework?

2. After exposure to the modeling of co-taught instruction, how do preservice teachers consider plans for teaching both general and special education students in inclusive classrooms?

Participants

Fifty-five PSTs (mostly female ~98% and Caucasian ~87%) were enrolled in a K-6 teacher education program at a moderately sized, four-year public university in an urban setting in the southeastern United States. The PSTs were enrolled in two science and mathematics elementary methods courses, a special education course, and participated in general and special education field experiences in this final semester of coursework prior to the internship. Out of the 55, ten PSTs representing a diverse sample were invited to participate in focus group interviews. These PSTs represented unique voices and personalities in their classes and demonstrated a high level of interest and effort in planning and implementing differentiated lessons. Seven of the invited PSTs agreed to participate in the focus group interviews.

Data collection

A focus group interview was arranged after the semester in which the modeled co-taught instruction was delivered to gather in-depth data on the PSTs' perception of the modeled co-teaching instruction, as well as their ideas on how they might implement such strategies in their own classrooms. This was after final grades were posted for the semester so that PSTs could speak freely without concern that their answers would impact their grades. The researchers, also the instructors who delivered the modeled co-teaching, conducted the focus group interview session that lasted approximately 30 minutes and was audio-recorded. Interview questions included queries about preservice teachers' 1) perceived benefit of being exposed to the various models of co-teaching, including specific strategies for active observation of students; 2) enhanced ability to notice positive and negative examples of collaborative strategies when participating in student-teaching or field experience opportunities; and 3) perceived readiness for implementing collaborative practices in their own classrooms. The PSTs were also asked how the modeling of co-taught instruction impacted their willingness or enthusiasm to teach in inclusive classrooms (made up of both general and special education students). Follow-up questions were asked during the interviews, as appropriate, including one specific line of inquiry that probed further on shared planning and the balance of roles between general and special education teachers.

The collection of data described above was accomplished in tandem with the collection of both quantitative and qualitative data on preservice teachers' self-efficacy for integrated STEM teaching for separate analysis. All qualitative data were collected through the focus group interview; specifically, all data analyzed for the current study came from the portion of the focus group interview that dealt directly with co-taught collaborative instruction. Field notes were used to inform the description of modeled co-taught instruction.

Data analysis

Interview data were transcribed verbatim and entered into the qualitative data management program ATLAS.ti. Data analysis began with initial line-by-line open coding, followed by axial coding by which initial codes were combined into categories and subcategories (Charmaz, 2006). Further analysis revealed subcategories related to the major or overarching categories. The

following subcategories were connected to the major category of "SPED teacher not actively involved in instruction": Lack of Content Knowledge, Challenges with Co-planning, and Lack of Personal Compatibility or Role Conflict.

Results

Initial line-by-line open coding of interview data resulted in 46 codes assigned to the qualitative data. Axial coding resulted in four main themes connected to the two proposed research questions: the ability to notice what collaborative teaching could and should look like in an inclusive classroom, active involvement of the special educator, readiness to teach students with and without disabilities in an inclusive setting, recommendations for improving collaborative preparation. In Table 1, the final coding framework is organized by theme.

Table 1
Coding framework

Final Themes	Axial Codes	Initial Codes
Ability to notice what collaborative teaching could and should look like in an inclusive classroom	● Ability to notice good and bad practices in field experience ● Knowing how SPED teacher can be actively involved	● Ability to notice in field placement ● Missed opportunities ● SPED teacher can lead a small group ● SPED teachers can and must know content ● SPED teacher should be able to teach with little notice
Active involvement of the special educator	● Content Knowledge ● Co-planning ● Role Conflict	● SPED teacher not involved ● GED teacher not willing to co-plan ● Scheduling a barrier to co-teaching ● GED vs. SPED conflict ● GED vs. SPED lack of communication ● GED vs. SPED instructional disagreements ● GED vs. SPED competence complaints ● GED vs. SPED priorities ● GED vs. SPED lack of co-planning ● GED teachers teach different ● Student confusion hurts GED/SPED relationship ● SPED teacher unethical grading ● Behavior challenges
Readiness to teach students with and without disabilities in an inclusive	● Readiness for Behavior ● Readiness for Communication	● Communication is important ● Knowing what to expect ● Knowing how to handle a situation ● Learning how to handle behavior

setting		● Identifying behaviors that need to change vs. those that do not ● Understanding each point of view - field experience ● GED vs. SPED nature of work different
Recommendations for improving collaborative preparation	● Recommending more co-teaching modeling ● Recommending more practice with content	● Seeing different co-teaching models ● Modeling better than typical instruction ● More guided practice with science and math ● More guided practice with higher order thinking ● More guided practice with technology

Research Question 1

In order to answer Research Question 1, a series of interview questions were posed to the participants in order to determine perceptions of the benefits of modeled co-teaching to their teacher-preparation experience. One main theme that emerged from participant responses indicated a perceived increase in their ability to notice what collaborative teaching could and should look like in an inclusive classroom, thus better preparing them to benefit from intense field placement experiences and eventually in their own classrooms. The PSTs also reported benefiting in terms of knowledge of co-teaching specifically.

> *I liked how we got to see the different co-teaching strategies because y'all modeled a lot of them. You know, you flipped back and forth, and then one taught and one observed, like that type of thing... So, I mean, I think that getting to see the different strategies for co-teaching really helped me and, I was more aware of it because of that.*

The PSTs recognized overarching issues that they saw in the field and believed that exposure to successful collaborative teaching between general education and special education faculty not only helped them recognize these issues but also equipped them to deal with them when they started teaching in their own classrooms.

Another main theme that emerged from the interview data was the active involvement of the special education teacher in the general education classroom. The PSTs established a standard that required general education and special education teachers to work closely with students in the classroom, utilizing instructional strategies to boost learning or encouraging participation in targeted learning behaviors to improve access to instruction. The PSTs reported that in many instances, they observed special education teachers taking a reduced role in the general education classroom.

> *I've seen a lot of missed opportunities. Like often, the special education teacher is just walking around the room, looking and watching the kids. And they could be doing so much more, in helping all the students in the class instead of just sitting there, staring at their kids.*

Three sub-themes emerged from the interview data connected to the overall theme of the active involvement of the special education teacher in the general education classroom: content knowledge, co-planning, and role conflict. In terms of content knowledge, the PSTs felt that while it may be difficult to expect the special education teacher to take the lead for whole-group instruction, it is reasonable to expect the special education teacher to be able to deliver content to a small group of students. The PSTs communicated confidence that they themselves and their future special education colleagues could prepare themselves to teach elementary-level content by reviewing materials at home or at school during allotted planning time.

When asked to explain why they believed capable special education teachers were not taking a more active role in classroom instruction, several participants identified co-planning as an important challenge, identifying the lack of common instructional and co-planning time as a challenge to special educators being more active by stating,

> *We don't have our sped teacher come in, they always just pull…. I think it would be a little bit more helpful if they could sit down and talk for more than like the 10 minutes when they go and pick up the kid and leave and prepare and everything like that together.*

Another challenge the participants identified related to co-planning was the issue of a single special education teacher having to work together with several different general education teachers who may not all teach using the same strategies and approaches.

> *I think there were four different teachers who did math and science, … and each one of them did it in a different way, so the sped teacher is just behind them trying to be like, ok, I have to know all these different ways and what child is learning this way and I have to explain it to them this way. And sometimes, the kids get confused… and they're against one another if everyone is confused and just kind of doing their own thing.*

In suggesting that lack of instructional consistency and planning can lead to teachers being "against one another," the quote above introduces the final sub-theme of role conflict. The modeled co-teaching coursework in which the PSTs participated left them with an expectation that both general and special education teachers should understand and respect each other's roles in educating students with disabilities. Considering that the PSTs were being exposed to an inclusive model of general and special education collaboration in their university coursework, the PSTs expected general and special educators to hold a common expectation for student work and achievement. While certain accommodations and modifications would be made for certain students, and while instruction would be differentiated to meet the diverse learning needs of students with and without disabilities, the common goal for all students is content mastery. Both general and special education educators should work to cultivate conducive classroom behavior and effective instructional engagement from all students so that optimal learning outcomes can be achieved. Some of the participating PSTs were disappointed that general and special education co-teachers seemed to be somewhat inconsistent regarding the goals and expectations for students with disabilities. This lack of agreement would sometimes manifest in students with disabilities being tossed back and forth between the general educator and the special educator, with the learning outcomes of the students being lost in the shuffle.

One area where this role conflict seemed particularly apparent was assessment. One participant shared, "The sped teachers get more upset about the academic, like if [the general education teachers] don't test them the first time and you just immediately send them to me." The participant described a problem of the special educators sometimes feeling like their general education colleagues were not putting forth a good-faith effort to work with special education students and instead just sending them to the special educator.

> *General ed teachers against sped teachers. General ed teachers are complaining you're not teaching this to them like I am, you're not testing them, or you're not doing it fast enough, like, where's my test I had last week, I need to turn in grades. And sped teachers are like you could've done the first test in your room.*

Another participant shared an example of how role conflict between general and special educators resulted in improper assessment of a student with disabilities, "…[the general educator] would send a retest to the special education room, and the special ed teacher would just put a 70 on it and send it back."

Not all the participants observed such a high level of role conflict between general and special education teachers. One participant explained that while there was some conflict in terms of academic expectations, most of the disagreements were small and manageable by stating, "It's not like they're really against each other, it's just like little griping things."

Research Question 2

In order to answer Research Question 2, the participating PSTs were asked how exposure to the modeling of co-taught instruction impacted their plans or perceptions of teaching both general and special education students in inclusive classrooms. The PSTs were somewhat tempered in their response to this question, but all expressed some level of confidence in their ability to teach students with and without disabilities in an inclusive setting. When asked if they would consider pursuing a position as a special educator in the elementary school, few responded positively, but none ruled out teaching special education.

This kind of back and forth regarding behavior and classroom management was also noticed, as stated by one participant, "And then [students with disabilities] had behavior issues in the gen education classroom, and then [the general educators] would just send out their inclusion kids to the resource room if they were acting out, to do their work in there." From a different perspective, another participant noted,

> *It would be a little bit more understanding if the gen ed teacher is exasperated when you have a handful of students who are acting up and you're just trying to teach everyone. It's a lot easier in the sped room … You can give them that individual attention. They can't go jump off the wall because there's only like three other kids there. So it would make me a little bit more understanding towards gen ed teachers.*

When asked what more could be done to prepare future teachers to teach students with and without disabilities in an inclusive classroom, one participant suggested more practice with creating differentiated lesson plans stating, "I think that we should do more practice." Another

participant emphasized the need to become more familiar with instructional strategies for teaching various science and mathematics concepts, as well as opportunities to practice using specific resources that could be helpful for students with and without disabilities by adding, "Like, how would I do a higher-end question for a [student on a lower grade level]? And different things like that. Also, I think incorporating technology more."

Overall, the participants communicated that more collaborative experiences in their coursework where they could work with both content-area methods faculty and special education faculty would be beneficial. The ability to access content-area expertise of mathematics and science education faculty, and then be able to discuss implementation of specific differentiation strategies and use of specific resources with the special education faculty was a valuable experience. All PSTs felt that creating more effective inclusive practices could be achieved by integrating general and special education training in their teacher preparation program.

Discussion

This study explored the implementation of modeled co-teaching by special education and general education university faculty, and the perceptions of participating PSTs regarding the benefits of their own collaborative preparation for teaching students with and without disabilities. The PSTs were exposed to co-taught instruction structured according to four of Friend et al.'s (2010) six co-teaching models (one-teach, one-observe; one-teach, one-assist; station-teaching; team-teaching). Both the one-teach, one-assist and the one-teach, one-observe models have been identified as the most commonly utilized co-teaching models, however researchers have expressed concern that these two approaches often result in the special education co-teacher functioning in a support role rather than as an actively contributing co-teacher (Johnson et al., 2022). Because reduced involvement of the special education co-teacher limits the effectiveness of co-teaching, it is imperative that the implementation of co-teaching (particularly in these commonly used models) be accomplished through the active involvement of both co-teachers.

At the end of the semester in which the modeled co-taught instruction was delivered, focus group interview data were collected from participants and analyzed for emergent themes. Four main themes were extracted from the transcribed interview data (ability to notice what collaborative teaching could and should look like in an inclusive classroom, active involvement of the special educator, readiness to teach students with and without disabilities in an inclusive setting, recommendations for improving collaborative preparation) that provided insight regarding the research questions guiding the study.

After being exposed to modeled co-teaching, the participating PSTs shared that they had a better understanding of what collaborative teaching could and should look like and that they felt better prepared for engaging in collaborative teaching once they entered their own classrooms. This is in line with findings from previous research (Bacharach et al., 2007; Gehrke & Cocchiarella, 2013; Ricci & Fingon, 2018) indicating preservice teachers' perceptions and knowledge about collaboration and co-teaching increase as a result of being exposed to modeled co-teaching delivered by university faculty. Gehrke and Cocchiarella (2013) distinguished between textbook knowledge of inclusive practices as opposed to practicable and implementable expertise. Participants in their study reported learning "…a simple, generic definition of inclusion" but not

learning "…how to set up a successful inclusion model" (p. 211). Additionally, the PSTs noted that they received little guidance or modeling from the practicing teachers in their field placements of inclusive practices. Therefore, the results obtained in this study show that PSTs gained a better ability to notice what collaborative teaching could and should look like in an inclusive classroom from exposure to modeled co-teaching.

Another connection between the current study and Gehrke and Cocchiarella's (2013) findings is the active involvement of the special education teacher in the general education setting. Gehrke and Cocchiarella reported that when asked about their field placements, some of the PSTs revealed that what they observed in their field placements did not reflect an effective collaborative effort between general and special educators. These participants characterized the role of the special educator as pulling students with disabilities out of the general education setting to be serviced in the resource room, often going to take tests. Some other participants reported more positive observations, including general and special educators spending time together to adjust lesson plans and make curricular modifications for students with disabilities.

In the current study, some PSTs were satisfied with the collaboration they observed between general educators and special educators, but in many instances, it was reported that the special education teachers were less actively involved in the general education classroom. The reduced role of the special educator was connected to three areas of challenge: content knowledge, co-planning, and role conflict. Co-planning and role conflict seemed to be the main areas that the PSTs connected to the underutilization of the special educator. In terms of co-planning, it was noted that often, a single special education teacher needed to collaborate with several different general education teachers who utilized different instructional strategies and approaches. One participant concluded that the general educator in her field placement did not value making time to collaborate with the special educator when preparing instruction. Such a difficulty was discussed by Johnson et al. (2022), who suggested that in some cases, the active involvement of the special educator may largely be determined by the willingness of the general educator to collaborate. By emphasizing the instructional needs of students with disabilities and raising concerns about how those needs can be successfully met without the special educator's active involvement, the researchers noted the underutilization of special education services.

Implications for practice

The finding that PSTs perceived gains in their understanding of collaborative teaching and their ability to implement collaborative teaching in their own classrooms due to exposure to modeled co-teaching, supports the pursuit of such an approach in practice in more teacher preparation programs. Further, some of the negative data participants reported while observing collaborative efforts in elementary schools might be avoided with greater attention to collaborative instruction in teacher preparation coursework. Increasing modeled co-teaching by teacher educators would also demonstrate responsiveness to previous research, also pointing to the benefits of such instruction to collaborative practice (Ricci & Fingon, 2018; Yopp et al., 2014).

Attention to all six models of co-teaching (Friend et al., 2010) is desirable, as is discussion of how different models fit specific instructional contexts. Based on previous research identifying the prevalence of the one-teach, one-assist, and one-teach, one-observe models and the inconsistent involvement of the special educator in classroom instruction Johnson et al. (2022), it

may be desirable to include modeling of active observation techniques by special education faculty, similar to the approach taken in the current study. Intentional and explicit modeling of data collection techniques (e.g., frequency, duration, intensity, latency) and instruction on analyzing such data would be responsive to previous research indicating elementary teachers perceive deficits in these areas (Mandinach et al., 2015).

Finally, when considering implications for practice, it must be noted that participants in the current study called for more practice with content-specific instructional strategies effective for students with and without disabilities. Participants emphasized the special benefits of bringing together the knowledge of special education faculty with content-area experts who are familiar with particular differentiation tactics and resources. Providing PSTs with instruction in differentiation through authentic instructional experiences may facilitate greater generalization of these skills to the classroom than when such concepts are taught exclusively within the confines of special education coursework.

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Supporting Pre-service Teacher Pedagogical Development with Mursion and Video Analysis: A Pilot Study

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Abstract

Technology integration throughout educator preparation programs is an essential component that allows pre-service teachers to learn how to better facilitate and become proficient in pedagogical practices that can enhance teaching skills to support students with varied abilities. One approach to assisting pre-service teachers develop teaching skills is through targeted skills practice in a virtual environment coupled with reflecting using the video analysis model. Pre-service teachers need multiple opportunities to practice the use of explicit instruction in order to effectively implement the strategy in their future classrooms and this can be achieved through virtual reality platforms such as Mursion. The purpose of this study was to investigate the impact of Mursion simulated learning experiences and video analysis on the performance and self-efficacy of pre-service teacher education students using explicit instruction. Findings suggest that the use of Mursion coupled with video analysis is a promising method for developing pre-service teachers' pedagogical skills.

Keywords: explicit instruction; mixed reality; self-efficacy; inclusive practices; Mursion; video analysis; special education

Supporting Pre-service Teacher Pedagogical Development with Mursion and Video Analysis: A Pilot Study

Technology integration throughout educator preparation programs is an essential component that allows pre-service teachers to learn how to better facilitate and become proficient in explicit pedagogical practices that can enhance teaching skills to support students with varied abilities. Considering the vast range of needs that students with disabilities may have, pre-service teachers need varied opportunities to receive guidance and feedback on the improvement of "instructional skills (academic and classroom management), modeling for students, managing student behaviors, student engagement techniques, and verbal instruction (Nagro et al., 2017, p. 9)" to transform such procedures through learning how to analyze, and plan for the future (Kalk et al., 2014). Technology provides opportunities for pre-service teachers to receive explicit practice with such pedagogies.

Mixed Reality

Mixed reality can be defined as a blend of real and synthetic content to create an environment where participants can interact with virtual avatars. One example of a mixed-reality environment, Mursion, offers opportunities to engage with avatars who exhibit facial expressions, body language, and responses to participants which provides a realistic virtual experience (Bautista &

Boone, 2015; Hudson, Voytecki, & Zhang, 2018 Judge et al., 2013). The avatars are controlled by artificial intelligence and a human interactor, who enables the manipulation of each avatar personality related to the specific scenario that participants are engaging with. Mixed reality allows participants to experience an environment that is authentic to that of their future employment (e.g. classroom) and allows for the creation of targeted experiences (e.g. practice in teaching explicit instruction) and levels of student avatar behaviors for the practice and refinement of teaching related skills (Dawson & Lignugaris/Kraft, 2017). Research has confirmed that Mursion has the potential to change human behavior, including specific skill development in teaching pedagogy due to the engagement of participants in real-time simulations where specific skills can be rehearsed (e.g. Landon-Hays, Peterson-Ahmad, & Frazier, 2020; Peterson-Ahmad, 2018) offering significant potential for deepening knowledge of practices (Maheady et al., 2007).

Video Analysis

One approach to assisting pre-service teachers through the reflection process is through a video analysis model. “During video analysis, pre-service teachers watch video evidence of their own teaching rather than video-recorded lessons of other teacher candidates or in-service teachers” (Nagro et al., 2017, p. 9). Reflection through video analysis is an effective method for developing self-reflection abilities compared to traditional forms (e.g. from memory or watching videos of other teachers) and can transform existing beliefs and practices while supporting the acquisition of new teaching knowledge and skills. It allows teacher candidates the opportunity to practice self-reflection on their instruction and implementation of various pedagogical strategies which is supported by research documenting the effectiveness in improving pre-service teachers' instructional skills in using evidence-based, complex instructional routines, for students with disabilities (i.e., Borko et al., 2008; Brownell et al., 2020; Morin et al., 2019; Nagro et al., 2017; Robinson & Kelley, 2007; Seidel et al., 2011; Wang & Hartley, 2003). While there are a variety of technological platforms that can support video analysis for pre-service candidate self-reflection, this study utilized the GoReact web-based platform which allowed users to record and upload videos for strategic video analysis through time-coded text, audio, and video feedback.

Explicit Instruction

Explicit instruction is an instructional approach that is proven to be highly effective in working with students with disabilities in reading and mathematics instruction (e.g., Doabler et al., 2017; Hughes, et al., 2017). Explicit instruction is part of the 22 high leverage practices that were identified in 2017 by the Council for Exceptional Children (CEC) and the CEEDAR Center (McLeskey et al., 2017) to effectively provide instruction to students with disabilities. Additionally, Brownell (2019) states that pre-service teachers should be encouraged to use explicit instruction when students are, “not learning a concept, strategy, or skill” (p. 339). Therefore, pre-service teachers need multiple opportunities to practice the use of explicit instruction to effectively implement the strategy in their future classrooms.

Self-Efficacy

Self-efficacy is informed by personal, environmental, and behavioral factors and it is the combination of these factors that bolster self-efficacy and then in turn impact behavior (Bandura, 1986). Based in Bandura’s Social Cognitive Theory (1986), Tschannen-Moran & Hoy (2001)

developed the idea that teachers with a higher self-efficacy would be more effective in providing instruction. Specifically, teachers with higher levels of self-efficacy would be more inclined to use new techniques and provide feedback to students that receive special education services (Tschannen-Moran & Hoy, 2001). Therefore, in order to incorporate effective instructional practices for students with disabilities, such as explicit instruction, pre-service teachers would be more likely to implement the teaching practice if perceived self-efficacy increased.

There is a need to facilitate learning opportunities that allow students to practice skills in alignment with state certification requirements. Therefore, Educator Preparation Programs (EPPs) should integrate multiple forms of technology (i.e., mixed reality in Mursion, GoReact video analysis, and Zoom conferences) in pre-service teacher programs to facilitate proficiency in pedagogy and improve self-efficacy for the effective implementation of teaching practices that can support K-12 students with varied abilities.

Materials and Methods

The purpose of this pilot study was to investigate the impact of Mursion simulated learning experiences and video analysis on the performance and self-efficacy of pre-service teacher education students using explicit instruction. It is hypothesized that the combination of a simulated learning experience (i.e., Mursion) and video analysis (i.e., GoReact) will impact pre-service teachers' self-efficacy ratings, understanding, and performance related to the understanding and application of explicit instruction. This pilot study was designed to answer the following research questions:

1. What is the impact of the use of a simulated learning environment (i.e., Mursion) and video analysis (i.e., GoReact) to support pre-service teachers' understanding and implementation of explicit instructional practice on pre-service teacher self-efficacy ratings?

2. What is the impact of the use of a simulated learning environment (i.e., Mursion) and video analysis (i.e., GoReact) to support pre-service teachers' understanding and implementation of explicit instructional practice on pre-service teacher understanding of explicit instruction?

This descriptive pilot study employed a mixed methods research design to systematically collect and analyze data related to the learning process of participants regarding the application of explicit instruction in simulated learning environments. Data analysis methods were focused on the participants in the study and how they constructed experiences and meanings in relation to the area of inquiry (Charmaz, 2014; Tie, Birks & Mills, 2015).

Participants

Participants for this study were blindly recruited from a course that addressed instructional practices for students with disabilities. To avoid any coercion, participant consent was obtained by a graduate research assistant and not revealed to the research team until after the course had ended and the grades for the course had been posted. Participants in this study included N= 14 undergraduate students accepted into an Educator Preparation Program at a southern university

and enrolled in a course designed to teach instructional strategies for students with learning disabilities. This is the only course pre-service teachers receive during their educator preparation program specifically designed to provide instruction and support in the selection of pedagogical strategies that are effective when working with students with disabilities.

Procedures

Participants were randomly divided into pairs at the start of the seven-week semester. Researchers selected to have students work in pairs to support and aid the learning process. The benefits of collaboration include a wider range of respective knowledge, experience, expertise, multiple approaches for problem resolution, more buy-in for the implementation of services provided for qualifying students, and a higher level of communication and understanding among interested parties (Friend & Cook, 2017). The procedures in this study followed the course structure and were a part of typical coursework (Table 1) and regardless of consent to participate in the study, pre-service teachers completed all required assignments.

Table 1
Table of weekly class activities

Weeks	Activities
Week 1	Students provided with consent forms Students completed pre- *TSES* Students provided explicit instruction learning materials (i.e., video, HLP Handbook, Explicit Instruction Checklist, and textbook
Week 2-3	Student partners prepared an explicit instruction lesson plan Student partners participated in a meet and greet with Mursion simulation Student partners completed a self-reflection from the Mursion experience
Week 4	Student partners met with instructor to reflect on the process through Zoom Student partners revised explicit instruction lesson plan based on feedback
Week 5-6	Student partners taught their explicit instruction lesson in Mursion session

	Student partners completed a self-reflection from the Mursion experience
Week 7	Participant partners met with instructor to reflect on the process through Zoom
	Students completed post- *TSES*

During Week 1 of the course pre-service teachers were asked to complete a consent form and the TSES pre-assessment and participants were randomly assigned to pairs. Additionally, students were provided with several learning materials related to explicit instruction to include videos, High Leverage Practices Handbook, textbook, and explicit instruction checklist. Week 2 and 3 of the study, pre-service teacher partners prepared a lesson plan implementing explicit instruction. Partners also participated in a meet and greet within the Mursion simulation to orient themselves with the system prior to providing the explicit instruction lesson to the avatars. Finally, after the meet and greet session, partners independently prepared self-reflections of experiences with Mursion. In Week 4, partners met with the instructor to reflect on the Mursion process and obtain guidance regarding the upcoming session. Additionally, partners revised their explicit instruction lesson plan based on instructor feedback. Weeks 5 and 6 included the Mursion session implementing the explicit instruction lesson for partners and a self-reflection following the session completed individually. Finally, in Week 7 partners once again met with the instructor to debrief from the Mursion session and complete the TSES post-assessment (Table 1).

Data Collection Instruments

Multiple data collection instruments were incorporated into the study to obtain a wide scope of information related to the participant experience with Mursion simulated learning sessions. All data collection instruments were required components of the course. Data from participants will include: (a) Recognizing Effective Special Education Teachers, (b) video analysis, (c) TSES, and (d) self-reflections

RESET Rubric. To obtain information related to the performance of participants implementing explicit instruction, the validated *RESET Explicit Instruction Observation Rubric (RESET)* was used. The *RESET* rubric is a validated tool that can accompany video analysis and is designed to evaluate the implementation of elements specific to explicit instruction providing a conduit for feedback and collaborative discussions between the in-service special education teachers/trainers and coaches (Moylan, et al., 2017).

Video Analysis. Mursion sessions were recorded in Zoom and uploaded to the GoReact video analysis platform. Researchers coded each participant pair video using the *RESET Rubric*, which provided data on their ability to employ explicit instruction when teaching. Specific markers from the *RESET Rubric* were used within GoReact for coding purposes and included the following: makes adjustment, descriptive feedback, timely feedback, checks for understanding, instructional routines, appropriate pace, guided practice, demonstrates mastery, aligned instruction, clearly communicated goals.

Pre- and Post-Teacher Sense of Self- Efficacy Scale (TSES). Pre-service special education teachers completed the *TSES* (Tschannen-Moran & Woolfolk Hoy, 2001) using a pre-post-test model which determined perceived efficacy levels in: 1) student engagement, 2) instructional strategies, and 3) classroom management. The TSES employs a nine point (i.e. one indicates "nothing" and nine indicates "a great deal") Likert scale indicating a level of knowledge related to specific instructional topics.

Student Self-reflection. Following each Mursion session, participants completed a self-reflection based on open-ended explicit instruction response questions adapted from the High Leverage Practices Implementation Guide- Explicit Instruction (Council for Exceptional Children, 2018). The self-reflections include inquiries related to what went well during the session as well as what potential changes for the next session. The self-reflection also asked participants to identify additional resources to support their instruction and any other information that they wished to share.

Data Analysis

For quantitative analysis, researchers used the latest version of SPSS to compare pre- and post-assessment results from the *TSES* to compare initial responses to final responses. Additionally, frequency counts are a straightforward approach in quantitative data to support descriptive statistics; therefore, GoReact video analysis collected specific markers related to student performance within the Mursion session. Specific markers were tagged in the recorded Mursion sessions and the demonstration/non-demonstration of specific explicit instruction criteria (i.e., makes adjustment, descriptive feedback, timely feedback, checks for understanding, instructional routines, appropriate pace, guided practice, demonstrates mastery, aligned instruction, clearly communicated goals) were collected.

Additionally, this project collected qualitative data aligned with a constructivist grounded theory framework for analyzing the data. Grounded theory explicitly involves "generating theory and doing social research [as] two parts of the same process" (Glaser, 1978, p. 2). The framework provided researchers with the option to systematically collect and analyze collected data related to the learning process associated of participants and their experience using Mursion as a tool for acquiring specific pedagogical skills related to explicit instruction. Grounded theory was an appropriate framework for this study because it provides both a method of inquiry and a resultant product of inquiry (Denzin & Lincoln, 2005; Tie, Birks, & Francis, 2019). In this mode of inquiry, theory is derived from data, by beginning with an area of study and allowing the theory to emerge from the data collected (Strauss & Corbin, 1998). In Charmaz's (2014) interpretation of grounded theory from a constructivist lens, grounded theory is, "a method of conducting qualitative research that focuses on conceptual frameworks or theories through building inductive analysis from the data" (p. 187). Furthermore, data analysis methods focus on the participants and how they construct experiences and meanings in relation to the area of inquiry (Charmaz, 2014; Tie, Birks & Francis, 2019). A constructivist grounded theory approach required an iterative process using the constant comparative method for coding and category development that involves line-by-line, initial, focused, and theoretical coding as data is triangulated among the various sources of data (Birks & Mills, 2015; Charmaz, 2014). Qualitative data were collected through the use of self-reflections completed by participants after each Mursion session (Table 2).

Table 2
Self-reflection questions

Self-reflection Questions
Q1. What went well during your session?
Q2. What would you like to change for your next session?
Q3. What resources could you find/use to support your instruction and what item(s) would you like to change?
Q4. Anything else you would like to share?

Results

Results for this descriptive pilot study that employed a mixed methods research design to systematically collect and analyze data related to the learning process and self-efficacy evaluation of participants regarding the application of explicit instruction in simulated learning environments are presented in the following sections. Data from this descriptive pilot study identified quantitative and qualitative indicators related to participants' learning process and self-efficacy; specifically, the application of explicit instruction within the Mursion mixed-reality environment. Below, results are presented with themes that were identified from data analysis.

Quantitative Data Results

The quantitative data collected in this pilot study included the Pre/Post-TSES assessment and evaluation of the implementation of explicit instruction during the Mursion session with the RESET Rubric. The quantitative data collected were intended to evaluate the self-efficacy ratings for participants (i.e. TSES) and performance of participants when implementing explicit instruction in Mursion (i.e. RESET Rubric.

Pre/Post-TSES Assessment. The purpose of the t-test was to compare the pre- and post-test results of the TSES for students participating in the study. The TSES is a validated survey tool to measure self-efficacy of participants prior to instruction and participation in the simulated learning environment (i.e., Mursion) and video analysis and to also gauge self-efficacy after the experience. Participants in this study included N=14 students. The mean for the TSES pretest was ($M = 6.281$), whereas the mean for the post-test was ($M= 7.347$) with a standard deviation of ($SD = 0.999$). The results of the t-test comparing the pre- and post-test results were ($p = 0.003$) indicating a significant difference between the pre-test and post-test results for participants assuming an alpha of 0.05 (Table 3). These results suggest that self-efficacy of participants related to the implementation of explicit instruction increased from the beginning of the course to the end of the course.

Table 3

T-test results for TSES

Assessment	Mean	SD	Sig.
Pre-TSES	6.281		
Post-TSES	7.347		
Pre/Post- TSES		0.999	0.003

RESET Rubric Frequency Count. The participants' first session with Mursion was a meet and greet opportunity so that familiarity with the system could be established. The second Mursion session, participants were asked to provide their explicit instruction lesson to Mursion avatars. After the participant's second Mursion session, videos were uploaded and evaluated through the video analysis process in GoReact. Two evaluators scored participant's work with an interrater reliability score of 80% agreement. Table 4 includes the specific skills related to explicit instruction that were evaluated and the indication as to the number of students that were able to demonstrate versus no demonstration of the skill. As displayed in Table 4, participants were able to successfully demonstrate the presence of the clearly communicated goals, aligned instruction, instructional routines, timely feedback, and descriptive feedback at a rate of at least 90%. Additionally, skills that may need to be further developed for participants included demonstration of mastery, guided practice, check for understanding, and making adjustments. These data are not only beneficial for the participants targeting specific areas in need of development, but also helpful for instructors when targeting specific areas of pedagogy to be further cultivated for pre-service teachers.

Table 4

RESET rubric results

Explicit Instruction Skill	No Demonstration of Skill	Demonstrated Skill	%Demonstrated Skill
Clearly Communicated Goals	---	10	100%
Aligned Instruction	1	9	90%
Appropriate Pace	1	9	90%
Demonstrates Mastery	9	1	10%
Guided Practice	6	4	40%
Instructional Routines	---	10	100%

Check Understanding	3	7	70%
Timely Feedback	1	9	90%
Descriptive Feedback	1	9	90%
Makes Adjustment	3	7	70%

Quantitative Data Results. Following the systematic grounded theory methodology for qualitative data review, researchers created a framework to code data collected on participants' self-reflections, so that they could be reviewed for the presence of specific repeated phrases or themes. Open coding was utilized during the reading of the self-reflections to analyze phrases and themes into identified patterns/themes without using predetermined categories. Next, axial coding was conducted to make connections between the patterns/themes identified during open coding to create a more organized summary of emerging data. This aided in the researcher's ability to streamline themes from the self-reflections to selectively code the data into specific categories of responses. Table 5 includes the repeated phrases and themes discovered.

Table 5
Grounded theory analysis of repeating themes

	Repeating Phrases/Themes	
	Self-reflection 1	Self-reflection 2
Q1	Conversation, engagement, communication, building relationships	Target behaviors better, conveyed lesson well, student engagement, on-task behavior, co-taught
Q2	Student engagement, preparation for lesson, engagement maintenance	Need more time, pacing, providing process instruction, more time planning with partner, increase engagement, more opportunities to use Mursion
Q3	Finding resources, improve Mursion (i.e., share screen), engagement, visuals to use	Critical thought regarding visuals, online resources, improved Musrion capabilities, more interactive way of teaching, more time
Q4	Realistic, better preparation for teaching, great tool, enjoyment, more confidence, engaging	One-of-a kind experience, enjoyment, can help all educators, impressive, want in other classes, grateful for opportunity, useful experience, zero risk environment

Once repeated phrases and themes were recorded, the research team then determined the following overall themes and sub-themes that emerged from the analysis of the participant's self-

reflections. Table 6 includes the overall themes of Building Relationships with Students, Preparing for a Lesson, Student Engagement, and Utility of Mursion. Students indicated that building relationships were paramount for successful instruction, specifically targeting the continuous engagement and monitoring for on-task behaviors were critical for the successful implementation of a lesson. Participants also acknowledged that preparing for a lesson may involve more time than was originally anticipated and that the pace of instruction was critical when working with students. Related to student engagement, participants also noted specific efforts related to the quality and careful selection of visual resources and instructional materials for maximum return from the student avatars. Finally, participants commented on the exceptional learning experience that Mursion offered, but also critiqued the program indicating that further development was needed (i.e., the ability to share their screen during the Zoom instruction).

Table 6
Overall themes and subthemes

Overall Themes	Subthemes
Building relationships with students	Engagement
	On-task behaviors
Preparing for a lesson	More time needed
	Pacing instruction
Student engagement	Visual resources
	Instructional materials
Utility of Mursion	Exceptional experience in comparison to other models
	Further development of Mursion needed

Discussion

Researchers were able to determine that a significance difference existed across participants' self-efficacy prior to instruction and engagement with Mursion. In alignment with the data recorded for self-efficacy evaluation, participants indicated that their overall confidence related to the implementation of explicit instruction improved. Research indicates that when teachers have a stronger sense of self-efficacy, it can be directly linked to their use of effective

instructional practices, improved classroom management, and increased student engagement; all of which can increase the likelihood of providing learning experiences needed to heighten student outcomes (Lee, Cawthon, & Dawson, 2013; Pianta, Hamre, & Allen, 2012; Rubie-Davies, Flint, & McDonald, 2012).

Regarding participants' ability to successfully implement specific pedagogical skills related to explicit instruction, positive results also exist. Pedagogical practices (e.g., feedback, video analysis) that incorporate knowledge of strategies and implementation, are effective in increasing teachers' knowledge (e.g., Kennedy et al., 2016) and increasing teachers' use of high leverage practices. Although participants were not able to demonstrate mastery of explicit instruction, the overall positive scores in all other categories were present.

Finally, participants revealed in their self-reflections that development of critical thinking skills related to their instruction process to include major themes related to building relationships with their students as an important indicator of successful teaching and engagement. Participants also acknowledged that preparation of a lesson prior to instruction is a critical component of successful instruction. Student engagement was also a major theme as participants indicated that maintaining student attention can be challenging and should be considered in pedagogy. Finally, participants evaluated the overall functionality and usefulness of Mursion as a learning tool for pre-service educators and recommend it for future use by other courses and across the educator preparation program. When learning how to teach, preparation programs must provide teacher candidates with repeated practice opportunities with explicit feedback opportunities, prior to practicing a particular skill or strategy again.

Conclusions and Limitations

This study was designed to evaluate the experiences of undergraduate pre-service teachers using Mursion simulated learning experiences to strengthen their knowledge, understanding, and implementation of explicit instruction. While students participating in the study found the Mursion experience to be valuable and worthwhile, there are considerations that should be made should further research occur. Mursion sessions must be planned and scheduled well in advance of the start of the course. Additionally, while a one-hour session is scheduled, only 50 minutes are usable due to a 5-minute setup time for the facilitator at the beginning of the session and a 5-minute wind down time for the facilitator at the end of the session. Additionally, to allow all participants, the opportunity to experience Mursion, sessions were scheduled in 10-minute increments and therefore did not reflect a full teaching experience. Further, because the sessions were conducted via Zoom, some participants were unable to incorporate all the teaching materials they had planned to use to include sharing their computer screens. Although the Mursion experience was valuable for students and overwhelmingly the response was positive, planning must be extensive and finite to ensure that all groups are given the opportunity to teach in the Mursion simulation.

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Effectiveness of Using Telehealth to Increase Parent Skill Acquisition and Implementation of Behavioral Protocols

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Abstract

The purpose of this study is to determine the effects of parent training via telehealth to decrease noncompliance in 3 children diagnosed with Autism Spectrum Disorder using the Applied Behavior Analytic (ABA) technique, Behavior Skills Training. Behavior Skills Training includes four critical components: instructions, modeling, rehearsal, and feedback. A multiple baseline design is used to evaluate the effects of this approach on three participants. Pre- and post-assessments were used to evaluate a parent's skill set with regard to understanding and effectively managing behavior from an Applied Behavior Analytic perspective. Training modules were presented by supervising behavior analysts and student interns at a university. The present results provide evidence demonstrating the effectiveness of telehealth-based parent-training modalities. All parents indicated that they were satisfied with the interventions provided via telehealth.

Keywords: Parent training, autism, telehealth, remote instruction, behavior analysis

Effectiveness of Using Telehealth to Increase Parent Skill Acquisition and Implementation of Behavioral Protocols

The advancements in today's technology allow for parents, professionals and students to have access to health services remotely. Telehealth use has increased for varied professions, including ABA services, with the onset of the COVID-19 pandemic (Koonin et al., 2020). Online parent training as an ABA service is not a new concept for specific populations that may have limited direct access with providers with past research indicating its potential. Heitzman-Powell et al. (2013) evaluated an online training program for parents within a rural setting and indicated varied success. While online parent training has been utilized for some time, this need for children diagnosed with autism spectrum disorder became more apparent during the COVID 19 pandemic. “The COVID-19 pandemic exacerbated this need when in-person delivery temporarily halted, and services delivered via telehealth began to help address this gap.” (Batton et al., 2022). Since the pandemic, additional studies on telehealth have been conducted. Research has established that delivering an assessment and intervention package via telehealth technologies is efficient and acceptable to caregivers in the United States (Wacker et al., 2013b). Building on this, a study by Batton et al. (2022) specifically explored the use of online parent training and Applied Behavior Analysis (ABA) delivered through telehealth platforms. This

study aimed to explain autism, ABA strategies, behavior, and data collection, with the goal of training parents to effectively implement and oversee the intervention through behavior skills training.

Another study by Gentile et al. (2022) assessed how parent participation in the program promotes parents' empowerment and reduces parental stress and supports a general improvement in the parent's ability to stimulate children's learning. Telehealth (in general) and telehealth-based and parent-mediated interventions in ASD (specifically) have multiple effects on parents. The various components are reciprocally connected and can potentially improve parents' skills (intervention skills and knowledge) and level of empowerment and decrease their stress levels (Gentile, 2022, p.5287)

Parent mediated interventions can be used to address various problem behaviors within the home and community. One frequently reported behavior by parents is noncompliance. Virtual BST may assist with understanding the noncompliance, as well as create effective interventions in the home. Noncompliance is a clinical term used to describe the behavior of children who display low levels of compliance to instructions that are clearly within their response repertoire. Noncompliance is among the most common childhood behavior problems (Bernal, Klinnert, & Schultz, 1980; Rodriguez, Thompson, & Baynham, 2010). "Noncompliance is important because learning to comply with instructions is regarded by many as a behavioral cusp" (Bosch & Fuqua, 2001, p. 286). Learning to comply can enhance aspects of communication pertaining to listening and responding skills, facilitate learning new skills, increase safety awareness, and support social interactions. Non-compliant behavior can become a significant barrier to successful treatment outcomes and can lead to frustration for both the individual and their parents and providers.

According to Esch (2013), children with autism have a variety of skill deficits that can interfere with their learning and socialization across the lifespan. A relatively common problem pertains to noncompliance, where children fail to complete tasks for which they are asked. Noncompliance may result in increased dependence on others, more restrictive educational placements, and impaired socialization and development more generally.

Behavior Skills Training (BST)

Behavior Skills Training is a systematic pattern of skills including instructions, modeling, rehearsal, praise, and corrective feedback (Miles & Wilder, 2009). BST allows parents to have access to a more hands-on approach by being provided with a 1:1 session for 12 weeks. Each module is personalized to the individual and parents' needs. This can potentially be achieved through remote implementation. Using behavior analysis principles in BST, observable and measurable changes in one's behavior can be fostered. Obtaining a clear and objective assessment of one's skill proficiency is an important aspect of BST parent training in identifying appropriate areas of instruction. Recent research has demonstrated that BST is effective in training parents to implement behavioral interventions with high fidelity, even in telehealth settings (Ferguson et al., 2019).

As part of the parent training program for this current study, skills were assessed through an evaluation survey to understand which areas the parents were confident in, and which areas need to be retrained to the parent. Parents were given a rating skill survey after the intake form was

completed. Areas that were assessed are parental effectiveness in responding to their child's needs, parents' ability to handle and decrease any problematic or unsafe behaviors, parental ability to teach and increase desired behaviors, to deliver strategies appropriately and effectively, and ability to use strategies to respond to child's behavioral needs across multiple settings and parent's ability to communicate their need for support about their child's behavioral needs.

In this present study, Behavior Skills Training was implemented to teach various skills including communication, social skills, safety skills, and daily living skills. Past studies have been conducted to highlight the effectiveness of training parents in Behavior Skills Training for teaching a variety of skills. One such study by Hussan et al. (2018) used BST training with parents of children diagnosed with ASD to help support their children's social skills development. Findings suggest that generalization and maintenance of a skill are important for the child and caregiver. "A common limitation of social skills training programs for children with ASD is lack of generalization and maintenance of skills" (Rao et al. 2008; Williams White et al. 2007 p.353).

Behavior Skills Training has also been used for parents and feeding interventions for children with autism who will only eat a narrow range of foods (Seiverling et al., 2012) Within the field of applied behavior analysis, Behavior Skills Training, involves an individual's direct support team utilizing learned components while working alongside others to help the learner achieve mastery and maintenance of a specific acquired skill or behavior. There are some challenges when implementing Behavior Skills Training within different contexts, such as socialization. Learning social skills is often a challenging and can be an extended process for children with autism spectrum disorder (ASD), requiring consistent and effective training programs. Like other behavioral changes, retaining these social skills necessitates ongoing practice in diverse environments, under different conditions, and with various individuals to promote maintenance and generalization (Stokes & Baer, 1977). Recent studies have demonstrated the effectiveness of BST in teaching social skills to children with ASD, highlighting its role in promoting generalization and long-term retention of learned behaviors (Leaf et al., 2021).

If these training skills are limited to one setting with one individual, the newly learned skill may not have contact with different reinforcers, which could affect the maintenance and generalization of any goals that have been set.

Parent Training

Parent training has several advantages in the treatment of children with ASD compared to provider-delivered interventions. First, it can increase the dosage of treatment that a child can receive, as the parent can continue implementing the intervention even when the provider is not present (Groom, et al. 2021). Parent training can be achieved through telehealth. Providing caregiver-training services via telehealth has several advantages over in-person services. Telehealth increases caregivers' access to qualified practitioners, eliminates the need for either the caregiver or practitioner to travel to appointments and may offer a more cost-efficient way for caregivers to obtain important services (Lindgren, 2016). Another advantage is that remote parent training is a cost-effective way to provide services. "Caregivers trained through telehealth have had comparable outcomes to those receiving in-person training; telehealth delivery was more cost-effective and more convenient for some families" (Xie et al., 2013). While the

pandemic highlighted the need for telehealth parent training, the consistent implementation of this modality has proven beneficial even post-pandemic. Recent research continues to support the effectiveness of telehealth-based parent training, demonstrating that virtual coaching models can significantly improve caregiver competency and child outcomes in behavioral interventions (Ferguson et al., 2022).

This current study will examine the evaluation of Parent Training using a Behavior Skills Training telehealth modality to decrease noncompliant behavior in three participants. The current study's importance is to evaluate the skills of BST through parent training telehealth, which was a key component during COVID-19 when there was limited access to in-person services. Studies continue to show that BST delivered via telehealth effectively teaches new skill sets, reduces problem behavior, and promotes compliance in various settings.

Method

Participants, Setting, and Materials

For the sake of all participants, noncompliance is defined as the failure to follow a given directive within 10 seconds of the directive being issued. Specifically, if an individual does not initiate or complete the required action in response to the directive within this 10-second timeframe, the behavior is considered noncompliant. This definition focuses on the immediate response to directives, emphasizing promptness in action as a key component of compliance.

The first participant's child was a fifteen-year-old boy who has been diagnosed with Autism Spectrum Disorder, ADHD, and cerebral palsy. At the time of the study, he received physical therapy, occupational therapy, and speech therapy twice a week. He also participated in group counseling for social skills once a week and received ABA four times a week at a card clinic hybrid-remote and in person. He can speak in full sentences.

The second participant’s child was 4.5 years old and had also been diagnosed with Autism Spectrum Disorder and Attention Deficit Hyperactivity Disorder (ADHD). At the time of the study, he received occupational therapy, speech therapy, and physical therapy three times a week. The child was able to speak using full sentences but would resort to using one or two words. At times the child’s noncompliance behavior escalated into meltdown behavior.

The third participant’s child was a 6-year-old male that was diagnosed with autism spectrum disorder. At the time of the study, he received speech and occupational therapy three times a week within the school setting and two times a week occupational therapy at a home. He received physical therapy two times a week at within the school and two times a week at home. This participant was in an ABA-based classroom and received aba home therapy five times per week. The child is nonverbal and has a picture exchange communication device. Parents would prompt their child to use the device to express wants and needs.

For the current study, the parent training setting was virtual, using a specific video format (Zoom). The setting for the parents to implement what was rehearsed and modeled through parent training was in their homes. Parent training sessions were once weekly for 60 minutes for 12 weeks. Prior to the initiation of the Behavior Skills Training sessions, there was one initial

intake meeting with the parents and the parent trainer. Materials included videos containing Applied Behavior Analysis (ABA) concepts, prompt hierarchy visuals, video models, visuals for preferred items data sheets and token boards.

Behavior Skills Training was utilized to teach each parent through clear instructions, modeling, and rehearsal of techniques. Feedback on the rehearsal was provided through the video meetings. Specific strategies based on the principles of Applied Behavior Analysis were used to target compliance. Each parent was also taught to collect data on each instance of noncompliance as defined specifically within each home.

Social Validity Pre/Post Test:
Parents completed a pre/post assessment that evaluated several key areas related to parents' self-perception in managing their child's behavioral needs. Here is a summary of the points assessed:

1. **Effectiveness in Responding to Behavioral Needs**: The form assessed whether parents feel effective in responding to their child's behavioral needs.
2. **Handling Problematic or Unsafe Behaviors**: This point evaluated parents' confidence in their ability to manage and reduce problematic or unsafe behaviors displayed by their child.
3. **Teaching and Increasing Desired Behaviors**: The form examined parents' perceptions of their ability to teach and encourage desired behaviors in their child.
4. **Consistency in Strategy Delivery**: This point evaluated how consistently parents apply strategies when addressing their child's behavior.
5. **Strategies for Multiple Settings**: The form assessed whether parents feel they have effective strategies for managing their child's behavioral needs in various settings, including community environments.
6. **Seeking Support and Communication**: This point evaluated parents' comfort and effectiveness in reaching out for support and communicating their needs regarding their child's behavioral issues.

Overall, the form was used to gain some "objective" baseline understanding of parent perception with regard to their abilities and confidence in managing their child's behavior, highlighting strengths in handling serious issues and seeking support, while also identifying areas where consistency in strategy application could be improved.

Descriptives

	N	Mean	Median	SD	SE
REPS_1	3	2.33	2	0.577	0.333
REPS_2	3	3.67	4	0.577	0.333
PROB_1	3	2.33	2	0.577	0.333

PROB_2	3	3.33	3	0.577	0.333
DES_1	3	1.67	1	1.155	0.667
DES_2	3	4.00	4	0.000	0.000
STRAT_1	3	2.00	1	1.732	1.000
STRAT_2	3	3.67	4	0.577	0.333
MULT_1	3	1.67	1	1.155	0.667
MULT_2	3	3.33	3	0.577	0.333
COMM_1	3	3.33	3	0.577	0.333
COMM_2	3	4.00	4	0.000	0.000

Paired samples *t*-tests were performed to evaluate change over time within subjects. Results were nonsignificant ($p > .05$), albeit the general trends for the mean scores was such that scores increased from pre-test to post-test. These findings should be interpreted with caution given the small sample size ($n = 3$). Gathering more data is vital to increase the power of the analyses and further validate the general findings.

Although there is a general increase in mean scores, given the sample size, it is difficult to demonstrate a statistical significance from the pre-post comparison from the pre/post assessment (Appendix B). There was an increase from pre to post with the following statement “I am able to respond effectively to my child's behavioral needs” using a ($p < .10$) cutoff for significance.

Procedure

Over a series of 13 consecutive weekly meetings, each parent met virtually with the instructor/parent trainer. The initial meeting involved the completion of an intake form and review of short videos introducing Applied Behavior Analysis (ABA) and the concepts associated with ABA that would be applied in subsequent sessions (Appendix A.). The instructor utilized a predetermined intake form to interview the parents gaining basic demographic information, as well as, to define the current presentation of noncompliance to be targeted for intervention. The intake form included the child’s age, where they attend school, and any services they receive. Questions also targeted behaviors observed by the parent, strategies the parent may have attempted, and any other parent concerns. Once the intake form was completed each parent reviewed a series of 12 short videos explaining ABA and specific strategies to be used over the course of the next 12 parent training sessions. Videos consisted of an overview of ABA, proactive strategies, schedules and visuals, reinforcement, gaining compliance, planned ignoring, Functional Communication Training, prompting, data collection, generalization and maintenance. Upon completion of these videos, parents then completed a survey to rate each

video on the *usefulness* of the video for obtaining information pertaining to that week's topic. They were also space provided to add in any specific commentary for each video if applicable. (Appendix E).

Baseline. During the first session, baseline data collection was reviewed with the parent. Modeling of data collection was demonstrated using a sample data sheet (Appendix C.) and then rehearsed with the parent. Parents were informed that they would be submitting data at the end of each week for a total of 12 sessions.

Noncompliance is defined as the failure to follow a given directive within seconds of the directive being issued. Specifically, if an individual does not initiate or complete the required action in response to the directive within this 10-second timeframe, the behavior is considered noncompliant. This definition focuses on the immediate response to directives, emphasizing promptness in action as a key component of compliance.

Intervention. To systematically target noncompliance, each parent compiled a list of simple instructions within their child's repertoire. From this list only, throughout the week between training sessions, the parent would deliver the instruction. If noncompliance was presented following the delivery of instruction, the parent would prompt the child using the reviewed prompting procedures, assisted by the provided prompting hierarchy visual if necessary (Appendix. D). The parents would indicate noncompliance with a '-' on the provided data collection sheet.

Results

The data from the multiple baseline study shows that compared to baseline data, noncompliance had decreased for all three participants by the end of the study. To analyze the raw parent data, the researcher first collected and reviewed all individual responses from the form. Each response was meticulously examined to ensure accuracy. The data was then compiled by aggregating responses into categories aligned with the specific evaluation areas: effectiveness in responding to behavioral needs, handling problematic or unsafe behaviors, teaching and increasing desired behaviors, consistency in strategy delivery, strategies for multiple settings, and seeking support and communication.

Following the compilation, the researcher charted the data to visually represent the information. This involved plotting into a line graph to illustrate the distribution and trends within each evaluation point. The charts provided a clear visual summary of the data, highlighting patterns and trends that facilitated a straightforward interpretation of the overall findings.

Through this process, the researcher was able to present a comprehensive overview of the parents' self-assessed abilities and confidence in managing their child's behavioral needs, emphasizing key insights and identifying areas of strength and potential improvement.

Baseline data for Participant 1 shows noncompliant behavior at 100% of all directives given during the established data collection observation periods. Observation periods were done daily for 30 minutes across settings and times. The parent would give a direction to the child they

would mark a + for compliance if the child engaged in the requested directive and – for noncompliance if the child did not engage in the directive given. Once the intervention had been put in place, a decreasing trend can be seen. Data never rose above 80% once the intervention had been implemented. By the end of the 12-week study noncompliance behavior for participant 1 had decreased to 0%.

Baseline data for Participant 2 also shows noncompliance behavior at 100% of all directives given during the established data collection observation periods. Observation periods were done daily for 30 minutes across settings and times. When the parent would give a direction to the child they would mark a + for compliance if the child engaged in the requested directive and – for noncompliance if the child did not engage in the directive given. A decreasing trend can be seen once the intervention has been put in place. Steady progress is noted once the intervention begins. Week 5 of the intervention shows a large decrease in noncompliance behavior. With noncompliance dropping to 40% from 70% from the previous week (week 4 of intervention). At the end of the 12 weeks, the noncompliance behavior had decreased to 20%.

Baseline Data for Participant 3 shows noncompliance behavior with a range of 40-50% of all directives given during baseline. Observation periods were done daily for 30 minutes across settings and times. When the parent would give a direction to the child they would mark a + for compliance if the child engaged in the requested directive and – for noncompliance if the child did not engage in the directive given. An increasing trend occurred during the first 4 weeks of baseline data collection. At week 5 the intervention was put into place and there was decreasing trend in non-compliance behavior. Noncompliance went from 50% to 40% in week 7 and 8 and a range of 30%-20% and by week 12 it had decreased to 25%.

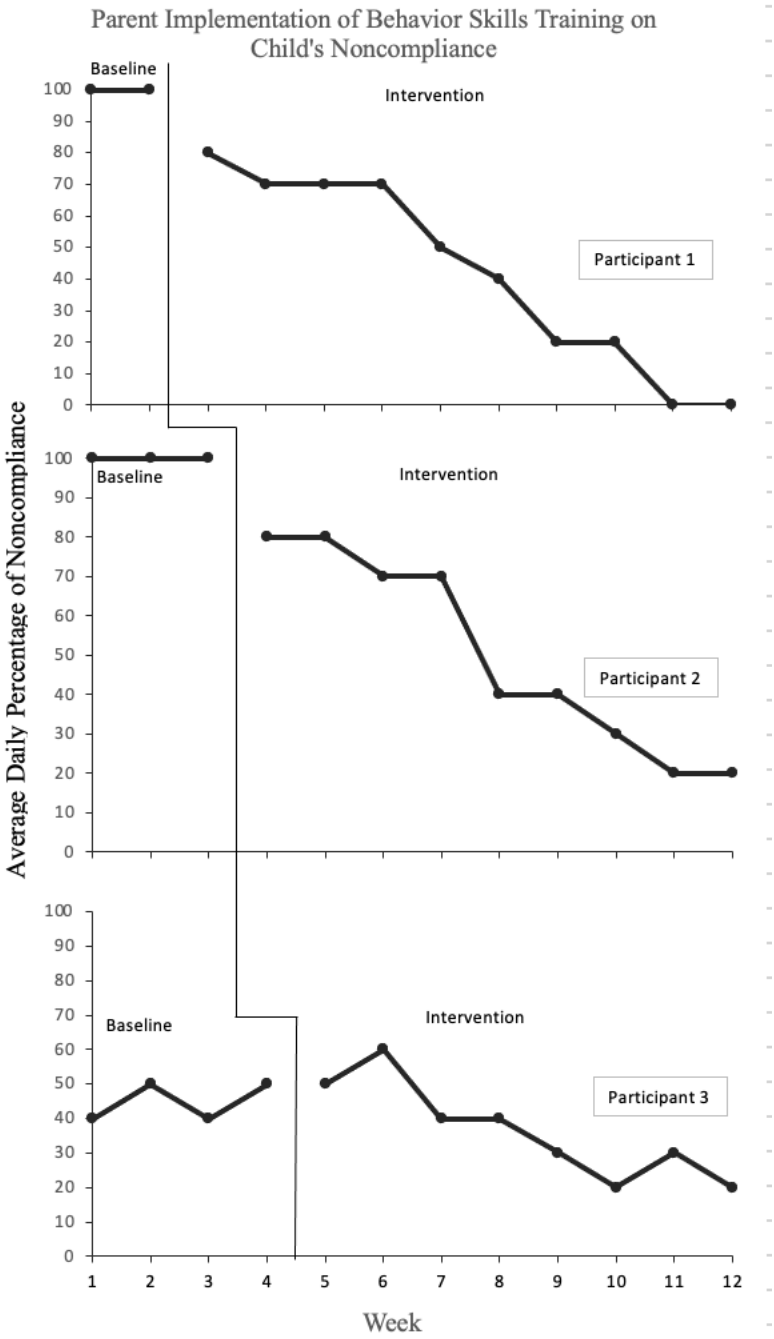

Figure 1: The average daily frequency data collection of Noncompliance by three parents during the baseline and intervention phase.

Limitations

There were several limitations associated with the current study, many of which stemmed from the use of the telehealth platform. One significant issue was related to parental technological proficiency. Problems occasionally arose with how parents navigated and used the platform,

despite weekly email reminders sent to help mitigate major difficulties. Future research might benefit from exploring alternative platforms to find one with a more stable connection and more robust initial training for users.

During some sessions, poor connection quality and video lag disrupted the service, which was scheduled for one hour. While solutions such as switching to a different computer or using a secure mobile device were available, these issues still impacted the overall effectiveness and continuity of the sessions.

Another limitation was the small sample size, with only three participants meeting the study criteria. Additionally, all participants were male, which may limit the applicability of the findings to other genders. The study also had a restricted age range among participants, and all were located within a 30-mile radius. This geographic limitation, coupled with the fact that the study was funded by a grant aimed at serving low-income families, further constrains the generalizability of the results.

Future Recommendations

Future research could benefit significantly from a more comprehensive examination of the effects of Behavior Skills Training (BST) over extended periods. This could include implementing more detailed and in-depth training videos, as well as collecting and analyzing follow-up data to assess long-term outcomes and effectiveness. Although the study utilized remote services, it is advisable to maintain professional oversight throughout the intervention process. For behaviors that are more complex or require intensive intervention, having a professional more actively involved—beyond just weekly consultations—may prove more effective in ensuring the successful implementation of strategies and skills training.

Additionally, increasing the sample size and including a diverse range of participants in terms of gender would enhance the robustness and generalizability of the findings, reducing potential gender biases. Expanding the demographic variety of participants could provide a more comprehensive understanding of the effectiveness of BST across different groups.

Overall, this study contributes to the growing body of literature demonstrating that telehealth platforms are a valuable and effective means of applying behavior analysis strategies. The convenience of accessing services from home, combined with the effectiveness of telehealth in delivering behavior analysis interventions, underscores its potential as a critical tool for both practitioners and caregivers.

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About the Authors

Dr. Kathleen Quinn is a board-certified behavior analyst (BCBA) and NYS licensed behavior analyst (LBA). She provides technical assistance and training to families, adult service agencies, and school districts as they include individuals with developmental disabilities within their communities. She has developed post-secondary educational programs for individuals with developmental disabilities. Her research focus includes expanding the practice of inclusion from early intervention through adulthood. As the founder of a not-for-profit foundation, she presents best practices and research-based evidence on applied behavior analysis with a focus on inclusion.

Karrie Lindeman completed her undergraduate degree at C.W. Post University with a major in psychology, and her Master's in Psychology followed by an Advanced Certificate in Behavior Analysis at Queens College. She worked in a school for children with autism for 10 years and consulted in the public school and early intervention setting before she completed her doctorate in Learning and Teaching at Hofstra University in 2015. Karrie currently holds BCBA-D certification, as well as Licensure in Behavior Analysis (LBA-NY). She continues to provide parent training, staff training, and consultation in a variety of settings. Karrie has served as Touro College's Behavior Analysis Program Director since its inception in 2017. Current research interests include staff training procedures and activity schedules.

Faye Walkenfeld, PhD is Chair of the Department of Behavioral Science and Associate Professor of Psychology within the School of Health Sciences of Touro University. Dr. Fried-Walkenfeld received her PhD in Developmental Psychology from the City University of New York, and is a licensed psychologist in New York State, where she has had a long and distinguished private practice.

Kayla Finuf holds a doctorate degree in Applied Organizational Psychology from Hofstra University and a master degree in Industrial/Organizational Psychology from Western Kentucky University. She current works as a consultant at APTMetrics and an adjunct instructor at Touro University where she specializes in teaching statistics, psychometrics, and research methodology.

Nancy LoPrete has a master's degree in early childhood education and graduated from Touro College with an advanced certificate in Applied Behavior Analysis. She has worked as a teacher for over twenty years providing instructional support for children of varying abilities. In 2019, she began working with children with Autism Spectrum Disorder and obtained her Registered Behavior Technician certification. She continued her professional journey, obtaining both her Board Certified Behavior Analyst certification as well as her New York State Behavior Analyst License. Nancy continues to work with children diagnosed with autism. Through her work, she is able to provide support and training for the families of the children she works with, as well as contribute to the training of behavior technicians. She is committed to fostering meaningful behavioral changes and making an impact on all those that she serves.

Emily Burkert holds a limited permit as a Licensed Behavior Analyst (LBA) and earned her Master's degree in Applied Behavior Analysis from Touro College in 2021. Currently, she is preparing to take the BCBA exam in the coming months. Emily works as a teacher in the Department of Education and serves as a Behavior Intervention Specialist for a nonprofit organization, where she assists and trains behavior technicians and parents while working with students on the autism spectrum. Additionally, she is pursuing further education and is set to graduate this spring with a second Master's degree in Special and General Education. Emily plans to focus on working with students aged birth to 2nd grade in her future endeavors.

Appendix A.

Parent Training Intake Form	
Child's Name:	
Child's Age:	
Child's Diagnosis:	
Where did you hear about our services?	
Background Information	
Does your child currently go to school? If yes, please indicate name of school.	
Does your child receive any therapies or special services? If yes, please indicate provider, as well as frequency of therapy:	
Language Information	
Primary Language Spoken: Does your child use words to communicate? If yes, please briefly summarize (e.g., How many words? 1 word vs. 3–4-word sentences? Only uses words to request. Conversational skills? If your child does not easily use words to communicate, please briefly summarize your child's language abilities (e.g., babble, make sounds, gestures).	
Behavior Assessment	
Please list any problem behaviors (crying, biting, hitting, kicking, injuring self, property destruction, etc.) that your child displays which concern you.	

For each problem behavior, please estimate the number of times they occur (10 times a week, 1 time per hour, etc).
List and describe strategies you have used to control these problem behaviors and whether the strategies were successful.
Describe your child's sleeping patterns:
Describe child's toileting:
Parent Concerns:

Appendix B

Name:	
Date:	
Please use the following rating scale for questions 1-5 ***Excellent = 4 Good = 3 Fair = 2 Poor = 1 Not Applicable = NA***	
1. I am able to respond effectively to my child's behavioral needs.	
2. I feel that I am equipped to handle and decrease any problematic/unsafe behavior(s) my child displays.	
3. I feel that I am equipped to teach and increase desired behaviors.	
4. I am consistent in my delivery of strategies when responding to my child's behavior.	
5. I am equipped with strategies to respond to my child's behavioral needs in multiple settings (e.g. community)	
6. I reach out to others and can easily communicate that I need support when in regards to my child's behavioral needs.	

For office use only:
Student Intern Name: _____
Circle: Pre or Post
Score: _____

Appendix C
Data Collection Sheet

Child Name:	
Date:	
Interval Length:	30 minutes
Setting: _____	

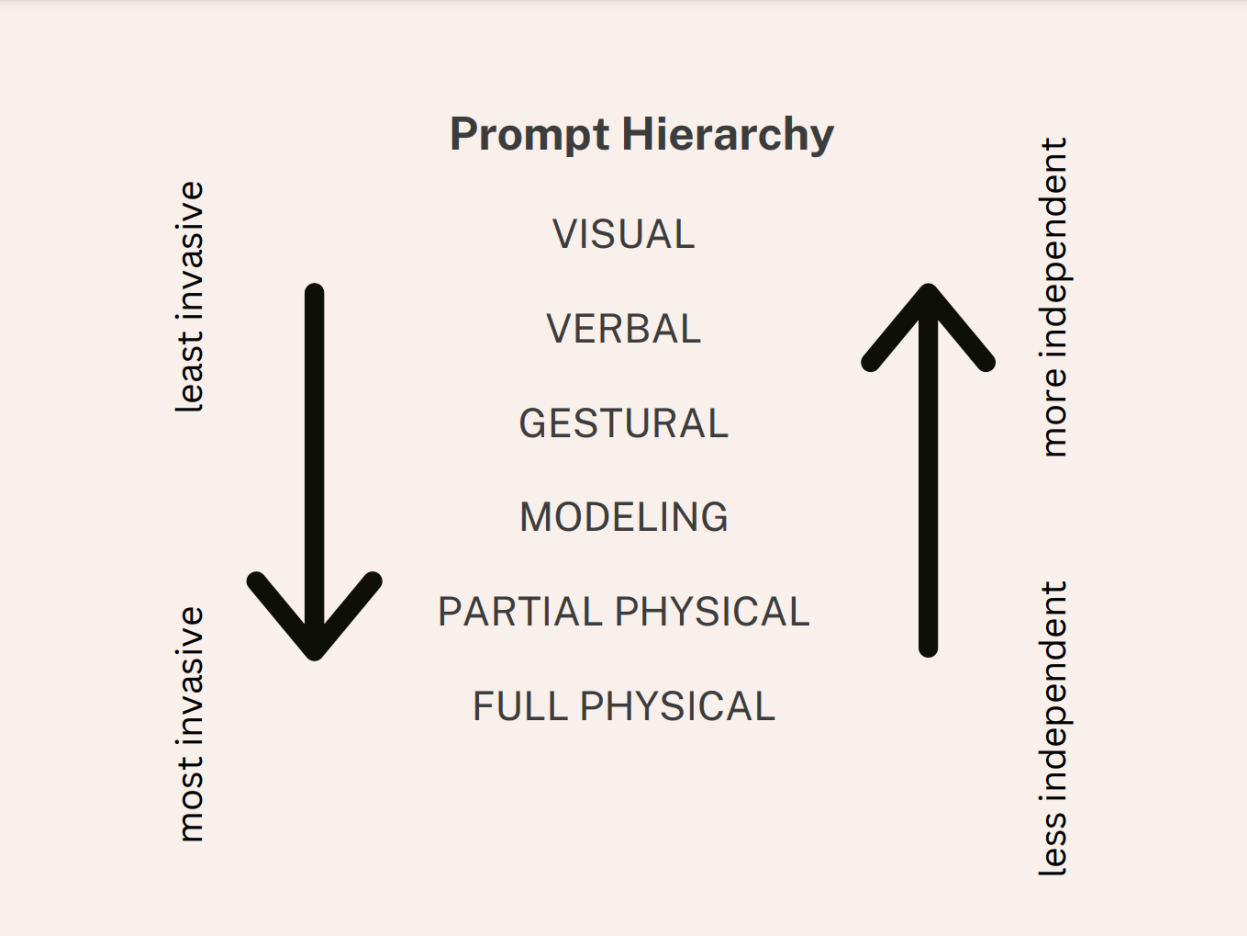
Operational Definition of Noncompliance:
Noncompliance is defined as the failure to follow a given directive within 10 seconds of the directive being issued. Specifically, if an individual does not initiate or complete the required action in response to the directive within this 10-second timeframe, the behavior is considered noncompliant. This definition focuses on the immediate response to directives, emphasizing promptness in action as a key component of compliance.

With any given directive mark a + for compliance if the child engaged in the requested directive and – for noncompliance if the child did not engage in the directive given.

Directive Given (SD given write out below)	Data (circle one)
	+ -
	+ -
	+ -
	+ -
	+ -
	+ -
	+ -
	+ -
	+ -
	+ -
	+ -
	+ -
	+ -
	+ -
	+ -
	+ -
	+ -
	+ -
	+ -
	+ -

Total Number of directives given: _____
Total Number of + responses: _____
Total Number of – responses: _____

Appendix D


Prompt Hierarchy
VISUAL
VERBAL
GESTURAL
MODELING
PARTIAL PHYSICAL
FULL PHYSICAL
least invasive
most invasive
more independent
less independent

Appendix E

Name:	Click here to enter text.	**Date:**	

Under each heading, the parent/guardian should give the a numerical rating of the usefulness of each video and write specific comments in the space provided. The numerical rating system is based on the scale below.

Scale:	**5** – Exceptional	**4** – Above Average	**3** – Average	**2** – Satisfactory	**1** – Unsatisfactory

For each video rate the *usefulness* of the video for obtaining information pertaining to that week's topic. Please provide any specific commentary for each video if applicable. Your feedback is important to us as we work to provide an optimal learning experience for parents.	**Rating**				
	5	**4**	**3**	**2**	**1**
Week 1: Overview of Autism Spectrum Disorder **Comments**:	☐	☐	☐	☐	☐
Week 2: Behavioral Principles, Introduction to ABA and Parent Training **Comments**:	☐	☐	☐	☐	☐
Week 3: Proactive Strategies **Comments**:	☐	☐	☐	☐	☐
Week 4: Schedules and Visuals **Comments**:	☐	☐	☐	☐	☐
Week 5: Reinforcement **Comments**:	☐	☐	☐	☐	☐
Week 6: Reinforcement Systems **Comments**:	☐	☐	☐	☐	☐
Week 7: Gaining Compliance **Comments**:	☐	☐	☐	☐	☐
Week 8: Planned Ignoring **Comments**:	☐	☐	☐	☐	☐
Week 9: Functional Communication Training **Comments**:	☐	☐	☐	☐	☐
Week 10: Prompting **Comments**:	☐	☐	☐	☐	☐
Week 11: Data collection **Comments**:	☐	☐	☐	☐	☐
Week 12: Generalization and Maintenance **Comments**:	☐	☐	☐	☐	☐

Overall Impression and Recommendation – Summary of your perceptions of the videos. Feedback on usefulness of each video and any recommendations for changes.

Comments:

A Descriptive Study of Special Educator Student Teachers Using Assistive Technology

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Abstract

This descriptive research study was done at a small, rural-serving, liberal arts university within an online, graduate-level special education teacher preparation program. Participants were graduate students (n= 9) who were provided a technology kit as a recruitment tool. All participants were completing their licensure coursework over one year in an asynchronous format while working full-time as alternative special education teachers. The descriptive research project will detail the impacts of authentic Assistive Technology (AT) use as part of the teacher preparation program. Participants received instruction on using AT for their learning and teaching, emphasizing two primary topics: multimodal literacy AT tools and AT tools for accessibility and accommodation using the features native to the devices supplied in the technology toolkit. The study's findings provide a lens into the positive impacts of implementing AT learning throughout a teacher preparation program resulting in increased implementation and teacher self-confidence.

A Descriptive Study of Special Educator Student Teachers Using Assistive Technology

This descriptive research study was designed to explore the effects of infusing assistive technology (AT) into the licensure year of graduate students completing their alternative special education teacher license. This study provided each participant both the materials and professional development necessary to explore the impact of a technology kit and best-practice-driven training on professional learning, confidence, and AT implementation in K-12 special education programs. The research field of special education acknowledges there is a tremendous benefit for K-12 students to enhance, accommodate, and access their learning using AT (Edyburn, 2004, 2006, 2015). Additionally, the research field of teacher preparation and adult learning has proven that adults must be active in their own learning, be able to identify the benefit of tools or strategies to implement them with their students, and be able to practice with or integrate technology within their learning to feel proficient using it with students (Oostveen, Muirhead, & Goodman, Evans, 2008; Alper & Raharinirina; 2006; Van Laarhoven, Munk, Chandler, Zurity, & Lynch, 2012; Mason, 2014). This descriptive research project combined those two evidence-based practices to study AT use among teachers within a graduate student cohort (n = 9, herein referred to as AT Cohort) and the impacts on their K-12 students. The data collected in this descriptive research study included: quantitative and qualitative surveys and self-reflections, coursework artifacts, and self-reported goal tracking.

Background

For this study, the researchers began at the intersection of two areas of inquiry: teacher preparation strategies and standards, and best practices around AT and Universal Design for Learning (UDL) (Hitchcock & Stahl, 2003). Statewide standards outline the knowledge and skills that must be met by special education teacher preparation program graduates. An additional roadmap for institutions of higher education (IHEs) to implement comprehensive student teaching experiences is provided using the High Leverage Teaching Practices (HLPs) published by Council for Exceptional Children (McClesky, et al., 2016).

HLP #19 outlines the importance of implementing AT in K-12 special education student learning, and leveraging UDL as the foundation for design, delivery, and assessment (McClesky, et al., 2016). Identifying, implementing, and adapting assistive technologies is a comprehensive task for special educators as described in HLP #19. However, the research regarding the intersection of teacher preparation and AT demonstrates that we do not currently know how teachers learn to implement technologies in their K-12 special education programs (Alper & Reharinirina; 2006; Van Laarhoven, et. al., 2012). There is also a lack of clarity in the research background about when and how teachers who do *not* learn about AT during teacher preparation *do* learn about it while working in their school districts as special education teachers. In an effort to address this potential gap in learning, this descriptive research study directly reflects on the HLP #19 charge, implementing a practical response: provide access to and training with AT within a teacher preparation program.

Research over the past decade highlights various ways teacher preparation programs have integrated AT teaching and learning into their programs. Examples include: AT workshops or one-time professional development experiences; stand-alone AT courses or AT learning embedded within other courses; how-to videos embedded across a variety of courses to provide just-in-time training for available AT tools; and a combination of integrated AT and in-person, stand-alone AT labs embedded within teacher preparation programs (Park, Bagwell, Bryant, D., & Bryant, B., 2022; Pogrund & Smith, 2012). The need for AT training is acknowledged both in research and practice, but technology instruction and resources must continually evolve to support K-12 special education students' academic outcomes and access to AT across learning needs.

AT and Universal Design for Learning

This descriptive study was designed on the foundational teaching framework that to effectively integrate AT, an understanding of the intersections between AT and Universal Design for Learning (UDL) is required. Special education law has recently addressed how AT and UDL are related in application but have some distinct differences which are important to note (Cast.org, retrieved 2022; Rose, 2000). Both increase access, potentially enhancing learning, and both can involve technology. But AT, as added to an IEP, solves accessibility problems as they arise or as part of an ongoing need related to a disability. UDL, on the other hand, looks at accessibility options for all students as the curriculum is developed. At a high level, UDL necessarily impacts all students whereas AT is only applicable to some students' learning experience, related to individualized needs.

UDL anticipates and addresses accessibility problems before a student even encounters them by diversifying or automatically incorporating supports so all learners have access to what they need

across their learning experience. These diversified academic learning activities provide multimodal opportunities to access, engage, and demonstrate learning, which can be of notable benefit to students served in special education programs. As the curriculum is developed, alternatives such as multimodal digitized text and interactive engagement software are built in, rather than bolted on after the fact to accommodate a specific student's needs.

Conversely, AT uses technology-based low- and high-tech tools or services to make inaccessible learning tasks accessible. It is implemented after the curriculum is in place and an individual student encounters accessibility issues. As required in IDEA (2004), AT is included on the IEP, providing assurances that the student will continue to have access even as teaching teams, grade levels, and available types of technologies change.

The education and learning opportunities built into the AT Cohort study were founded on the position that the distinctions between AT and UDL, which together facilitate an end-to-end landscape of student support, must also be addressed in special education teacher preparation programs. The recent changes to special education law clarify that it is shortsighted to encourage future special education professionals to plan backward for diversity (i.e., UDL) without also planning forward for access (i.e., AT). The environment for this descriptive research study was K-12 special education programs in school districts across a mountain state. Within the state, researchers anticipated a difference in access to AT education and learning opportunities depending on the regional setting. It is notable that in rural school districts there was a gap in AT learning opportunities for special education teachers which was two-fold: less exposure to AT instruction in teacher preparation programs and within their K-12 school districts.

Literature Review

This descriptive research study was underpinned by a solid research foundation regarding both the benefits of K-12 students served in inclusive special education programs having access to AT tools and accommodations (Edyburn, 2015), and the need for teachers who can implement UDL and AT within special education programs to support student learning and access. Researchers conducted a literature review to synthesize what has been written regarding adult learning theories and how AT design models are used in teacher preparation programs to support their implementation in their K-12 special education programs.

Teacher Preparation

Teacher preparation program research is grounded in comprehensive supports and coaching, mentoring best practices during student teaching or teacher residencies (Darling-Hammond et al., 2017), practical application of coursework to enhance learning and technology use (Cheek et al., 2018), and rigorous application of coursework that aligns with state standards (Starkey, 2020; Brownell et.al., 2019). There are several conceptual models to support the "how" and "why" of teacher preparation programs. As noted by O'Flaherty and Beal (2018), teacher preparation programs need to remember that "It is an intensive learning experience requiring students to adopt the dual role of learner and teacher simultaneously" (p. 461). In special education teacher preparation, several areas of competencies must be addressed: (a) pedagogical and special education content and philosophical knowledge, (b) intensive intervention and assessment skills, (c) inclusive educational practices for students served in general and special education programs, and (d) the research skills to identify evidence-based practices to use within special education programs, along with organizational and teacher-leadership skills to support special education

program implementation at grade level or across the school building. In addition to the competencies listed, there are issues impacting teacher preparation that are regionally specific, such as dissatisfaction for teachers working in rural school districts related to their lack of resources and professional development opportunities (Berry & Gravelle, 2013).

Teacher Preparation and Adult Learning Theory

Adult learning theory, andragogy, can help provide a foundation in best practices to use when working with adults completing their teaching license (Kenner & Weinerman, 2011). Adults need to see practical applications for what they learn in order to situate it into their background knowledge and adapt it in their own work (Knowles et al., 2014; Muneja, 2015). Further, adults are social learners who want their time to be valued and used strategically as they juggle non-academic responsibilities while completing professional development. Framed by these andragogy best practices, research projects studying a phenomenon in a natural classroom setting can use Darling-Hammond, Hyler, and Gardner (2017) design elements of effective professional development to guide implementation that is ongoing and authentically practiced with K-12 students. These elements are: (a) content focus, (b) active learning, (c) collaboration, (d) use of models and modeling, (e) coaching and expert support, (f) feedback and reflection, and (g) sustained duration.

AT Integration in Teacher Preparation

Currently, various theoretical models are used to help student teachers understand or learn ways to implement effective technology integration within inclusive educational programs, including: Technology, Pedagogy, and Content Knowledge (TPACK; Koehler & Mishra, 2009); AT-specific implementation such as the Student, Environment, Tools and Tasks (SETT) (Zabala & Korsten, 2004); frameworks provided on the Quality Indicators for AT (QIAT, Retrieved 2022; Wojcik, 2011); Substitution – Augmentation – Modification – Redefinition (SAMR; Puentedura, 2012), Technology Integration Planning (TIP; Roblyer & Doering, 2013), Technology Integration Matrix (TIM; Harmes, Welsh, & Winkelman, 2016), Technology Acceptance Model (TAM; Venkatesh, Morris, Davis, & Davis, 2003), Levels of Technology Integration (LoTi; Moersch, 1995), and Replacement – Amplification – Transformation (RAT; Hughes, Thomas, & Scharber, 2006).

Branching from these models, a newly researched theoretical model for integrating technology learning into student teaching experiences is the PICRAT model, standing for, Passive (P), Interactive (I), Creative (C), Replaces (R), Amplifies (A), and Transforms (T). This model leverages the PICRAT Matrix, a tool that enables prospective teachers to reflect on traditional teaching practices related to technology integration through student relationship to technology. This model and the PICRAT Matrix are designed to support teacher growth in their implementation of technology from passive, to interactive, and finally, creative implementation.

Each of these technology integration conceptualization models are presented here as references for evidence-based practices of integrating technology professional development within adult learning (Kimmons, Graham, & West, 2020).

Theoretical Framework

Two theoretical frameworks applied in this descriptive research study are the constructivist model and the SAMR model. These models were selected because of how directly they respond

to recommendations regarding teacher preparation and AT training. Specifically, in 2009, Judge and Simms provided a roadmap based on a national survey of teacher preparation programs that recommended integrating comprehensive AT guidance across the teacher preparation program. Researchers acknowledge numerous challenges around integrating AT guidance, including: varying degrees of higher education faculty expertise, a lack of hardware resources to provide authentic practice with AT, limitations infusing AT into teacher preparation curriculum, and the prevalent misconception that AT is only needed by a small number of students with low incidence disabilities (Michaels & McDermott; 2003, Van Laarhoven, et.al., 2012; Pogrund & Smith, 2012).

Table 1 demonstrates how assignments in this study were designed to blend the constructivist and SAMR models into a comprehensive theoretical framework. As Table 1 shows, it is common for one assignment to fit within multiple categories of this blended framework.

Table 1
A Blended Framework: Constructivism and SAMR

SAMR ▶ / **CONSTRUCTIVISM ▼**	**SUBSTITUTION**	**AUGMENTATION**	**MODIFICATION**	**REDEFINITION**
	Tech provides a substitute for other learning activities without functional change	*Tech provides a substitute for other learning activities with functional improvements*	*Tech enables the learning activity to be redesigned*	*Tech enables the development of tasks that cannot be done without the technology*
	ENHANCE		**TRANSFORM**	
CONSTRUCTED				Teacher implements AT for students reading 3+ grade levels below (AT Tools)
ACTIVE	Text-to-Speech (AT Tool)		Multimodal Literacy Project	
REFLECTIVE		Multimodal Text Annotation (AT Tool)		
COLLABORATIVE	Text-to-Speech (AT Tool)			Multimodal Literacy Project
INQUIRY-BASED		Professional Development Project	Multimodal Text Annotation (AT Tool)	

Note: Table provides examples of how the constructivist and SAMR models were blended to form a comprehensive theoretical framework to support this descriptive research study.

Constructivist Model

This descriptive research study was designed using a constructivist learning model as a theoretical framework. The key benefits of applying a constructivist framework are the potential for learners to develop a deeper understanding of the material and to retain the content and concepts for a longer period. Within this framework, teacher preparation students use their individual experiences and critical thinking to guide their own learning (Schell & Janicki, 2013). Because the constructivist model places control over learning experiences into the students' hands, it requires them to rapidly develop confidence in themselves as both learners and teachers.

The constructivist learning model is an applicable framework for this study for two primary reasons. First, it enables teachers to have their own authentic learning experiences using technology within their learning as graduate students in the teacher preparation program (i.e., marking up digital textbooks on their iPad and utilizing the iPad's native text-to-speech AT tools as a way to access their learning). Practicing with these features and tools as learners gives graduate students confidence in their ability to use them in a classroom setting. Second, it encourages educators to broaden their perspective on how AT could be used to access and enhance future K-12 student learning. Further, applying a constructivist model to a year-long study enables the professional development experience to be continually constructed and reflected upon using participant experiences. Learning in this way, over time and with practice, can support the participants in using AT tools in their teaching practice beyond the study (Edyburn, 2015). An additional way to support continued technology use is to provide continuous access to devices, which is why participants in this study received AT kits.

This study took place in an online format, which provided an additional environment in which to apply a constructivist model. In a traditional learning environment, teachers (as learners) tend to view their faculty members as experts, whereas in the constructivist model the faculty member is a guide and facilitator. This difference in perception encourages students to take a more active role in their learning and develop the confidence to be the architects of their learning experiences, which is necessary in online programs designed to provide maximum flexibility. In a traditional model, learning is often expressed as a final "product," whereas in a constructivist model the emphasis falls on process (Rakes, 1996; Schell & Janicki, 2013). The emphasis on process over product aligns with the objectives of online programs designed for working professionals who can apply learning as it unfolds rather than at the end of a unit or class.

SAMR Model

In conjunction with using a constructivist framework, this study applied the Substitution, Augmentation, Modification, and Redefinition (SAMR) (Puentedura, 2012) model as the theoretical framework to consider how a teacher's technology use broadens over time. Through self-reflection exercises, AT Cohort participants shared what they learned and how they implemented AT as learners and teachers, utilizing the steps of the SAMR model. The SAMR model was applicable for this study because it provides a framework that can be used to classify and evaluate learning activities. Puentedura developed the SAMR model in 2006 as part of his work with the Maine Learning Technologies Initiative. The model was intended to encourage

educators to significantly enhance the quality of education provided via technology across the state of Maine (Hogan, 2010).

AT Cohort participants reflected on their experiences using the SAMR Model, which consists of the following four classifications of technology use for learning activities:

- **Substitution**: The technology provides a substitute for other learning activities without functional change
- **Augmentation**: The technology provides a substitute for other learning activities but with functional improvements
- **Modification**: The technology allows the learning activity to be redesigned
- **Redefinition**: The technology allows for the creation of tasks that could not have been done without the use of the technology

Much like the constructivist framework, the SAMR model is a continuum—it is not meant to be interpreted as hierarchical. To illustrate, teachers using SAMR may find that technology acting as direct substitution for a paper and pencil task works for one learning activity, while another learning activity may require a more transformational approach–enabling students to use technology in innovative ways that enhance their learning. One approach is not necessarily better than the other. As teachers gain confidence in their AT knowledge and skills, they can toggle seamlessly between AT options across the SAMR continuum.

This descriptive study aligns with numerous existing studies involving mobile AT devices (such as iPads) which use SAMR as a framework because it provides activity suggestions that align with each category within the model. For example, Redondo, Fonseca, Sanchez, and Navarro (2013) provided a case for "redefinition" where technology transformed the learning experience in ways that had not been previously possible. Participants in this study used a handheld augmented reality with a mobile device where they were able to see overlapped virtual models on real scenes in order to study architecture.

Method

Research Questions and Setting

This study was implemented in 2021-2022 within an online, graduate-level special education teacher preparation program (n=9). The study procedures were IRB approved and participants consented to sharing feedback, coursework artifacts, and comparative results regarding AT knowledge and skills from the beginning to the end of the project. In response to the existing research about AT integration in teacher preparation, researchers wondered about and explored whether the study components would have a positive impact on the AT Cohort participants' confidence with and effective use of AT with their special education students. These components were: technology toolkits provided to each member of the AT Cohort, enhanced AT professional development, and coursework projects that utilized AT in a K-12 setting.

K-12 Colorado school districts were the primary setting of this study. All AT Cohort participants lived in various communities across Colorado while completing their graduate coursework online. The settings ranged from urban to rural with the majority of participants working within rural school districts. The primary research question was: When provided PD and a technology toolkit, will new special education teachers experience increased confidence in using and implementing AT in their K-12 special education programs?

Participants

This project began with nine participants and ended with seven. Six of the nine teachers were working in rural or small rural school districts while three were in urban school districts. Two AT Cohort members exited the study before the end of the year; one moved to another state, and another left their position in a rural school district. All but one AT Cohort member identified as female. Participants' K-12 caseloads varied from mild to moderate through intensive learning needs. They varied in size as well, with a twelve-student caseload as the smallest and twenty-eight-students as the biggest caseload. Of the seven participants who finished the research study, five worked at the secondary level and two worked at an elementary level. All participants were students in a graduate teacher preparation program. Of those who completed the study, six were alternative teachers working as the special education teacher and one was working both as a paraprofessional and long-term substitute in special education programs. Table 2 provides a summary of participant demographic information and SMART Goals.

Table 2
Participant and Independent Variable Description

Participants (*n=9*)	Demographics	Caseload Size & Region	Grade Level & Special Education Program Type	SMART Goal Summary
Participant #1	Woman, mid 50s	10-15, Rural	Elementary School, Mild-Moderate	Focused on study accessibility using Native iOS "speak screen" for accessing grade level text and utilizing accommodations on iPad that would support learning.
Participant #2	Woman, mid 30s	10-15, Rural	Elementary School, Mild-Moderate	Focused on study writing enhancement using iOS "dictation" tool and additional AT features on iOS to support student writing.
Participant #3 **Withdrew*	Woman, mid 40s	20+, Small Rural	K-12, Mild-Significant	Focused on using Google Apps to progress monitor caseload using iPad and linking iOS calendars to keep track of lessons and communicate with parents about upcoming assignments.
Participant #4	Man, mid 30s	20+, Small Rural	High School, Mild-Significant	Did not complete.
Participant #5	Woman, early 20s	15+, Rural	Middle School, Mild-Significant	Focused on student writing using iOS "dictation" tool and using Google doc to track student engagement using iPad to collect data.

Participant #6 **Withdrew*	Woman, mid 30s	N/A	N/A	N/A
Participant #7	Woman, early 20s	10-15, Rural	K-8, Mild-Significant	Focused on using iOS apps/tools that supported student accommodations such as "text to speech" and "guided access" and a data collection tool on the iPad to progress monitor student IEP goals.
Participant #8	Woman, early 20s	15-20, Urban	High School, Moderate-Significant	Focused on using iPad to support coursework using eTextbooks and student accommodations with text to speech and "dictation" tools on iPad.
Participant #9	Woman, mid 40s	25+, Urban	High School, Mild-Moderate	Did not complete.

Note: This table compiles PD Course data collection. Participants who finished the program completed additional coursework application projects incorporated into their program. Six of ten total participants completed all the elements of the PD course. Two participants (highlighted in table) did not complete the program.

This study targeted participants who were already working as the teacher in their special education program in order to leverage opportunities for authentic implementation of AT supports for K-12 students served in special education. The participants were selected for the AT Cohort because they were working full time as "alternative teachers" (e.g., the teacher of record), which enabled them to try out strategies for multimodal literacy, and to apply and monitor K-12 student AT use across the school year.

Positionality and Reflexivity Statement

The researchers conducting this descriptive study are white, middle-class, women in a university setting teaching future special education teachers. Related to the researchers' positionality, we also note our reflexivity in how we coached and discussed AT and teacher technology use with participants. For example, one of the researchers has a background working as an AT specialist; as such, coaching notes and observations would inevitably have a bias toward students benefiting from technology use and access.

Professional Development Course Overview

To keep the scope of learning manageable for participants and relevant to the devices provided, the AT professional development course focused on the accessibility features native to iOS devices that can support special education students' educational programs. AT Cohort members learned how to pair the native accessibility features in a multimodal literacy workflow, emphasizing AT or UDL implementations with K-12 students in their programs.

In this study, multimodal literacy was defined as texts that are multimodal, in which meaning is communicated through combinations of two or more multimedia modes. Modes include written

language, spoken language, video, audio files, and patterns of meaning: visual, audio, gestural, tactile, and spatial. Within the course, AT Cohort participants were taught that multimodal texts provided in multiple modes create literacy activities that enhance, differentiate, and remediate student learning. In addition, AT Cohort participants learned to combine the accessibility features native to iOS devices—such as text-to-speech and annotation capabilities—to complete multimodal literacy activities.

AT Cohort members were encouraged to use iOS accessibility features in both teacher learning and teaching implementation. Within both contexts, the native features participants experimented with included: (a) speech tools (e.g., text-to-speech and highlighting text), (b) dictation (used in several applications on iOS device for dictation instead of typing), (c) physical and other disability-related accessibility features (found in general settings menu), and (d) multimodal accessibility features to accommodate or enhance learning (e.g., creating videos with subtitles, adding visuals, audio, video to interactive documents, and slides.). Table 1 provides examples of artifacts and AT tools that blend constructivist and SAMR theoretical models.

Artifacts Included in Data Collection

Multimodal Literacy Project. In this application project, participants used the AT checklist from the Wisconsin AT Initiative to review AT support options for a student or students (https://www.wati.org/). AT Cohort participants developed a multimodal literacy lesson plan that focused on incorporating AT and strategic support to increase accessibility using multimodal literacy best practices. This included practices such as multimedia interactions with information as well as learning activities and differentiated opportunities for students to demonstrate their understanding using multimodal representations including video, audio, imagery, or combinations of multimedia. Projects included multimodal slide presentations, interactive smartboards, explicit instruction using text-to-speech or speech-to-text applications, and lessons that included problem solving technology issues that came up in the lesson. Additionally, this project included a collaborative peer engagement component in which learners recorded and uploaded lesson snippets to a course video observation platform. Participants interacted with colleagues in their program by sharing a reflection on the successes and opportunities for growth within their multimodal literacy lesson as well as their lesson plan.

Professional Development Project. Participants were instructed to create professional development content related to AT. This professional development opportunity could be a workshop for teacher colleagues at a faculty meeting, a presentation for a parent audience at a literacy night or for colleagues at a conference, or a student-friendly "how-to" for a K-12 student audience. AT Cohort participants taught about topics such as accessibility features native to iOS devices, Texthelp's Google Read and Write, and how to use specific software systems or AT supports for intensive learning needs students (e.g., Augmentative or Alternative Communication Devices (AAC)).

AT Cohort SMART Goals. AT Cohort participants created two SMART Goals related to this descriptive research study (Table 2). Participants were instructed to make the first goal related to themselves as learners. Prompts and examples of this goal were related to teacher efficiency using data management apps on iPads for progress monitoring or being an active learner using multimodal literacy tools to review textbook resources related to their coursework. Participants' second goal focused on students in their K-12 programs using AT to support their learning.

Suggested areas to focus on with this goal were student accommodations, access to grade-level text using text-to-speech, or other technology-enhanced learning strategies to support K-12 student learning in special education programs.

SMART Goals are used across the graduate program AT Cohort participants were enrolled in, and the goals they set in advance of their student teaching year were addressed multiple times throughout the year as participants set four additional cycles of goals (i.e., Cycle #1 SMART Goals are set in September, Cycle #2 SMART Goals are set at the end of October).

Pre- and Post-Professional Development Reflections. AT Cohort participants completed reflection questions before and after the professional development course.

Pre-PD Questions: (1) What do you want to learn in this AT Cohort? (2) What do you think of when you imagine how technology can be used to support your teaching? (3) What do you think of when you consider how technology can support student learning and access?

Post-PD Questions: (1) What did you learn in the AT Cohort PD? (2) What do you believe will be the most valuable support for using AT with your students? (3) What will be the most valuable AT tools and workflows to use in your teaching? (4) Mark up your pre-course reflection by uploading it here and using the Canvas markup/commenting tools or you can mark up your pre-reflection using another markup tool in Google Docs, Word, etc.

Data Generation

AT Cohort Research Timeline

The timeline (Figure 1) outlines project progression from recruitment through an end-of-spring semester self-reflection on SMART Goals. AT Cohort participants completed projects associated with their AT professional development within their regular program coursework in both the fall and spring semesters, culminating in a final project related to their AT SMART Goals. These individualized AT SMART Goals were written by the AT Cohort participants, with the support of the researchers, and designed to be executed within the timeline of the study.

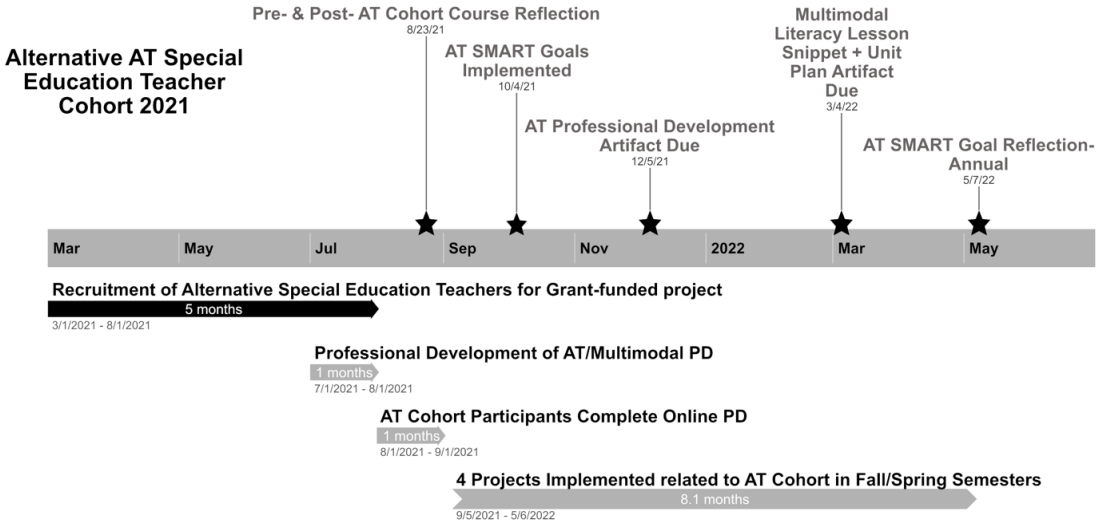

Figure 1: AT Cohort Research Timeline

Note. This figure provides an overview of research activities that were implemented across the year the project was conducted.

Implementation

This study provided each participant both the materials and professional development necessary to explore the potential for access to a technology kit and best-practice-driven training to increase professional development, confidence, and AT implementation in K-12 special education programs. At the start of the study, each AT cohort participant received a technology kit which included an iPad, Apple Pencil, two hard-copy textbooks, and additional program eTextbooks delivered through the Vitalsource app. With the technology in place, participants were assigned a set of professional development activities designed to enhance their use and implementation of AT tools for multimodal literacy in their K-12 special education programs within a year's time frame.

The professional development activities were framed by a constructivist model and utilized the best practice recommendations of Darling-Hammond et al. (2017), such as content-focused coursework, active learning, and collaboration. The activities enabled the AT cohort participants to incorporate AT skills and strategies in two stages. First, the special education teacher candidates familiarized themselves with their technology kits. This approach required future special educators to practice using the native iOS tools and features as learners themselves. The second stage of professional development for participants was to learn strategies for multimodal literacy learning using technology enhancements, AT tools, and UDL supports in K-12 special education student learning. Some examples of tools AT Cohort participants used in their learning and for their K-12 students were text-to-speech, highlighting tools, various annotation methods,

and multimedia within the text—such as videos, audio, or images—used to enhance student understanding.

Descriptive Research Activities Associated with the PD Course

AT Cohort participants completed a series of surveys before and after the professional development course, as well as self-reflections throughout the year regarding their AT teaching and learning. Additionally, AT participants were instructed to implement four projects over the year: a self-directed independent project with teacher and student SMART Goals, a multimodal literacy project, an AT professional development presentation, and pre- and post-AT Cohort reflections.

An illustrative example of a course activity is Thinking Question Quizzes. In one of the first activities completed in the AT Cohort course, participants reflected on their understanding and use of accessibility features in the iPad (e.g., Which menu item links users to accessibility features?). In the same activity, participants were asked to create a "promotional video" about one of the AT features native to the iPad, sharing their excitement about how a student in their caseload might use the feature to enhance or access their learning. AT Cohort members promoted tools such as text-to-speech for literacy access, guided access (a feature that locks the iPad into one app) for engagement and focus, and app support related to the social emotional needs of K-12 students.

Data Analysis

The study explored how integrating AT teaching and learning practices early in the career of alternative special education teachers would create long-term benefits for the participants, and more importantly their students. Specifically, the study aimed for AT Cohort participants to gain confidence using AT, presuming that would lead to increased AT use with their students. AT Cohort participants completed several surveys related to their AT and multimodal literacy knowledge and skills. The first set of questions AT Cohort participants answered were general, regarding their previous teaching experience, current technology proficiency, the types of everyday activities they currently use technology to support, and age range. In the AT Cohort ages ranged from 20-50. Five of the original nine members considered themselves advanced users; everyone reported having a smartphone and in addition to using the calling feature, the majority of the group used phones to keep organized, read news, check email, and socialize.

Descriptive studies are interested in exploring phenomena and describing "what" happened within a study taking place within a natural setting, i.e., learning about teaching within a K-12 classroom setting (Nassaji, 2015). To explore and describe the phenomena related to this study, the descriptive data analysis techniques consisted of gathering, analyzing, discussing, and comparing data collected from AT Cohort participants. In this study, data were reviewed using tables of AT Cohort participant goals for comparing and contrasting, surveying AT Cohort participants, observing AT Cohort participant's teaching samples, and reviewing and providing feedback on data collection artifacts that were submitted as program coursework. A "Reflexive Thematic Analysis" data analysis approach was used to analyze the data (Braun & Clarke, 2006). The six sequential phases recommended in this type of analysis are: (1) familiarization, (2) coding, (3) generating initial themes, (4) reviewing themes, (5) defining and naming themes, and (6) write up. Although conducted sequentially, they are revisited throughout analysis in a

recursive method to identify and validate the across participant themes (Polkinghorne & Arnold, 2014).

The data analysis took place across the study year, beginning with reviewing AT Cohort participant pre-study survey data. The first phase, "familiarization," consisted of collecting artifacts from the PD course, feedback from AT Cohort members in surveys, and assignment reflections to learn about their experience. Next, researchers began "coding" by organizing artifacts on spreadsheets and comparing participants (i.e., region and use of AT as adult learners and with K-12 students). The next phases of "generating initial themes" and then "reviewing themes" connected over the year as the three artifacts from coursework were reviewed (i.e., SMART goal reflections, professional development project, and multimodal literacy project). These artifacts where then compared with overarching pre-survey themes. For example, researchers wondered: will there be alignment between what participants hope to learn and the assignment artifacts they complete? Further, how did course assignment artifacts further enhance thematic categories? For example, SMART goal reflection artifacts were explored and built upon further in the professional development artifact and multimodal literacy project artifact. These artifacts were compared to pre-survey data and PD course reflections initially organized in the first two phases. Project components influencing these phases linked to identifying themes were: participant ongoing engagement with AT use with K-12 students and participants reporting that they felt more confident with the implementation of a new AT tool with a student within assignment reflections.

Researchers engaged in several critical discussions around data as they entered in the "defining and naming themes" phase to identify across-participant themes that were repeatedly echoed throughout data collection. When AT Cohort participation was complete, researchers reviewed and analyzed the graded artifacts from the professional development course to learn more about the AT Cohort participant experiences with learning about and implementing AT in their teaching and learning. This final phase enabled researchers to "write up" the across-participant themes from the reflexive thematic analysis process (Braun & Clarke, 2006; Polkinghorne & Arnold, 2014). Researchers acknowledged and accounted for the fact that in this final phase, Polkinghorne and Arnold emphasize that data that has been "compacted" into themes can become "... quite distant from the original data and a final validity check is required to ensure sense" (2014, p.1).

Findings

Data were analyzed to provide an overview of all participant experiences related to across-participant themes. Researchers applied recursive data analysis across the participant findings, combining data collection artifacts with pre- and post- self-reflections. Across-participant themes were deduced from this analysis. Figure 2 illustrates the deductive reasoning and analysis used to derive across-participant themes with a combined analysis of the data collected.

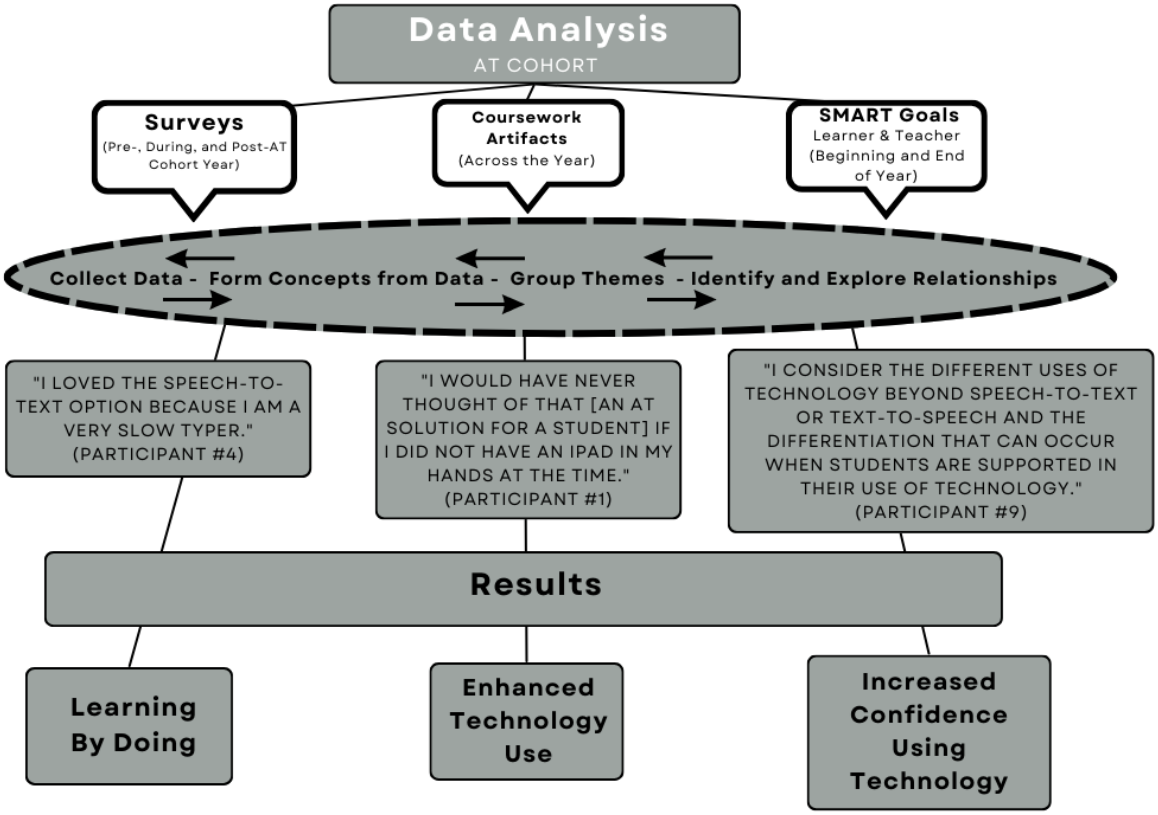

Figure 2: Data Analysis Diagram

Note. This figure provides an organizational chart of the data collection, data analysis methodology, timeline, and descriptive quotes linked to each category.

Across-Participant Themes

AT Cohort participants reflected and set goals related to their AT knowledge and skills, which enabled researchers to collect and compare data across participants. For example, one AT Cohort participant's SMART goal focused on data collection: "By the end of the semester, I will develop and implement a data collection tool, on the iPad, to be used by myself and EAs [Educational Assistants] for data collection as measured by data collection on a weekly basis," (Participant #5, University Graduate Special Education Student, used with permission, 2021). Another member focused on collaboration for student learning: "By May 2022, I will collaborate with a 5th grade general education teacher to incorporate iPad's assistive technology into the scope and sequence of two writing projects by meeting bi-weekly to check progress on the writing project and discuss the assistive technology appropriate for the next step of the project," (Participant #2, University Graduate Special Education Student, used with permission, 2021). As researchers analyzed the data from these artifacts, three themes emerged across the participants and across the descriptive study data: learning by doing, enhanced technology use, and increased confidence in technology use.

Learning by Doing. It was widely reported by participants that they increased their technology use as learners and with students due to simply having the technology in hand. Participants noted that having continuous access to the technology increased the frequency of times they considered using an AT solution for an access issue related to student learning or to enhance a project in their K-12 special education programs. A number of participants reflected that if they had not had this opportunity to gain comfort using various technologies, they may not have thought to use AT to support a learning need.

Enhanced Technology Use. Reflection data also revealed that participants felt they included technology at higher rates with their students and in their teaching tasks due to having authentic practice and ongoing PD.

> When I envision using technology during the day, I imagine setting up reading centers where students can read a book, record, and then listen to themselves reading. I also envision using add-ons such as Pear Deck for independent practice or partner practice during math classes, or reading class. (Participant #8, University Graduate Special Education Student, used with permission, 2021)
>
> I consider the different uses of technology beyond speech-to-text or text-to-speech and the differentiation that can occur when students are supported in their use of technology. In this case, the use of technology is only hindered by the amount the teacher knows and is able to explicitly teach to her students. (Participant #9, University Graduate Special Education Student, used with permission, 2021)

Study data revealed that participants can use technology more widely and their perception of the ways it can be used have expanded due to ongoing exposure to PD. Data analysis revealed numerous SAMR studies moving up the continuum from substitution to technology redefining student learning. One example of substitution in this study was an instance in which students used text-to-speech in place of reading a grade-level text through modification (the stage before "redefinition" the transformational technology implementation). Another example was an instance in which students used Pear Deck vocabulary tools in partner groups attaching images and sound to vocabulary words which were then rated by their peers to create a study deck for the class to use (University Graduate Special Education Student, used with permission, 2021).

Increased Confidence in Technology Use. Early in the study, one participant (Participant #1) noted a scenario on her special education student caseload in which a new student came to her school who was several grade levels below his peers in literacy. The participant conferenced with the general education teacher to discuss accommodations needed to provide access and equity for her student. It was clear the student must be provided intensive, specialized literacy intervention; however, her experience in the AT Cohort led the participant to ask: *What else can I do? What innovative solutions might enhance this student's experience?* Right away, she concluded the team could use a technology solution to have his grade-level literacy activities read aloud to him using text-to-speech. In her self-reflection, she noted, "I would have never thought of that if I did not have an iPad in my hands at the time," which she had been using to learn and read eTextbooks in the teacher preparation program. During the design of this study, researchers anticipated that participants might provide this type of feedback and have similar

experiences: i.e., that teacher candidates working in special education programs will positively benefit their learning and teaching by having authentic practice and implementation with technology.

Limitations, Discussion, and Directions for Future Research

Limitations

This descriptive research study had notable limitations. The AT Cohort was a small participant group, starting with eight alternative special education teachers and one special education paraprofessional enrolled in a graduate level special education teacher preparation online master's program to obtain their special education teaching license. Due to life circumstances, two participants did not finish, creating an incomplete set of pre- and post-PD data. Another limitation was related to participant response rates. Due to a wide array of factors, participants completed self-reflection survey data at a rate of 25% and lowered each call for responses throughout the year.

As a descriptive research study, this study cannot establish a cause-and-effect relationship between providing a technology kit and implementing AT in K-12 special education teacher preparation programs at a greater rate. This limitation also extends to what researchers know of AT implementation beyond the research study year. Participants were not required to provide follow up reflections past the end of the study year, so researchers have no way of knowing whether they have continued or enhanced their AT utilization with their K-12 students served in special education.

Discussion

Special education research substantiates the benefits of creating opportunities for future special education teachers to experiment with AT during their teacher preparation programs (Edyburn, 2015). There is also compelling research that AT benefits students served across the learning continuum when they use AT for their learning, accessibility to learning, and differentiation in learning activities, as framed by best practices of UDL. Additionally, abundant evidence has shown the benefits of authentic technology use by teacher preparation students and technology application activities within student teaching residencies to enhance learning for teachers in training. Research also validates the value of an increase in focus on access to resources and professional learning regarding current best practices in special education program implementation for teachers working in rural locations.

This descriptive study provided a first step toward exploring the benefits of authentic use and learning by creating structured opportunities for teachers to use AT themselves as learners. It provides preliminary and anecdotal data that teachers felt more comfortable and exhibited next-level application on the SAMR model where they augmented and modified previous learning experiences for students with technology supports.

Recommendations for Future Research

This study provides a foundation for further exploration. The next steps would be to implement a more thorough study using this descriptive study as a model. Additionally, teacher preparation professionals must consider the compound issues faced by future rural special education teachers who have more limited access to professional learning opportunities related to AT and UDL.

There were several components to this study that worked well and are listed here as recommendations for IHEs to consider when launching initiatives to support authentic AT learning and teaching: (1) provide technology toolkits and program textbooks as eTextbooks to teachers entering programs both as a recruitment incentive, which was an element of this project, as well as a way to promote authentic technology use within and across the preparation program; (2) provide explicit instruction regarding AT supports which can be practiced and utilized on the provided technology device; (3) provide explicit instruction on ways to create multimodal literacy experiences using the provided technology device; (4) assign application projects and goal setting to incorporate technology into teaching.

There are a number of ways to enhance the outcomes of those recommendations. All of these recommendations are particularly beneficial to rural prospective special education professionals lacking resources in their preparation programs and K-12 school districts. First, provide technology kits and eTextbooks to facilitate teachers' ability to complete their own AT evaluation as learners, potentially using a WATI checklist. They should write a short plan for their use, as was done within one of the practical application projects included in this study. Second, include professional development opportunities with explicit instruction regarding AT and multimodal literacy. Then, extend the learning to incorporate explicit instruction of how to use AT tools as both a learner and a teacher. Research-based technology integration procedures were summarized when introducing the theoretical model for developing the AT Cohort professional development such as: SAMR, PICRAT, TIM, TAM, LoTI (Kimmons, Graham, West, 2020; Puentedura, 2012). Using a technology implementation research-based instrument for teachers to create a more comprehensive plan for the year, incorporating authentic technology use as both AT and UDL supports, would also elevate teacher learning. Additionally, it is important for teacher training to distinguish between planning for student variability using UDL and providing access with AT tools. These technology implementations complement each other with one being proactive (UDL) while the other responds to barriers to learning and accessibility as they arise (AT). A third enhancement would be including a research-based model for comprehensive technology integration, which would benefit from a study in which participants reflect using that model across the year in addition to responding to open-ended survey questions.

Another recommendation for future studies is related to the study participants. All but one of the AT Cohort participants in this study were alternative special education teachers. There were both positive and negative effects related to homogeneity among participants. It was largely reflected that the alternative special education teachers were overwhelmed—possibly related to their level of stress and preoccupation with all the other tasks they needed to attend to being "the special education teacher"—which negatively impacted their ability to engage in the extra activities required in this study. To study this authentic AT use phenomena further in a future AT Cohort study, the participant group will shift to students entering the teacher preparation program as paraprofessionals (Mason & Chaote, 2023). It is anticipated that this group will have more time to authentically explore and implement technology tools and may not feel as overwhelmed with the additional component in their special education teacher preparation program.

More research into which AT is authentically implemented with K-12 students served in special education is needed to enhance technology learning and teaching in special education teacher preparation programs. This descriptive research study "dips a toe in the water" of inquiry into

potential teacher preparation activities that provide authentic practice and application of AT in our teacher preparation programs. Teacher preparation programs implementing "learning by doing" can enhance AT knowledge and skills and may find their teacher preparation candidates have fewer barriers to learning how to implement AT in their K-12 special education programs.

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Initial Validation Study of a Scale for Itinerant Vision Professionals to Determine Workload

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Abstract

Teacher workload leading to burnout is a significant problem facing many teachers today. The *Visual Impairment Scale of Staffing Pattern Analysis* (*VISSPA*) was designed to address the workload of vision professionals, teachers of students with visual impairments, and orientation and mobility specialists who work itinerantly with students who are visually impaired. This study attempted to determine the validity and reliability of the *VISSPA* through a mixed methods design. The study results indicated a high degree of validity and reliability of the new scale, based on feedback from 45 participants on a Likert scale and open-ended questions. Construct validity, consequential validity, and social validity of the tool were measured and found to all be supported by the data. The *VISSPA* was also found to be a reliable tool with a Cronbach alpha of .983, indicating a high degree of internal consistency. Ninety-one percent (n=45) of participants said they would use the *VISSPA* in the future to determine their workload.
Keywords: visual impairment, itinerant service delivery, vision professionals, workload, scale development.

Initial Validation Study of a Scale for Itinerant Vision Professionals to Determine Workload

With a significant shortage of vision professionals, teachers of students with visual impairments (TSVIs) and orientation and mobility (O&M) specialists, across the United States (American Association for Employment in Education, 2021; Munro et al., 2018; Savaiano et al., 2022;), these itinerant professionals are in high demand and are often overloaded with all the duties expected of them, resulting in teacher burnout. According to the American Association for Employment in Education (2021), the special education area of educators in visual impairment was designated as an area of considerable shortage. In Texas, as reported in the *2023 Summary of Professionals in Visual Impairment in Texas* (Robinson, 2024), it is estimated there will be a need of an additional 188 to 202 full-time equivalent TSVIs and 72 to 83 full-time equivalent O&M specialists in the next 3 years to replace those who are likely to leave the field and to respond to anticipated student growth. It has been shown that teachers generally work 50+ hours per week, which is a large contributor to burnout and leaving the profession (Jomuad, et al., 2021). There are teacher shortages across the nation in many fields, including in the STEM subjects, with the area of special education having the most shortages (Aldeman, 2024). In the field of visual impairment that already has significant shortages with the expectation of more of these professionals retiring early or leaving the field for other reasons in the future, the issue of workload is a serious one that needs to be addressed.

The purpose of this study was to validate a scale that will be used by TSVIs and O&M specialists to determine the range of hours per week spent on total workload (i.e., direct and collaborative consultation time plus additional associated duties and travel time) related to providing itinerant services for students with visual impairments. The *Visual Impairment Scale of Staffing Pattern Analysis* (*VISSPA*) was designed to provide itinerant TSVIs and O&M specialists with a tool to account for all their "other" job tasks in addition to direct and collaborative consultation services. The *VISSPA* is intended to be used as an accountability tool for documenting time spent on 18 professional job duties, and it can potentially be used to determine the need for additional visual impairment professional personnel or reorganization of professional responsibilities.

The *VISSPA* evolved from the use of the *Visual Impairment Scale of Service Intensity of Texas (VISSIT)* and the *O&M VISSIT*, two validated service intensity tools designed to provide TSVIs and O&M specialists a data-driven way to make recommendations for the type and amount of direct and collaborative consultation service time for each student on their caseload, based on student need determined from evaluation data (Munro et al., 2018; Pogrund et al., 2015; Pogrund et al., 2019; Pogrund et al., 2024). However, the *VISSIT* and *O&M VISSIT* do not address all the other weekly workload duties required by these vision professionals. There was a request from stakeholders and professionals in the visual impairment field at conference presentations on the *VISSIT*s to develop a workload analysis tool for this purpose, so the Workload Analysis Subcommittee of the Texas Action Committee on the Education of Students with Visual Impairments, a stakeholder group, was created to develop such a tool. This new scale would accompany the *VISSIT* and *O&M VISSIT* to encompass the total workload of each of these vision professionals.

In the initial design of the *VISSPA*, a time-study was conducted to develop the ranges used in the tool by gathering this data from experts in the field followed by a pilot study of the tool to refine the scale further. These experts were seasoned TSVIs and O&M specialists working in the field who had more than five years of experience in their role, so that they could provide the time they spend on each item on the *VISSPA* and to ensure that all workload categories were included. Adjustments were made before conducting this initial validation study on the *VISSPA*.

The research questions for this mixed methods study were:

(1) Is the *Visual Impairment Scale of Staffing Pattern Analysis* (*VISSPA*) a valid tool for helping TSVIs and O&M specialists determine the range of hours per week spent on total workload related to providing services for students with visual impairments?

(2) Is the *Visual Impairment Scale of Staffing Pattern Analysis* (*VISSPA*) a reliable tool for helping TSVIs and O&M specialists to determine the range of hours per week spent on total workload related to providing services for students with visual impairments?

Method

A mixed methods design was used to determine the validation and reliability of the *VISSPA*. Participants were identified by using the purposive sampling method of expert sampling. This sampling method is used to find respondents who are experts in a specific field of study. In this

study, expert sampling was used to find participants who are TSVIs and O&M specialists who are experts in itinerant service delivery to students with visual impairments. The subjects in this study were certified TSVIs and O&M specialists who work itinerantly in a southwestern state. To be considered as a participant in this study, TSVIs and O&M specialists must have either completed all the courses of a university VI or O&M personnel preparation program and successfully passed the state TSVI certification examinations or the O&M specialist certification exam offered by the Academy for Certification of Vision Rehabilitation and Education Professionals (ACVREP). Vision professionals who were dual certified as both TSVIs and O&M specialists were also eligible to participate. They needed more than three years of experience as a vision professional and a demonstrated record of participation in professional development in the field. Additional preferred characteristics of the study participants included receipt of any outstanding teaching or service award, participation as a mentor, and demonstration of quality teaching based on expert observation.

The visual impairment consultants from the state's 20 regional educational service centers (ESCs) nominated participants who met the described criteria. Once nominated, a participant had to contact the Principal Investigator of the study to indicate their desire to participate, and then a copy of the *VISSPA* along with instructions were sent to that participant who then completed the workload scale for their entire caseload and workload. There were 200 vision professionals who were nominated via email to participate in the study. These participants were purposefully limited to those who met the participant criteria and were considered qualified vision professionals by the ESC vision consultants in each region and the Statewide Mentor Program Coordinator. The final number of participants who were nominated, who indicated they wanted to be a participant, and who were sent the *VISSPA* to complete was 51. There were 45 returned *VISSPA*s and completed surveys.

Participants used the results from their *VISSIT*s and/or *O&M VISSIT*s to record the time spent on direct and collaborative consultation services for all the students on their caseload for this time-specific item in the “Documented-Time Activities” section. Other time-specific items on the scale were travel time and duty-free lunch. They then entered the amount of time per week, per month, per semester, or per year that they spent on each of the “Student-Specific” (e.g., Lesson Preparation, Evaluations, etc.) and “Non-Student-Specific” (e.g., Team/Staff Meetings, Staff/Professional Development, etc.) workload tasks included in the *VISSPA*. The tool automatically determines the range of minutes per week for each task, resulting in a range of minutes/hours per week for a total workload. See samples of the *VISSPA* form in Figures 1 and 2. Figure 1 shows the sections of the blank *VISSPA* tool as it appears to participants before data entry. Figure 2 shows an example of the tool's drop-down menus.

Each participant filled out their *VISSPA* based on their current caseload and workload, using their professional experience to determine the most accurate snapshot of how much time they dedicate to each activity on the scale. Upon completion of their *VISSPA*, participants emailed their scale back to the Principal Investigator, who then sent them the link to a survey to get their feedback on its usage and to obtain the needed data to determine the tool’s validity and reliability. Consent was indicated at the beginning of the survey, and the human research protection program of a southwestern university approved the study. Following the consent, respondents were asked to answer demographic information questions. Then, participants were

presented with Likert-type questions, questions related to the usage and social validity of the tool, and two open-ended qualitative questions that provided an opportunity for additional feedback.

Demographic questions related to the number of students served, participant certification, employment status, number of other vision professionals they work with, etc. were asked on the survey. The usage questions given to determine the tool's social validity asked participants to report the total amount of time it took them to calculate their minutes before using the *VISSPA* and the method they used (e.g., tool or app). Participants were also asked if they would use the scale in the future. On the Likert scale items, participants rated the acceptable relevance of each item included in the *VISSPA* using a 5-point scale (5 = completely relevant, 4 = mostly relevant, 3 = neither relevant nor irrelevant, 2 = mostly irrelevant, 1 = completely irrelevant). Finally, respondents were presented with two open-ended questions that asked participants to provide any additional comments and recommendations for improving the *VISSPA*.

Name: Date:

Role (TVI/TSVI, COMS, TDB/TSDB, or Dual):

Visual Impairment Scale of Staffing Pattern Analysis (VISSPA)

DOCUMENTED-TIME ACTIVITIES	Time (Minutes per Week)
Direct Service Time – total minutes of direct service time from *VISSIT/O&M VISSIT* results for all students on caseload	
Collaborative Consultation Time - total minutes of collaborative consultation service time from *VISSIT/O&M VISSIT* results for all students on caseload	
Travel Time	
Duty-Free Lunch	
TOTAL FOR DOCUMENTED-TIME ACTIVITIES	0

IMPORTANT

You MUST download the form and open in Adobe DC, Adobe Reader, or Adobe Acrobat.

If your computer is opening the form in Chrome, Firefox, Safari, Internet Explorer, Microsoft Edge or another browser, then the information may be filled, but the form will not calculate.

JavaScript must be enabled to utilize the form.

STUDENT-SPECIFIC ACTIVITIES	Time in Minutes	Range Selection	Range Score
Materials/Equipment Preparation and Procurement	_____ Per Week	0 = 0	0
IEP/IFSP Meetings- Planning/ Participation	_____ Per Week	0 = 0	0
Braille Materials Preparation	_____ Per Week	0 = 0	0
Lesson Preparation	_____ Per Week	0 = 0	0
Evaluations	_____ Per Week	0 = 0	0
Medical Appointments	240 Per Year	1 = 0 to 2790	1
Accountability Reporting	_____ Per Week	0 = 0	0
Assistive Technology (AT) Support	_____ Per Week	0 = 0	0
Applications for Other Services or Program Development/Participation	_____ Per Week	0 = 0	0
Preparation and Administration of High-Stakes Testing	_____ Per Week	0 = 0	0
			1

NON-STUDENT-SPECIFIC ACTIVITIES	Time in Minutes	Range Selection	Range Score
Technical Assistance/Training for Others	_____ Per Week	0 = 0	0
District-Required Meetings	Week	0 = 0	0
Staff/Professional Development	_____ Per Week	0 = 0	0
Team/Staff Meetings	Week	0 = 0	0
			0

GRAND TOTAL	Minutes			Hours		
(Based on 480 minutes in a **day**)	0	to	1	0.00	to	0.01
(Based on 2400 minutes in a **week**)	1	to	4	0.02	to	0.07

Figure 1: The Visual Impairment Scale of Staffing Pattern Analysis (*VISSPA*) Tool

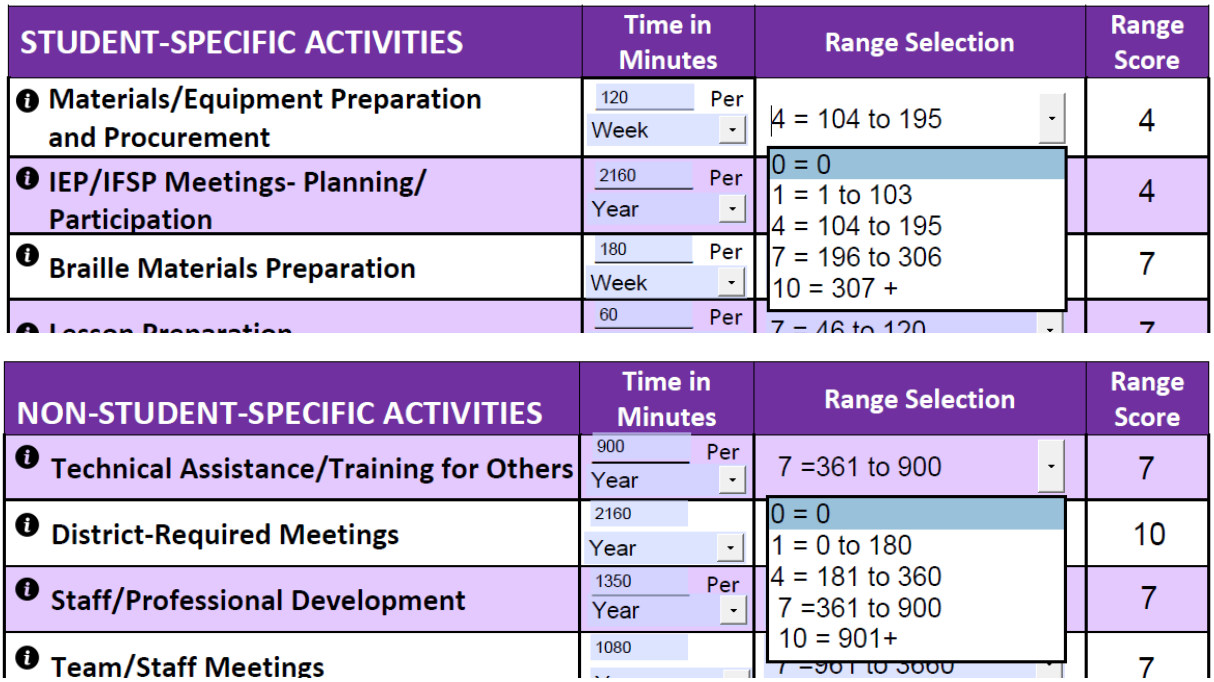

Figure 2: Drop-down Boxes on *VISPPA* Tool

Data Analysis

Descriptive statistics were used to describe the demographics of study participants and the means and standard deviations (SD) of Likert scale item responses. To determine the validity of the *VISSPA*, a content validity ratio (CVR) was calculated for each item, and then, subsequently, content validity was calculated for the entire instrument. To investigate the tool's reliability, exploratory factor analysis on the Likert scale items was conducted using Cronbach's alpha.

Qualitative data analysis of the two open-ended questions involved systematizing and interpreting descriptive data collected through participant responses. The aim was to identify patterns and themes behind textual data (Saldaña, 2021). After sorting the data by responses to the two open-ended questions, the researchers performed first cycle coding to analyze participant

responses according to the following pillars: (a) significant statements related to the usefulness of the *VISSPA* tool, (b) descriptions of their experiences with the tool, and (c) any recommendations or suggestions for improving the tool. The researchers then manually analyzed the statements for themes that fell within these overarching categories.

Next, the second author and a doctoral student in the field of visual impairment manually performed the second cycle coding of the written responses. Each reviewer independently coded the responses by theme and then met synchronously to discuss discrepancies. Inter-rater reliability was 94.75% for both open-ended questions combined upon initial coding of responses, and consensus was reached using deliberations of researcher opinions regarding the category of responses. Upon inspection, the only disagreement between raters came from one reviewer counting one person's comment which contained several components as three different positive comments about the *VISPPA*, while the other reviewer had left it as one total comment. Using this process, the experts decided to break the comment into three separate positive uses for the tool and, thus, achieved 100% agreement for the thematic groupings of both open-ended questions.

Results

Descriptive statistics were used to portray the nature of the sample ($N = 45$ completed surveys). The largest group ($n = 27$) qualified as TSVIs, followed by 11 individuals dually certified as a TSVI and O&M specialist, and there were seven O&M specialists who participated. The vast majority ($n = 40$; 83%) were full-time employees, whereas the remainder were either part-time or worked by contract. Forty participants provided their total current caseload (M = 25.8, SD = 29.4; Range 2 - 170). Twelve participants reported the number of students receiving VI services ($M = 14.09$, $SD = 5.72$) compared to O&M services ($M = 7.36$, $SD = 6.71$).
The responses to the Likert scale items that addressed the first research question on the tool's content validity indicated that overall, participants agreed with the relevance of each item on the *VISSPA*. Table 1 indicates the participant ratings of the relevance of each *VISSPA* item for each Likert scale question, showing means, *SD*s, and percentage of responses rated 4 or 5.

Table 1
Relevance Ratings of VISSPA Components

Item	Mean	Standard Deviation	Number of Respondents	Content Validity Ratio (CVR)
Documented Time Activities section	4.58	1.13	38	0.89
Direct Service Time	4.68	1.09	38	0.92
Collaborative Consultation Time	4.30	1.37	37	0.78
Travel Time	4.63	0.97	38	0.92

Duty-Free Lunch	3.84	1.52	38	0.61
Student-Specific Activities section	4.47	1.08	38	0.87
Materials/Equipment Preparation and Procurement	4.58	1.06	38	0.89
IEP/IFSP Meetings - Planning/Participation	4.63	1.02	38	0.92
Braille Materials Preparation	4.13	1.60	38	0.79
Lesson Preparation	4.45	1.22	38	0.84
Evaluations	4.68	1.02	38	0.92
Medical Appointments	3.61	1.52	38	0.55
Accountability Reporting	4.37	1.17	38	0.82
Assistive Technology (AT) Support	4.18	1.33	38	0.84
Applications for Other Services or Program Development/ Participation	4.05	1.21	38	0.74
Preparation and Administration of High-Stakes Testing	4.05	1.41	37	0.78
Non-Student-Specific Activities section	4.24	1.24	38	0.84
Technical Assistance/Training for Others	4.27	1.07	37	0.81
District-Required Meetings	4.53	1.01	38	0.89

Staff/ Professional Development	4.42	1.08	38	0.82
Team/Staff Meetings	4.47	1.03	38	0.87
Grand Total in Minutes per day	4.37	1.13	38	0.82
Grand Total in Hours per day	4.50	1.06	38	0.89
Grand Total in Minutes per week	4.42	1.06	38	0.82
Grand Total in Hours per week	4.55	1.06	38	0.89

Validity

A content validity ratio (CVR) (Lawshe, 1975; Munro et al., 2018; Pogrund et al., 2019) was calculated for each item, which is the quotient of the number of participants who rated the item either 4 or 5 in terms of relevance and the number of participants evaluating the relevance of each item. All items met the criterion for highly valid (a CVR of at least 0.48) (Munro et al., 2019) with the highest CVR = .91 (several categories tied: Direct Service Time, Travel Time, IEP/IFSP Meetings- Planning/Participation, and Evaluations) and the lowest CVR = .56 (Medical Appointments). The content validity of the entire instrument (CVI) (Munro et al., 2018) was then calculated, with a resulting score of .83. A CVI above .80 supports that the content of the *VISSPA* is valid (Hair et al., 2006).

Consequential validity is a component of construct validity that addresses the idea that tests have intended and unintended consequences. Messick (1989) suggested that consequential validity could be measured using participants' opinions of a test's use. The *VISSPA* was intended for vision professionals to provide itinerant TSVIs and O&M specialists with a tool to account for all their "other" job tasks in addition to direct and collaborative consultation services. Consequential validity was supported in the data with 84% (n = 32) of participants indicating that the range of the results from the *VISSPA* matched their actual workload time per week and that they based their *VISSPA* direct and collaborative consultation times on their *VISSIT* and/or *O&M VISSIT* data.

Similarly, 92% (n = 36) stated that the *VISSPA* was easy to use, providing support for its social validity. Lastly, 91% (n = 31) stated that they would use the *VISSPA* to determine their workload in the future, also supporting social validity. See Table 2 for participant responses to the social validity questions.

Table 2
Ratings of Additional VISSPA Questions

Item	Mean	Standard Deviation	Number of Respondents	Percentage of responses rated 4 or 5
Clarity of the instructions for completing the *VISSPA*	4.49	0.79	39	94.87%
Helpfulness of the instructions for completing the *VISSPA*	4.36	0.90	39	89.74%
Clarity of the scoring criteria of the *VISSPA*	4.28	0.79	39	92.31%
Understandability of the scoring criteria of the *VISSPA*	4.28	0.92	39	87.18%
Clarity of the workload sections and task descriptions of the *VISSPA*	4.44	0.79	39	92.31%
Understandability of the workload sections and task descriptions of the *VISSPA*	4.46	0.88	39	92.31%
Ease of use of the *VISSPA*	4.36	0.81	39	92.31%

Reliability

The second research question regarding the reliability of the *VISSPA* was addressed by conducting an exploratory factor analysis on the Likert scale items for the 36 participants who completed all these items. Cronbach's alpha for all items on the tool was .983, indicating a high degree of internal consistency. The factor analysis indicated that all items load on a single factor. The construct that the *VISSPA* measures is the amount of time needed to complete all work-related tasks and activities. The high result of Cronbach's alpha and additional evidence of homogeneity of the items supports the reliability of the *VISSPA* (Furr, 2018).

Open-Ended Qualitative Responses

Two optional open-ended questions were presented to the participants at the conclusion of the survey: 1) "Do you have any recommendations for improving the *VISSPA* (please be specific in your recommendations)?" and 2) "Any additional comments or questions regarding the *VISSPA*?" There were 34 responses to the questions targeting recommendations and 26 responses which provided additional comments or questions about the *VISSPA* tool. However, some responses contained more than one theme, and in those instances, the contents of the responses were divided up into all pertinent categories which made the total number of comments by code (theme) exceed the total number of actual responses.

The analysis of keywords and phrases participants provided in the responses to the open-ended question seeking recommendations for ways to improve the *VISSPA* resulted in 40 comments that were grouped according to the initial categories into the following themes: a) none/like *VISSPA* as is, b) points of confusion, c) concerns about the tool, d) alternative methods to consider, and e) technical difficulties to troubleshoot. Twenty-one responses were coded indicating the participants *liked the VISSPA in its current form*. Examples of comments that fell into this category included, "I love it!!!!!" and "No recommendations. It's a great tool!" Eight responses were coded to reflect that participants felt the tool had confusing aspects. These comments included items such as, "One thing that could be a little clearer is a description for where to include the report writing time for the FVE/LMA/O&M reports and inputting the FIE information into whichever system the district uses. I wasn't sure if it should be included with the IEP/IFSP or with the Evaluations section." Five comments were coded into the theme of concerns about the tool. These responses included suggesting a name change to avoid confusion with the *VISSIT,* the number of evaluations varying in number each year, and administrators understanding how the needs of students may significantly impact one TSVI's time over another TSVI's time. There were three comments that were coded into the category of *alternative methods that could be incorporated into the tool*. Sample comments from this category included, "I think I would have liked to input service times for each student on [my] caseload and have the *VISSPA* determine how much time I am actually using per week" and "Perhaps include a breakdown of direct time in various settings, (i.e., pullouts, inclusion, test administration, introduction of new skills, etc.)." Finally, three comments were received reflecting the issue of *technical difficulty* that needed to be addressed: "For some reason, it kept deleting my entries midway through entering my time, so I had to print and do it on paper because I kept losing my data." This issue was resolved immediately and is no longer a concern. As the majority of the responses indicated that participants had no recommendations for improvement or dealt with technical difficulties that have been resolved, the resulting overall themes for this question led the researchers to the conclusion that there are no warranted recommendations for change regarding the *VISSPA* tool.

The analysis of key words and phrases respondents utilized in the responses to the open-ended question seeking additional comments resulted in 28 comments that fell in the following themes related to the initial categories: a) concerns about the application of the tool, b) the usefulness of the tool, c) helpful aspects of the tool design, d) difficulties with tool use, and e) no suggestions. Five responses were coded in the theme of *concerns with the application of the tool*. Sample responses from this theme included, "I also mentor and that is in addition to my workload duties as well. This may be an optional section for people who mentor" and "[the *VISSPA*] takes a lot of time to complete for just one staff member." Most of the comments (13) were coded to the theme of *usefulness of the tool.* For example, respondents wrote, "As I hear from others in our field, I think the *VISSPA* could be a career saver for many on the verge of burnout. In general, it is my belief that many administrators love numbers, and the *VISSPA* provides that. It's short and to the point, something that I think professionals in our field as well as administrators will like." Another example of a comment coded in this theme was, "This is a very valuable tool! I knew I was working more hours each day than I am supposed to, but putting a number to it makes it very clear that I am stretched. If I am, I know my coworkers are too, and if we are, what does that say about the quality of services we are providing to our students? Our students deserve the

best." One comment was coded as having the theme of *helpfulness of tool design,* and it stated, "the [drop-down] box in the 'Time in Minutes' column was helpful because not everything is done on a daily or even weekly basis." There were three comments coded to the theme of *difficulties with use of the tool*. Two of the comments in this category dealt with the tool deleting data after entry, and this technical issue has since been rectified. The other comment merely related to a potential name change of the tool. Finally, there were six comments that indicated that participants had no suggestions for improving the *VISSPA.* As the majority of the responses reflected that participants perceived the tool as useful, had no suggestions for improvement, or dealt with technical difficulties that have been resolved, the researchers concluded that users felt that the *VISSPA* tool was useful.

Discussion

The results of this initial validation study support the *VISSPA* as a reliable and valid tool for measuring the total workloads of vision professionals. The content validity (CVI) (.83), supports that the content of the *VISSPA* is valid (Hair et al., 2006). Additionally, an overwhelming majority (84%, n = 32) of participants indicated that the range of the results from the *VISSPA* matched their actual workload time per week and that they based their *VISSPA* direct and collaborative consultation times on their *VISSIT* and/or *O&M VISSIT* data. Finally, the exploratory factor analysis resulted in a high Cronbach's alpha (.983), indicating a high level of internal consistency and that the items on the *VISSPA* only load on the one factor they were intended to measure. This fact and the additional evidence of homogeneity of the items support the reliability of the *VISSPA* (Furr, 2018). Thus, the *VISSPA* is reliably measuring the construct for which it was intended--the amount of time it takes vision professionals to complete all work-related tasks and activities.

Furthermore, the responses to the Likert scale items and the open-ended questions strongly suggest participants found the *VISSPA* to be a valuable tool which is easy to use. These responses in Table 1 indicated the relevance of the items on the scale resulting in the scale's high content validity. Over half of the responses to the two open-ended questions were positive in connotation, reflecting participants thought the tool was useful and liked it as it was created. Perhaps most significant is that respondents overwhelmingly indicated their willingness to use the *VISSPA* moving forward to help determine their workload (91%, n =31).

Limitations

The results of this study should be interpreted with its limitations in mind. First, this study yielded a small sample size from one geographic area. Within the small sample, roughly half of the respondents came from three of the most populated areas in the state, but participants also came from more rural and suburban areas. Additionally, of the 45 participants, 40 were employed full-time. This statistic could have resulted in an incomplete picture of the tool's usefulness for part-time vision professionals. Small sample size also likely impacted the standard deviations, resulting in larger than expected standard deviations for the quantitative data. Lastly, participants were not required to respond to the open-ended questions, therefore not all participants completed this portion. These factors may limit the generalizability of the findings and require further examination on a larger scale.

Another limitation of this study stems from using purposeful, or expert, sampling by nomination to select participants. This fact and the requirement that participants have at least three years of experience could have skewed the results. Specifically, it is possible that when the *VISSPA* tool is used by professionals with less experience in the field, they will encounter more difficulty using the tool.

The response rate of the original nominated participants may have impacted the results of the study since only 45 out of the original 200 possible participants completed the scale and survey. More participation would have provided more data for the validity and reliability analysis.

Practical Implications

Utilization of the *VISSPA* may serve to ameliorate the heavy workloads that TSVIs and O&M specialists currently experience. Namely, there is a well-documented shortage of these professionals across the United States (American Association for Employment in Education, 2021; Pogrund, 2017; Savaiano et al., 2022), which often results in these itinerant professionals being asked to have large caseloads which come with associated additional duties (e.g., evaluations and preparing braille materials) that combine to comprise the entirety of their workloads Because teachers working 50+ hour work weeks have been found to experience burnout and ultimately leave the profession altogether (Jomuad et al., 2021; McLoughlin, 2023; Rumschlag, 2017; Vuleta, 2021), and the vision field is already experiencing shortages of qualified professionals, it is crucial that every effort be made to place reasonable demands on these vision professionals. The *VISSPA* has the potential to impact this mission directly through its data driven documentation. For example, the results of the *VISSPA* can aid administrators in understanding what TSVIs and O&M specialists are being asked to do on a weekly basis and help those managers adjust workloads accordingly (e.g., shuffle caseloads across all employees to make them more equitable). It could also help document the need to hire additional professionals. Further, individual vision professionals can use the data from their completed *VISSPA* to help them better manage their own time, prioritizing or combining duties or working with their team to divide up duties more equitably among them (e.g., looking at geographic locations of students and adjusting related travel time, sharing the number of evaluations, etc.). In addition, the *VISSPA* will help ensure that professionals factor in items that are easily forgotten, such as the 30-minute duty-free lunch they deserve.

Conclusion

This study supported the validation and reliability of the *VISSPA* for determining the range of hours per week itinerant vision professionals spend to provide services for students with visual impairments. These findings are significant because they support the use of the tool for its intended purpose. The *VISSPA* was designed to provide itinerant TSVIs and O&M specialists with a tool to account for all their “other” job tasks, beyond their direct and collaborative consultation service times. The use of this tool serves to paint a more complete picture of actual time spent on the job. Thus, the *VISSPA* can be used as an accountability tool for documenting time spent on professional duties. More importantly, the *VISSPA* can be used to prevent professional burnout and potentially can be used to determine the need for additional vision

professional personnel or reorganization of professional duties. In a time when educators are leaving the teaching profession more than ever, the *VISSPA* may help address this phenomenon and potentially move it in a more positive trajectory for TSVIs and O&M specialists.

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"From Chaos to Community": Inclusive Community Building in Middle Schools

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Abstract

This paper highlights a study (2022) conducted in a Canadian school division which explored the perceptions of classroom teachers (n=4) in middle schools. The purpose of the study was to highlight ways in which middle school teachers successfully connected with middle years aged students in their classrooms. Participants spoke of the importance of building community in their classrooms and highlighted several ways in which they developed an inclusive community throughout the school year. The approaches and strategies teachers shared to create an inclusive community are compared to several models related to community building, including Peck's (1998) model highlighting the four stages of community: *Pseudo Community*, *Chaos*, *Emptiness*, and *Community.*

Keywords: middle school, teachers, students, connection, inclusive, community

"From Chaos to Community": Inclusive Community Building in Middle Schools

Middle school is a very interesting time for students in terms of developing and maintaining relationships with their teachers and their peers. As many students transition from elementary school to middle school, relationships with their peers become even more of a priority than relationships with adults (Prewitt et al., 2019). Even though middle school students greatly value relationships with their peers, it doesn't mean that they are necessarily proficient at developing and maintaining these relationships. In fact, as students move on from elementary school to middle school, many young people experience a "normative decline in relationship quality" (Duong et al., 2019, p.212) as a result of "an increase in social, academic, and physiological challenges faced by middle school students" (Reimer, 2023).

This is where middle school teachers can play a critical role in helping students connect with their schools and their classmates (Nasir, Jones, and McLaughlin (2011). It has been well established that positive teacher-student connections are important for social and academic reasons at all grade levels (Davis, 2001; Reimer, 2014; Reimer 2020, Reimer, 2023). For example, positive teacher-student connections have been attributed to "higher grades and graduation rates" (Nasir, Jones, & McLaughlin, 2011, p.1755). They also help many students feel safer in schools (Hamre & Pianta, 2006) and can facilitate personal identity development (Reimer, 2024). While it is beneficial for middle school teachers to positively connect with their students, it appears that teachers should also find ways to help connect students with each other. In other words, teachers need to find ways to create a sense of *community* in their classrooms and schools. When building community, it is essential that teachers seek ways to ensure that they are inclusive for everyone.

Creating this sense of an inclusive community in schools is likely easier said than done. Carrington and Robinson (2006) ask, "Why is it so hard for school communities to respond to

diversity in learners, staff and parents in inclusive ways?" (Carrington and Robinson, 2006, p.323). The following article explores the difficult task of how middle school classroom teachers go about attempting to establish an inclusive community in middle schools. Specifically, it highlights a qualitative study (2022) conducted in a Canadian school division where middle school teachers were asked to share ways in which they successfully connected with middle years aged students in their classrooms.

One of the key themes that emerged from the study on teacher-student connections was the importance teachers placed on building a sense of an inclusive community in their classrooms and schools. In the first section of the article, the term "community" is defined. Different types of communities are described, and several different models explaining the phases and/or stages of community building are highlighted. Second, a brief summary of the methodology of the 2022 study is provided. Third, key findings based on participant responses related to ways in which middle school teachers developed community in their classrooms throughout the year are shared. Finally, the approaches and strategies teachers that shared in the study are compared and contrasted to the term "community" and to the community building models highlighted in this article.

What is a Community?

Cambridge (2024) defines community as, "the people living in one particular area or people who are considered as a unit because of their common interests, social group, or nationality" (para.1). Millington (2010) believes that there are five different types of communities, described as follows:

> Interest: Communities of people who share the same interest or passion.
> Action: Communities of people trying to bring about change.
> Place: Communities of people brought together by geographic boundaries.
> Practice: Communities of people in the same profession or undertake the same activities.
> Circumstance: Communities of people brought together by external events/situations.
> (Millington, 2010, para.3)

McMillan and Chavis (1986) posits that the definition of community typically requires four key elements - "Membership", "Influence", "Reinforcement", and "Emotional Connection". They describe these elements as follows:

> i.) Membership: The feeling of belonging or of sharing a sense of personal relatedness.
> ii.) Influence: A sense of mattering, of making a difference to a group and of the group mattering to its members.
> iii.) Reinforcement: Integration and fulfillment of needs. This is the feeling that members' needs will be met by the resources received through their membership in the group.
> iv.) Emotional Connection: The commitment and belief that members have shared and will share history, common places, time together, and similar experiences"
> (McMillan and Chavis, 1986, p.9).

An Inclusive School Community

From an educational perspective, classroom and school communities that are inclusive in nature can be very beneficial for all students. The Province of Manitoba (2024) states that one key element of an inclusive school is, "Fostering school and classroom communities where all students, including those with diverse needs and abilities, have a sense of personal belonging and achievement" (para.8). Carrington and Robinson (2006) later contend that, "School communities that value and respect members and provide a safe learning environment for everyone to express their views, build awareness and develop capabilities together are more likely to be inclusive." (p.326). While these descriptions of inclusive school communities are helpful, it would be interesting to investigate ways in which such communities can be built.

Community Building

In regards to the stages or phases of community building, researchers have several interesting models that connect with each other in many ways. For example, Tuckman's (1965) four stages of community building (which he refers to as "Forming, Storming, Norming, and Performing") is similar in nature to Peck's (1998) community building model consisting of "Pseudo Community, Chaos, Emptiness [and] Community" (p.86).

Tuckman's Community Building Model

Tuckman (1965) describes "Forming" as the stage when the group is first created or established. "Storming" is the second stage of community building, and is "characterized by conflict and polarization around interpersonal issues" (Tuckman, 1965, p.396), as individual differences cause resistance to group objectives. "Norming" is the third stage of community building and is where "resistance is overcome… ingroup feeling and cohesiveness develop, new standards evolve, and new roles are adopted. In the task realm, intimate, personal opinions are expressed" (Tuckman, 1965, p.396). Tuckman's (1965) final stage of community building is referred to as "Performing". In this phase, "interpersonal structure becomes the tool of task activities. Roles become flexible and functional, and group energy is channeled into the task. Structural issues have been resolved, and structure can now become supportive of task performance" (Tuckman, 1965, p.396).

Peck's Community Building Model

Peck (1998) offers a similar model, stating that even though it is not always the case, "groups assembled deliberately to form themselves into community routinely go through certain stages in the process. These stages, in order, are: "Pseudo Community, Chaos, Emptiness [and] Community". (p.86). In the "Pseudo Community" stage, "a group in seeking to form a community is most often to try to fake it. This stage is similar in nature to Tuckman's (1965) "Forming" stage described earlier. The members attempt to be an instant community by being extremely pleasant with one another and avoiding all disagreement (p.86). In a sense, individual differences in the group are dismissed.

This phase does not last, as the group eventually moves into the "Chaos" stage. This stage is similar in nature to Tuckman's (1965) "Storming" stage. In the "Chaos" stage, individual differences in group members begin to emerge, with some group members don't just ignore or dismiss them, but instead seek to find ways to "obliterate" them (Peck, 1998, p.90).

Peck (1998) states that after the "Chaos" phase is the "Emptiness" stage. This stage is what Peck (1998) describes as a very difficult phase for group members, but also as "the bridge between chaos and community" (p.94). This stage is similar in nature to Tuckman's (1965) "Norming" stage described earlier. Group members are challenged to remove potential communication barriers with each other by emptying themselves of prior preconceptions, expectations, prejudices, and the need to "control" or "fix" others in the group (Peck, 1998).

In the final phase, the group enters what Peck (1998) refers to as a true "Community" stage. In this stage a "kind of peace" emerges within the group, and community members feel truly able to be "vulnerable" and share their true selves (p.103). This stage is similar in nature to Tuckman's (1965) "Performing" stage.

Middle School Teachers and Community

Upon review of the aforementioned definitions of community and inclusive community, the different types of community, and models for community building, it is interesting to speculate how they relate to the practices of middle school teachers in building inclusive communities in their classrooms and schools. For example, **w**hat do middle school teachers do in order to build an inclusive community in their classrooms and within their schools? How do the approaches and strategies that middle school teachers utilize compare and contrast with the aforementioned definition of community? How do the practices of middle school teachers correlate with the community building models featured earlier in the article? This article attempts to respond to these questions (and others) based on some of the findings of the following qualitative study.

Methods

The purpose of the study (2022) was to seek out ways in which middle school teachers successfully connect with middle years aged students in their classrooms. After receiving approval from the University of Winnipeg's University Human Research Ethics Board (UHREB), a Canadian school division was contacted and consent was received to conduct the study. Principals of several middle schools were contacted by letter, telephone, and/or email. After receiving principal consent, teachers from their school's teaching staff were contacted and asked to participate in the study. Teachers were informed that their participation was confidential and voluntary, and instructed to contact me directly by email if they were interested in participating in the study. Teachers who consented to participate in the study were provided with a list of questions that they would likely be asked in interviews. The principal and superintendent were never informed of who participates and who does not..

After completing this process, four teachers indicated their willingness to participate in the study. After participants provided written consent, those who agreed to take part in the study were sent an email outlining possible dates and locations for up to four focus group meetings. Participants were also asked about their preference for meeting alone or in a group. Participants were also asked to complete a short information sheet to fill out and return, regarding factors such as number of years they taught, post-secondary education they have completed, and awards and other recognition they have received related to teaching.

All four participants asked to meet and conduct interviews individually via zoom videoconference. Participants could withdraw their consent to this study at any time. None of the four participants withdrew from the study. During the semi-structured interviews, participants were free to disregard any questions or withdraw from the interviews at any time. The interviews were audio taped, and written notes were taken while interviews occurred.

Transcripts of each interview were generated using the speech to text software Otter.ai. Participants were sent their transcripts for their own review. Each participant approved the transcripts they were sent. Each transcript was reviewed independently by myself and a research assistant (RA). Potential themes were generated, and eventually the RA and I agreed on several themes. These draft themes were then sent to each study participant. Three of the four participants responded to my email, and agreed on the themes. One participant asked that I consider slightly amending one of the themes. I agreed to amend one of the themes as suggested.

Findings

While several themes emerged from the study, the theme that will be highlighted for the purposes of this article is that middle school teachers emphasized the need to "create clear and consistent classroom opportunities for students to connect with each other". Participants thought it was imperative that they establish an inclusive classroom environment where that everyone feels welcome. They deliberately taught empathy and social-emotional learning in the classroom, and created opportunities for students to see situations from other perspectives.

In order for students to connect with each other, teachers also sought out opportunities outside of the classroom. Participants in this study spoke of the importance of connecting through the establishment of extracurricular opportunities (clubs, theatre, sports teams), cultural connections, and connecting with community members outside of the schools (elders, for example). These opportunities will be highlighted in greater detail throughout this article.

Establishing an Inclusive Community in the Classroom

The participants stressed the importance of establishing an inclusive community in their classroom. One participant noted, "I think it's important for kids to be in a positive community." One participant added that classrooms were ideal places to create a sense of community because, "They build the sense of community within it." One participant shared in detail how essential community building was as a middle school teacher.

> It's really important to have a healthy [as] possible community. Because as one teacher and 25 kids, you can do only your part to support them. But when they have peers that they engage in, peers that they like, who are supportive as well, it just lifts everybody up. I think I can't stress enough how important the classroom community is to being for the classroom be a positive place for all kids. [It] doesn't matter what their learning ability is, it doesn't matter what level are special, any needs they have, as long as they're in. When they come in this room, they feel welcome, liked, and appreciated. That's already super important in terms of building relationship with the teacher and the students.

Classroom as a "Second Home"

One participant spoke of wanting to "make the classroom a second home". One participant shared that they did this, "[the] first step in my classroom is a very colorful room. It's a very colorful room that takes shape from the kids themselves." At the start of every school year, one participant shared that they "get them to put up posters or get them to put up things that they want to see…I've got a few questions, but …you let the kids decorate the room at the beginning of the year. So what a way to build community than to say, 'Okay, here's kind of the focus we're having this year, [but] as we set goals, and we sort of work towards the learning, how do we want this place to look?'".

Routines

Participants stressed that the establishment of consistent classroom routines and practices were a vital component of making connections with middle school students. While the establishment of routines was considered to be an essential component of identity development for students (Reimer, 2024), it was also a critical component of inclusive community building. They incorporated predictable, visible routines that allowed students to connect with their peers (paired up at the beginning of each class for a quick visit, silly games, listening to each other share) throughout the school day. At times they created intentional student groupings for content area exploration. In middle school, they also shared the importance of establishing clear, consistent boundaries. One participant noted that in their classroom, "there's a sense of this is our community, this is our space". One participant noted, "I'm trying to build community within the classroom so that they know that I'm a person they can relate with someone I can talk to. Before teaching happens, I can't be a stranger in front of the class".

One participant shared a routine they incorporated where students paired up at the beginning of each day to talk and listen to one another. This was done as a means of "getting kids to communicate with each other to start a day, and then getting to understand how their communication skills are, what their listening skills and habits are. That is…a routine that's kind of crafted itself naturally in my room." The participant shared how this practice was most important for students at-risk of disengaging from school, stating, "I'm thinking of vulnerable kids and kids who don't belong, who don't feel like they have that sense of belonging in schools, and specifically in middle schools."

Playing Games as a Class is an Excellent Community Building Routine. One of the routines that participants incorporated in their classrooms was scheduling time to play games with each other. Participants shared that creating scheduled opportunities for middle school students to play games with each other was an excellent way to build classroom community. One participant stressed that, "middle years kids really actually do like to play. They need all the excuses to play and also to be told to put those in phones away." One participant shared that in their classroom, "we play tons of group games [and] board games."

One participant shared that in September, "Everyone has to know everyone else's name. So I probably spent two weeks on different name games. That might seem excessive." One participant noted that at the start of every school year, "we went to the park practically every day [with the] grade seven and eight kids and said 'go play' and that allowed them to connect with each other and different kids. They sometimes played in large games like…grounders." The

participant added that these park activities provided opportunities "to talk to kids individually. And… make the connections and get to know kids."

One participant stated that they have committed, "two periods a cycle [where] we've devoted to games. And we have enough games in our repertoire now that I have a calendar on the board, and kids sign up for that day. And they're the leaders. And they have to have two or three games." The participant added, "If you put this as a culture, then they develop the culture."

Empathy

Participants used the word "empathy" often. Like the establishment of clear routines, developing empathy was also considered to be an essential component of identity development for students (Reimer, 2024). One participant noted that "building on their empathy" was critical in order to learn about other students in their classroom community. One participant elaborated on this belief.

> [H]aving that student build relationships with peers, and being able to have empathy is a part of it. It's hard to have empathy for other people. When you don't, when you're in a position where you don't necessarily feel comfortable in your own position. And you're in, you're not, you lack a sense of belonging, and you are uncomfortable in your own shoes. 'How do you put yourself in someone else's shoes?', so to speak, to be able to learn someone else's perspective or have empathy.

'Circle of Courage'

In order to be inclusive, participants shared that having and implementing models like the 'Circle of Courage' (Brendtro, Brokenleg, & Van Bockern, 2013) was very helpful. The Circle of Courage model is described as follows, "Drawing on First Nations' teachings that encourage a holistic and affirming perspective of culturally diverse learners, the Circle of Courage model details the way the four foundations of self-esteem (significance, competence, power, and virtue) can be applied in different contexts." (Brendtro, Brokenleg, & Van Bockern, 2013, p.67). Further, it is described as "a model of youth empowerment that identifies the four vital signs for positively guiding youth through belonging, mastery, independence, and generosity" (Brendtro, Brokenleg, & Van Bockern, 2013, p.67). One participant shared that they have been using this model for some time, and emphasized that, "one of the big ones is belonging".

Focusing on "Belonging" is Critical. One participant shared the importance of letting students know that school was exactly where they belong.

> I was talking to one girl who's not in my class, who has trouble getting to class, who doesn't like to go into class…I had said to her that morning, 'Oh, good to see you. Glad you're here. And then I said something like, 'You're exactly where you belong.' And she looked at me, like the look of …She was shocked… I said to her, 'What, does that feel awkward?' And she said, 'Yes'. And I said, 'Why hasn't anyone ever told you that this is where you belong?' And she said, 'No'. Now chances are, maybe people have said that. I don't discount anything. And the kids can hear things one hundred times, and still not hear… And then if she doesn't feel like she belongs, she very well might not hear it. But that's all the more reason to say it over and over and over again.

One participant shared that when students are made to feel like they belong by their teachers, they in turn make other students feel the same way. The participant shared a story of how students in their classroom made genuine efforts to sit and visit with a young person with special needs, and in doing so make him feel that sense of belonging in their classroom.

> Everybody has an assigned seat. His seat looks a little different…But he's with somebody. So he has a student that's always there. And that student will talk to him. He will make eye contact. He will not verbalize because he's unable to verbalize. And kids are patient with him. Kids don't bat an eyelash [when] we often have coughing [fits] with him where he ends up vomiting. And nobody responds negatively to that. Nobody's grossed out. Nobody. And I think for him, it makes him feel like he's still a 13-year-old boy."

In conclusion, participants stressed that in order to make positive connections with their middle school students, the establishment of consistent classroom routines was critical. Predictable and fun routines that promoted inclusive community-building in the classroom allowed students to connect with each other. Participants thought that adopting models like the 'Circle of Courage' (Brendtro, Brokenleg, & Van Bockern, 2013) were very beneficial, especially as they helped all students feel like they belonged. Participants sought out any opportunity for their students to learn about and build empathy, and to practice being empathic with their peers. Finally, participants believed that consistently scheduling in time that allowed students to play games with each other was an invaluable community-building tool.

Building Community Outside of the Classroom

Participants shared that opportunities outside the classroom provided excellent opportunities to connect with middle school students. Clubs, student groups, theatre productions, and sports teams also allowed teachers to develop positive relationships with their students. are opportune places to make connections. Sports teams and theatre productions, and connecting students to outside communities provide excellent opportunities for positive teacher-student connections. One participant shared that even "oddball" clubs like knitting or gaming clubs can provide tremendous opportunities, especially for students who might otherwise not get involved or connect with others.

Extra-Curricular Community

One participant proudly exclaimed, "We have we have tons of extracurriculars offered in our building. We have a dynamic staff who offer a variety of different things. And the variety out there really helps kids feel like 'Oh, I can be with that group and feel like I'm in the knitting group. And I know that other like-minded knitters are out there, I could never knit. But there are kids that flocked to our knitting group." One participant said, "We have all these game consoles that we bought a couple years ago, and kids are gamers and they want to be like-minded." One participant shared that by middle school extracurricular activities helped prepare students prepare for high school. The participant offered, "Our high school programs for theater are phenomenal and even in sport. They're phenomenal. And if kids can leave our school with a bit of background knowledge in certain directions on a stage or certain spots on a court, we know that the feedback from high school teams and teachers has been very praiseworthy."

One participant posited that many middle school students prefer an eclectic mix of extracurricular opportunities to participate in as they continue to discover their talents and interests. The participant noted, “For some, we've had odd times where there have been athletes in the production and production kids in athletic stuff, or in the knitting club or whatever. But I think if kids can find their anchor, it's really valuable.” One participant acknowledged that, despite the wide variety of choices in extracurricular activities that their school offered, “the push to get every kid in an extracurricular can be tough.” Still, they did their best to get as many students involved in activities outside their classrooms as possible. While sports teams provided excellent opportunities for many students, school productions and teams also provided excellent opportunities.

Sports Teams

One participant shared that being involved with extra-curricular activities like sports teams was a natural extension of their role as a teacher, saying, “I think coaching is teaching and teaching is coaching.” One participant stated, “[T]hat coaching role is also part of the teaching role. And I think even though I'm not really being paid for the role of coach outside of that. I'm doing it voluntarily because I get to know kids in a different way.”

One participant shared why they coached school teams, even if they did not consider themselves to be a good athlete. The participant noted, “And even though I'm not a skilled athlete myself, I almost think that you can be a good artist, you can be a good athlete, but you may not always be a good coach, or good artists. You have to be a good teacher at the end of the day of teaching, and not so much about the topic you're teaching. But you don't even need to be good on the court but giving kids tools and skills that can make them better teens.” Another participant offered, “I'm not an athlete, but I also really got pigeon holed into coaching volleyball, and basketball, and badminton, I'm like a fish out of water...But again, I'm connecting with kids that are not necessarily my students. Kids that are solid athletes that have gone on to aspire to be great athletes in the world. And I know nothing other than to be there to support them to help out with a team practice or a game.”

Productions and Teams

Participants shared how their involvement in extracurricular activities such as theatre productions and sports teams provided them with tremendous opportunities to connect with middle school students and create community outside of the classrooms. One participant shared that being involved with extra-curricular activities was a natural extension of their role as a teacher, saying, “I think coaching is teaching and teaching is coaching.” One participant stated, “[T]hat coaching role is also part of the teaching role. And I think even though I'm not really being paid for the role of coach outside of that. I'm doing it voluntarily because I get to know kids in a different way.”

One participant offered that, “Getting kids involved in an extracurricular, whether it's a production or team is also a real big focus for me, because I think connecting them outside of the classroom with a passion is sort of what gets them rooted into joining school and being in school.” Participants shared that being involved with productions and teams gave students opportunities to connect with students they might otherwise not teach. One participant offered that, “Getting kids involved in an extracurricular, whether it's a production or team is also a real

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Theatre Productions

According to participants in this study, middle school theatre productions seem to provide a wonderful opportunity for scores of students to participate. One participant shared, "[B]ecause I do the production work, I typically don't see a lot of my own students in the production. But the kids that I'm working with and around the school, there's quite a few that participate." One participant, who has been involved in numerous middle school productions, shared, "We've had upwards of 120 kids in our productions." When asked why so many students are drawn to theatre productions, the participant stated, "Kids join that because there's a collective that's created and …people find their niche when they join an extracurricular and a committee of kids that are like minded. So I always say the theatre kids are a little bit of the oddballs."

Clubs and Groups with a Cause

One participant shared how their interest in sustainability created opportunities for teacher-student connections. The participant shared, "I'm big into sustainability, our school practices, a lot of sustainability composting. We have an urban chicken farm, we've got we've got stinkbugs, you name it. But one thing I've done from the very beginning [was] I took on the role of Recycling Coordinator for our school."

The participant found a way to connect classroom curriculum with this passion for sustainability, stating, "And it dawned on me that social studies is about teaching sustainability, that if we every week as a class went around and picked up all the recycling and put it into the receptacle back for the big green BFI truck to come and get it once a week. It helps and saves the work of other people and the kids feel an investment in the school community" They described this informal recycling club as "a group thing". Further, the participant shared the following. They've got five or six kids in a group every week, I randomly select those two, they were named to honour that they're in the hallways [and] that they're not just skipping class or running a month. But they are there for a purpose. And they can be noisy, but they haul a lot of recycling. And I think over the last [almost 20 years] years, we've had tons and tons of it. But we've left less of a dent on the landfills because of our effort to say this is real world social studies. If we recycle weekly, if we practice here to recycling, maybe you'll go home and do it. Maybe you'll compost.

The participant later added, "This is a real application. We do it…taking care of the environment is an important lesson that this generation needs to learn. So that that's another part of the

community piece that connects the kids within the community of the cause, but to the broader community of our school, and the impact is huge."

Cultural and Outside Community Connections

To be inclusive, participants spoke of the value in connecting middle school students to their own culture and the outside community. One participant shared how valuable it was for students in their school to connect with Indigenous community leaders. The participant shared, "And in the last…10 years, we've been doing a lot of Indigenous work, and a lot of work with connecting kids to their communities and, and leaders in the community. And for a long time, we had kids who were disengaging that identify as Indigenous, and we couldn't figure it out. But they were lacking connection." When asked how they did this, the participant said, "You bring in some Elders, and we have Elders working in our school now who were former residential school survivors. And they're soft spoken, and they're quiet, and they're working with kids who are at risk... but you connect them with another soul who is in their…element. And the relationship piece that happens with that is mind blowing, because you don't think it had happened outside of that." One participant noted the following.

> I think the kids that have been disengaged in the past, have reengaged with what our schools doing. We smudge every day in our school. Everyone's invited to be in it. But not everybody has to do it. We do land acknowledgement which are traditionally Indigenous. And then we also do some of our national anthems in…Ojibwe, to just give voice to the kids that are in the school that may not feel connection. And it's powerful when you see that, that they want to be in school. They're showing up on time. They're being at school because they want to be at school. They want to connect with the Elders they want to do, they're such that the traditions are being celebrated.

Connecting with Elders

Participants commented on how the school making these initial connections with Indigenous Elders and leaders within their local community resulted in even more opportunities for middle school students to connect with themselves, their own communities, and their school.

> We had a group that went…to the feast…[They] spent a week making ribbon dresses. We have a divisional grad Pow Wow in June. And we have a group of kids that wanted to learn how to make a ribbon dress for traditional Pow Wow. As a result of their work, [students were] brought to the feast and none of the kids had ever been to this restaurant before. But it gave them an Indigenous leader in the community who was a strong chef in the community. And she gave him a whole bunch of traditional Indigenous foods. I think that work in the last few years in our building has reinforced the importance of community and it doesn't matter who you are, where you're from, or what is ailing you at the time you've entered the building. But if you can feel grounded and connected in our school, there is there is a power to some of the most disengaged kids and I think that is a reflection of our schools, but middle school especially.

"Flock to the Flock that Supports You"

The participant then astutely noted the following motivating factors for being involved in so many extracurricular theatre productions.

> You flock to the flock that supports you. And we've had kids that don't engage in their content learning but have shone on the stage because they found their like-minded people and to see that come out is such an experience and a half. But again, it's all [about] celebrating the kids…the music teacher and I don't do this for any benefit of ourselves. We don't like to shine and it's great for the kids by the way of the connectors as a culture. It there's something to say about being involved with that. And knowing that you're part of the process in connecting these kids that may not have ever connected before.

Finally, one participant shared how creating opportunities to connect outside of the classroom for students, especially those who don't always feel like they belong, was perhaps the biggest motivating factor for them.

> I get a lot of kids with "big folders" [underlining student's past academic or social personal history and/or issues] that come with them. But at the end, what happens, they feel a sense of connectedness, even though they've got all these things going on in their file, I make them part of this experience like recycling and the happiness that comes out of that, in this sense of feeling invested in something beyond themselves, is a big piece of creating that culture. It seems to me that one thing you're doing is when you talk about connecting, and you go back to that patchwork. Without you the patchwork doesn't exist. Like, you're [the students] connected because you're essential. Does that make sense?

In conclusion, extracurricular activities provide amazing opportunities for students to discover and develop their interests, passions, and talents. Clubs, student/community groups, and cultural opportunities help middle school students meaningfully connect with themselves, Elders, culture, and a broader community. Sports teams and theatre productions also provide tremendous opportunities for positive interpersonal connections, and provide places where students feel accepted and valued.

Discussion

In the first section of this article, a brief review of the terms "community" and "inclusive community" were provided and several questions were asked as to how what was highlighted related to the practices of middle school teachers in building an inclusive community in their classrooms and schools. The "Findings" section seemed to answer the first question, "What do middle school teachers do to build an inclusive community in their classrooms and within their schools?" Teachers in this study seemed to prioritize inclusive community building. The strategies and practices that teachers in this study shared seemed to align well with Carrington and Robinson's (2006) contention that inclusive school communities "value and respect members and provide a safe learning environment for everyone to express their views, build awareness and develop capabilities together are more likely to be inclusive." (p.326). The participants in this study also shared practices that aligned with the province of Manitoba's (2024) assertion that an inclusive school "[fosters] school and classroom communities where all students, including those with diverse needs and abilities, have a sense of personal belonging and achievement" (para.8).

Here are a few ways in which the participant's practices aligned with the aforementioned interpretations of "inclusive communities". To promote inclusive community building within their classrooms, participants incorporated routines like pairing students together to chat on a daily basis (everyone expresses their views) and regularly scheduling classroom game time, promoting empathy (developing capabilities together), and trying to make the classroom feel like a "second home" (safe learning environment). One participant incorporated the 'Circle of Courage' model (Brendtro, Brokenleg, & Van Bockern, 2013) into their classroom philosophy and practices, heavily emphasizing the importance of 'Belonging' with their students. Outside of the classroom, participants shared about the importance of creating and supporting extracurricular activities for students, like teams, clubs, and theatre productions (sense of achievement). They also spoke of the importance of establishing cultural connections for students like Pow Wow involvement and having opportunities to learn from Elders in their community (build awareness and have a sense of belonging/achievement).

Defining and Describing Community in the Middle School

Another question asked at the beginning of this article was, "How do the approaches and strategies that middle school teachers utilize compare and contrast with the aforementioned definition and descriptions of 'community'?" As stated earlier, Cambridge (2024) defines community as, "the people living in one particular area or people who are considered as a unit because of their common interests, social group, or nationality" (para.1). The schools and classrooms that the participants find themselves working in certainly fall within this definition of community, in part due to location and in part due to the efforts of the teachers. The first half of the definition was easy to connect with the middle schools involved in this study as they are public schools that are filled with students living in the same neighbourhoods. This reality of middle school students attending the school based on their family home's geographical proximity to it only aligns with the first part of definition of community of "living in one particular area" (Cambridge, 2024, para.1).

The act of placing students together in a classroom seems to only associate with Millington's (2010) types of community based on "Place" (neighbourhood school) and "Practice" (students study similar curriculum), and to a lesser degree "Circumstance".

However, it was the teachers in the study who made concerted efforts to establish what is defined as community within their classrooms and schools by highlighting and establishing common interests (routines, games, empathy building, belonging), social groups (teams, productions, and clubs) or culture ('Circle of Courage', Pow Wow participation, learning from Elders). Due to the efforts of middle school teachers, classrooms and schools can be "considered as a unit because of their common interests, social group, or nationality" (Cambridge, 2024, para.1).

Participants in this study also shared numerous examples of ways in which McMillan and Chavis' (1986) four key elements of community ("Membership", "Influence", "Reinforcement", and "Emotional Connection") could be achieved in the middle school environment. For example, the participants provided numerous examples of ways in which they tried to make students feel like they belonged ("Membership"), their attendance and voice mattered ("Influence"), their needs were met ("Reinforcement"), and that students could share similar experiences like playing games and extracurricular activities ("Emotional Connection").

Tuckman's (1965) and Peck's (1998) Models and Middle School Teacher Practices

The next questions asked earlier in this article was, "How do the practices of middle school teachers correlate with the community building models featured earlier in the article?" Participants Tuckman's (1965) four stages of community building (which he refers to as "Forming, Storming, Norming, and Performing") and Peck's (1998) community building model consisting of "Pseudo Community, Chaos, Emptiness [and] Community" (p.86). When one thinks about the start of the school year, the terms "Pseudo Community" and "Forming" intuitively make sense. A classroom is certainly "formed" by school teams in the form of a list of student names that the classroom teacher will be given prior to the first day of class. In many ways the classroom also represents a "pseudo community" as students do seem to "attempt to be an instant community by being extremely pleasant with one another and avoiding all disagreement (Peck, 1998, p.86). Murillo, Blanc, and Veyrac (2022) described the beginning of the school year as the "honeymoon phase", noting that during "classroom situations in secondary education at the start of the new school year…researchers agreed that pupils tend to be particularly quiet during the first few days" (p.351).

Inevitably the honeymoon ends and community building moves on to the next stage, which can often be more tumultuous in nature. Tuckman (1965) refers to this stage as "Storming". To recap, this second stage is often "characterized by conflict and polarization around interpersonal issues" (Tuckman, 1965, p.396). Peck (1998) calls this stage "Chaos". When associated with schools and classroom dynamics, Murillo, Blanc, and Veyrac (2022) refer to this stage as "the test phase", which they describe as a "less calm phase" (p.352) than the honeymoon phase. They further describe this phase as a time where students are prone to "messing around" yet "not necessarily malicious", but rather done in order to "define and clarify the classroom situation" (p.352). Based on the descriptions of these phases, it is not difficult to make the connection between Tuckman's (1965) "storming" and Peck's (1998) "Chaos" with Murillo, Blanc, and Veyrac's (2022) "test phase".

The "Bridge Between Chaos and Community"

It is during the first two stages of each of the aforementioned constructs where middle school teachers in this study provided numerous ways in which they build the essential "bridge between chaos and community" (Peck, 1998, p.94) within their classrooms and schools. To review, Tuckman (1965) refers to this critical third stage of community building as "Norming", whereby "resistance is overcome… ingroup feeling and cohesiveness develop, new standards evolve, and new roles are adopted. In the task realm, intimate, personal opinions are expressed" (Tuckman, 1965, p.396) and the community can move toward the final "Performing" stage. Peck (1998) calls this stage the "Emptiness" stage, where communication barriers are removed and the bridge to true "Community" is stage is constructed.

Based on the findings of this small study, it appears that this "bridge" to community is often built through hard work, insight, and creativity of the middle school classroom teacher. It was constructed through consistent routines, empathy awareness and development, playing games together, making the classroom feel like a "second home", and ensuring that students know that they belong. It was formed by adopting and integrating invaluable constructs like the "Circle of Courage" (Brendtro, Brokenleg, & Van Bockern, 2013) into their everyday practice. It was

created through the organization of clubs, teams, and school productions. The bridge was established by connecting students with community groups, and providing them with meaningful cultural opportunities. Finally, classroom community would not be possible without the necessary commitment by the teacher to build it.

Limitations

There are several limitations to this study which need to be stated. The most obvious limitation of this study was the small number of participants who contributed to it. Although great efforts were made to secure between eight to twelve participants, only four middle school teachers volunteered. Additionally, the study was attempted during the Covid-19 pandemic which restricted the opportunity for participants to meet in person or assemble in a group. Instead, interviews were conducted individually and remotely via Zoom. It would have been interesting to have been able to meet together as a more traditional focus group on ways in which teachers positively connect with students (Reimer, 2014; Reimer, 2020).

Recommendations

After completing this study, several recommendations for further research can be made. As this study had only four participants, in the future it might be helpful to conduct this study with more middle school teachers. It might also be worthwhile to interview middle school students and hear about their thoughts on establishing community from their perspectives. Finally, it would be interesting to conduct further studies on the roles that elementary and high school teachers play in community building, and compare and contrast their approaches to those shared by the middle school teachers in this study.

Conclusion

Carrington and Robinson's (2006) contention that, "School communities that value and respect members and provide a safe learning environment for everyone to express their views, build awareness and develop capabilities together are more likely to be inclusive." (p.326) has been highlighted on several occasions in this article. Middle school teachers appear to intuitively understand this sentiment, and incorporate a multitude of respectful practices and strategies that promote the building of inclusive classroom and school communities. Peck (1996) described these types of practices as "the bridge between chaos and community" (p.94). Therefore, it is reasonable to conclude that the strategies middle school teachers highlighted in this study helped to build the "bridge" between chaos and community. Perhaps teachers deserve even more credit than this. That is, middle school teachers don't just help build the bridge - they *are* the bridge.

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From Research to Practice: The Creation and Implementation of Activity Schedules for Students with Autism Spectrum Disorders

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Abstract

This paper aims to inform other practitioners working with students with autism spectrum disorder about how to create and implement activity schedules for use in schools. This paper includes a review of research regarding the effectiveness of activity schedules on on-task behavior and the ability to transition. Creating these schedules has been broken down into seven steps for practitioners to follow. Suggestions are included to facilitate practitioners using this intervention for multiple situations. Several case examples are also included to highlight how activity schedules may be implemented in a school setting.

Keywords: activity schedules, autism, special education, visuals

From Research to Practice: The Creation and Implementation of Activity Schedules for Students with Autism Spectrum Disorders

One of the criteria for being diagnosed with autism spectrum disorder (ASD) is restrictive and repetitive behaviors (APA, 2013). Individuals with autism often have trouble with transitions due to their need for rigid routines and consistency (APA, 2013). Changing from one activity to another can be very difficult and bring about challenging behaviors. Transition problems can be even more evident for children with autism who are taught in the general education setting (Banda et al., 2009). The difficulty practitioners face is supporting these students without having them become dependent on adult instruction or prompting (Koyama & Wang, 2007). Activity schedules allow for this compromise.

An activity schedule is a series of photographs, images, words, or objects placed sequentially for an individual to follow. This works especially well for children with ASD, many of whom have strengths in rote memory and the ability to understand visual information more efficiently than verbal information (Hitam et al., 2011). The icons (i.e., pictures, images, or words used in the schedule) may cover the entirety of the day or the steps to a single activity. The schedule that follows the entire day is referred to as a between-activity schedule, and the schedule that reflects individual steps in a single activity is called a within-activity schedule (Banda et al., 2009). Practitioners may choose to use a variety of activity schedules to meet the needs of a variety of students in their classroom.

Activity schedules are an effective intervention strategy for modifying various social, daily living, on-task, and transitional behaviors in individuals with autism (Banda & Grimmett, 2008). Activity schedules provide predictability throughout the individuals' day and allow them to anticipate a change in the routine that may be made (Banda et al., 2009). Individuals with ASD may benefit from an activity schedule's structure and predictability. Providing constant, visible, and followed routines can reduce stress in children with autism spectrum disorder (Lytle &

Todd, 2009). This also makes it easier for them to accept a change in a routine that will be made because they will be able to identify the change in advance (Banda et al., 2009). Studies have shown the effectiveness of activity schedules in promoting independence and self-management skills for a broad range of individuals with intellectual disabilities (e.g., Duttlinger et al., 2012).

An increase in engagement, on-task behavior, and independent task initiation or transitioning can also be seen in studies (e.g., Koyama & Wang, 2011). The schedules allow the students to know what they will have to do next with less intrusive visual cues instead of more intrusive prompts such as verbal prompts (Pierce et al., 2013). Activity schedules can be used as a strategy to lead to more independence (Koyama & Wang, 2011). Research support the use of activity schedules in the classroom.

Activity schedules are also diverse, allowing for much differentiation (Koyama & Wang, 2011). One schedule could include multiple tasks placed in sequential order (Dutlinger et al., 2012; Pierce et al., 2013), and another could consist of steps of one particular task (Cuhadar & Diken, 2011). Some students may be able to follow schedules that cover the entire day, whereas some may only be able to comprehend one or two scheduled events at a time (Ganz, 2007). Some activity schedules include when the activities will occur (Banda et al., 2009). Students who do not communicate when they need to use the restroom may require you to include restroom breaks in their schedules. Some students can benefit from portable schedules they take from class to class, and others may need them stationary. Students may progress to a digital picture activity schedule, such as having one on a tablet (Stromer et al., 2006). Educators have found that activity schedules are helpful for students with ASD (Lytle & Todd, 2009). The versatility of an activity schedule makes it a useful tool for a practitioner working in a setting with a variety of students with different needs.

Generalization is another major concern one often has as a parent or a special education teacher. If the strategy works in your classroom, does the strategy continue to work in another classroom, the lunchroom, at home, or when the student is out in the community? Another benefit of activity schedules is that the effects can be generalized across settings, activities, and persons (Banda & Grimmett, 2008). Once the concept is taught to the student and he or she grasps the concept of the schedule, then new pictures/objects/words for new activities can be introduced, and the schedule can change to be portable for them to take out in the community. The student may also have a schedule for each location they visit (such as one at home and one at school). The appeal of the activity schedule is how easily it can be planned, made, and incorporated into existing activities across various settings (Banda et al., 2009).

Research

Research has been conducted on different types of activity schedules and ways they can be implemented. Activity schedules have positively affected individuals with ASD and individuals with intellectual disabilities (Duttlinger et al., 2012). Increased on-task behavior is improved by the use of activity schedules (Schneider & Goldstein, 2010). Activity schedules can be used successfully in both special and general education settings (Schneider & Goldstein, 2010; Peirce et al., 2014). Several studies have shown positive effects on students using a portable activity schedule either in a book (Pierce et al., 2014; Spriggs et al., 2007) or on a digital device (Carlile

et al., 2013; Mechling & Savidge, 2010). Activity schedules have been shown to increase engagement (Cuhadar & Diken, 2011) as well as the completion of tasks (Duttlinger et al., 2012). Table 1 provides further information on research involving activity schedules.

Table 1
Research Supporting Activity Schedules

Author and Year	Participants	Study Design	Variation of Implementation	Target Behavior Results
Schneider & Goldstein (2010)	3 males K-5th grade Autism	Multiple baseline across participant design	Visual Schedule using pictures from social story	Increased on task behavior with student that visual schedule was used with.
Pierce et al.(2014)	4 male students 9-11yrs Autism	Withdrawal design	Visual activity schedule books	Between and within activity transition steps taken independently rose during VAS phases.
Spriggs et al. (2007)	4 female students 12-13yrs Moderate Intellectual Disability	Withdrawal design	Picture activity schedule books	During conditions that included the PAB's on task behavior increased for all students.
Duttlinger et al. (2012)	4 students Autism and/or Intellectual Disability	Withdrawal design	Picture activity schedule	All participants had increased abilities to complete a sequence of task using PAS. Results were generalized to food court in mall.
Carlilie et al.(2013)	2 males 8-12yrs Autism	Multiple probe across participant design	Activity schedule on iPod	All participants showed increase in on task behavior. Skills were generalized to novel settings and novel schedules and maintained over time.
Cuhadar & Diken (2011)	3 male students 4-6yrs Autism	Multiple probe across participant design	Instruction performed through activity schedules.	All participants showed increase in engagement and fulfilling the activity skills.
Mechling & Savidge (2010)	3 students Autism	Multiple probe across 3 sets of work task design	Personal Digital Assistant	All students were able to complete a higher number of between task transitions using PDA.

Given studies supporting picture activity schedules, it has become a common practice for many special education teachers and parents. Green and colleagues (2006) found that 43.2% of parents who participated in their survey used activity schedules in the home. It was the second-highest intervention reported, speech therapy being number one (Green et al., 2006). Therefore, this is a strategy not only useful in the classroom, but one that can be generalized and used at home as well.

Creating and Implementing Activity Schedules

This article breaks down the process of creating and implementing activity schedules into seven basic steps. These steps include: identify behavior, determine length of the schedule, determine the iconicity level of the items on the schedule, determine the level of technology, determine the appearance of the schedule, determine the placement of the schedule, and teach the student to use the schedule.

Step 1: Identify Behavior. The first thing that must be done to create and implement an activity schedule is to determine the target behavior and take baseline data on that behavior (Banda et al., 2009). Visual schedules have been found to be useful strategies to decrease off-task behavior, increase smooth transitions and decrease disruptive behavior (Koyama & Wang, 2011). An activity schedule may be useful if the data show deficits in these areas. For example, if the student appears to have difficulty transitioning between activities (i.e., refuses to transition, displays challenging behavior when asked to go to a new place), then data should be collected to determine if there are certain activities or times of the day with which the student has more trouble than others.

Step 2: Determine the Length of the Schedule. Several different types of activity schedules can be implemented with students (Hitam et al., 2011). Is a within-activity schedule all you need, or do you need a between-activity schedule? This can be determined by examining data taken on the student. Within-activity schedules can be used to break down the steps of a certain activity (such as leisure tasks) into steps (Cuhudar & Diken, 2011). A task analysis of the activity can be done to determine how many steps must be created for the schedule (Milley & Machalicek, 2012). Between-activity schedules can be used for transitioning through activities, such as having a schedule with iconic representations for each task that needs to be completed (Duttlinger et al., 2012). Some students may only be able to follow a schedule with a few tasks at a time, and others may do well with a schedule that covers the entire day (Ganz, 2007).

Step 3: Determine the Iconicity Level of the Items on the Schedule. Types of representations for each activity throughout the day or the steps of the chosen activity must be chosen. These representations can be objects, pictures, or words. When choosing objects, the objects should be something relatable to the activity but also something that is not too large to be portable. Decisions about the iconicity level should be made based on student abilities; a student with lower functioning cognitive abilities may need more concrete representations than a student functioning on a higher level (Banda et al., 2009). If choosing to use photographs, someone will need to take pictures of the different activities they do or places they go throughout the day. Some students can make the correlation between a picture icon and recognize it as a representation of the actual activity or place. Line drawing icons may be more appropriate for

these students because one line drawing icon, such as gym, represents multiple activities. This helps with the generalization process.

Another thing to consider when creating the schedules is the students' mode of communication. If the student uses a communication board or a picture communication system, there may be pictures that he or she may already recognize that can be incorporated into their schedule. For example, if the student already has an icon on their communication board for recess, it would be preferred to use that icon for their schedule. For an example of a line drawing icon, see Figure 1. For an example of picture icons, see Figure 2.

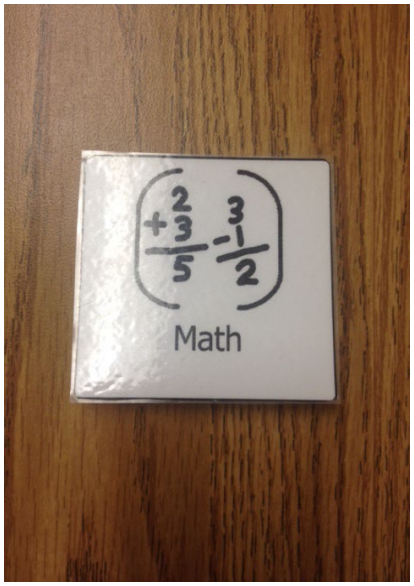

Figure 1: Example of Line Drawing

Figure 2: Picture Icon Examples

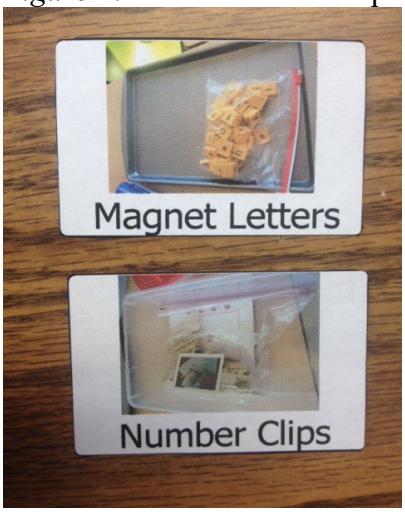

Figure 2: Picture Icon Examples

When using pictures, it is encouraged that words are also used to allow for further independence in the future by decreasing dependency on pictures and encouraging literacy skills (Banda et al., 2009). This can be accomplished by making the pictures on the icon smaller and the print larger. This may not apply to all students, but it is good practice to include the words unless it distracts the student from the picture.

Step 4: Determine the Level of Technology. A decision must be made about the level of technology for the schedule, depending on the technology's portability and the student's level. There are lower-tech activity schedules (usually paper-based) and higher-tech activity schedules (such as digital) (Stromer et al., 2006). Some schedules can be made digital and carried with a student at all times on devices such as iPods (Carlile et al., 2013). Activity schedules can also be kept in binders or folders (Banda & Grimmet, 2008). Some students, especially those in a single classroom most of the day, may be better suited to a picture activity schedule set up on Velcro® at or near their desk that is easy to access throughout the day. An example schedule can be seen in Figure 3.

Figure 3: Activity Schedule Example

Technology can also be a valuable tool in activity schedules. Having an activity schedule on a handheld device such as an iPod can provide the same benefits as a paper-based activity schedule in a more socially acceptable format (Carlile et al., 2013). Their learning is also expanded without direct cueing or reinforcement from their teachers (Stromer, Kimball, Kinney, & Taylor, 2006). A student's preference for technology may lead to them better attending the schedule (Carlile et al., 2013).

Step 5: Determine the Appearance of the Schedule. It will also need to be determined what routine the schedule will follow for completing activities. One format would be to have a strip of Velcro®, either horizontal or vertical, where the icons may be placed. A finished envelope could be placed beside the strip of Velco® for the icons to be placed in as the tasks are completed. It

may be beneficial for some students to remove the icons and take them to the locations where they will complete the activity (Ganz, 2007). For example, if it was math time and the student was going to the math center, they could take the icon for math to the math center and place it in a labeled basket or cup in that center. When he or she finished with that center, he or she would be redirected back to his or her schedule. There can also be X's or check marks to place over the activities as they are completed, or a dry-erase marker can be used for a student cross out the activity as it is completed (Banda et al., 2009).

Step 6: Determine the Placement of the Schedule. Next, placement needs to be chosen for the schedule if it is not portable (Banda et al., 2009), such as in a notebook or digital device. It is recommended that there be a designated place where the student keeps the device or notebook containing the schedule (Banda et al., 2009), such as in a basket, the student's backpack, or the desk. When choosing the placement of the schedule, remember that the schedule is a tool, not a distraction. Regardless of where the schedule is placed, it should be accessible to the student throughout the day (Ganz, 2007).

Step 7: Teach the Student to Use the Schedule. Teachers must teach a student with ASD how to use and follow the activity schedule with a range of prompts based on the individual student's needs. If the activity schedule is not explicitly taught and guided at first with prompts, the activity schedule alone may not be enough to impact behaviors (Banda & Grimmett, 2008). Initially, more intrusive prompts, such as hand over hand, should be used to ensure the student practices the correct use of the schedule rather than practicing incorrect use of the schedule (Ganz, 2007). This may involve leading the student through the schedule, prompting them to remove the icons and place them in the correct finished location. Activity schedules can be taught well with a most-to-least prompting strategy (Milley & Machalicek, 2014). As soon as possible, the teacher should fade physical prompts to use less intrusive prompting to increase independent use of the schedule. (Ganz, 2007). Be sure to use positive reinforcement when an activity is completed. When teaching this activity, have less desirable tasks followed by desirable or reinforcing tasks. Make as little changes as possible in the beginning until they get used to using the schedule. Once they get used to the activity schedule, you can introduce new pictures/icons and even a change icon to represent a sudden schedule change.

Below are three case examples of different ways activity schedules can be implemented. These include three different methods of activity schedules for three different learners of different ages and with different needs.

Case Examples Using Activity Schedules

Case Example #1: Picture Activity Stationary Schedule

Eric was a 2nd-grade student in a structured learning class. Eric was diagnosed with autism and an intellectual disability. Eric used a picture communication system to communicate. Eric has fine motor deficits. Eric spent all his days in the structured learning class except for meals and physical education.

Step 1: Identify Behavior. After gathering data, it was determined that Eric exhibited his highest refusal rates with undesired activities and had the most difficulty switching from a

preferred activity to a nonpreferred one. The data showed he had the highest refusal rate when transitioning from a break to a fine motor activity. When switching from a preferred to a nonpreferred activity, Eric screamed, hit his desk with his fist, and refused the new task.

Step 2: Determine the Length of the Schedule. Eric needed a between-activity schedule covering all his activities throughout the day. This way, he could know when the more undesired tasks were and when the more desired tasks were.

Step 3: Determine the Iconicity Level of the Items on the Schedule. Eric used photo icons with his communication system, as many familiar icons were used to help adapt to his schedule. For example, in Eric's communication system, a picture of a lunch tray was his icon for lunch. This same picture was used to represent lunch in Eric's schedule. Eric needed photo representations of each activity. Line drawings were more abstract and could be integrated into the schedule later.

Step 4: Determine the Level of Technology. For Eric, the most appropriate type of schedule was going to be a paper-based schedule, especially since this is how he accessed his mode of communication. It was also more appropriate for Eric to use large icons due to his fine motor challenges.

Step 5: Determine the Appearance of the Schedule. Since Eric was mainly in the same class all day, it was deemed appropriate that he started with a stationary schedule on a Velcro® strip. He distinguished that the activity was complete by taking the icon down after finishing it and placing it in a finished container attached to the schedule.

Step 6: Determine the Placement of the Schedule. The team decided he would utilize a stationary activity schedule, so it needed to be placed somewhere in the room. For Eric, it was decided that it would be best to place the schedule in close proximity to his working area since that was where he had most of his difficulties during the day. It was placed on the wall beside his desk.

Step 7: Teach the Student to Use the Schedule. Eric was taught to use the schedule by having the teacher take him to his schedule board and take off the first icon, completing that task, and then taking that icon to the finished container and taking off the next icon. Eric needed heavy physical prompting at first to direct him to check his schedule and start the activity that the schedule indicated.

Eric's schedule ended up being too distracting at its placement in his working area. It was decided that due to the distraction it caused him, it would be best to move it to a more central location in the room where it would still be accessible to Eric.

After altering the schedule and teaching Eric to use the schedule through most to least prompting, Eric could follow his schedule in the classroom with minimal cues and redirections.

Case Example #2: Line Drawing Activity Portable Schedule

For most of her day, Kayla was a 9th-grade student in a structured learning classroom. However, she did spend time with her typically developing peers for art and physical education. She was a student diagnosed with autism and intellectual disability and had an assistant who went with her to her general education classes as well as escorted her to and from the classes. Kayla was verbal but was unable to read.

Step 1: Identify Behavior. Kayla's most significant challenges were transitioning to classes outside of the structured learning classroom and accepting changes made to her schedule. She would become highly anxious, cry, and refuse to go along if a change were made, such as an assembly. When it was time to leave for physical education or art, she often refused to leave with the special needs assistant.

Step 2: Determine the Length of the Schedule. Kayla's most appropriate type of schedule would be the between-activity schedule using line-drawing representations of her day. The between-activity schedule would show her entire day.

Step 3: Determine the Iconicity Level of the Items on the Schedule. Kayla's main problems were not with individual tasks, but with changing classes, or adding an assembly instead of a subject. So, it was appropriate for her to have representation icons of her subjects, classes (art and physical education), meals, and so forth. It was also decided that it would be appropriate for Kayla to have times of these activities included in her schedule.

Step 4: Determine the Level of Technology. It was determined that Kayla would start with using a low-tech paper-based activity schedule since she was not able at this time to operate an electronic device efficiently.

Step 5: Determine the Appearance of the Schedule. Since Kayla went to physical education and art throughout her day and assemblies, and these were the activities that seemed to cause her the most anxiety, the schedule needed to be able to go with her to these classes. She kept the schedule with smaller icons in a folder with a "to do" column and a finished column. Both of these were labeled with Velcro strips running down them. She would move it to the finished column as she finished the activity.

Step 6: Determine the Placement of the Schedule. Since she would utilize a portable schedule, it had to go wherever she went. Kayla did not take a backpack with her to her other classes, so she had the option to carry it with her or to have a strap put on it so she could carry it like a purse over her shoulder. Kayla had the most success carrying her schedule and having a designated spot beside her to place it when she got to her following location.

Step 7: Teach the Student to Use the Schedule. Kayla first needed assistance from the aide who went with her to other classes. The aide would have to redirect Kayla to her schedule before leaving the room while transitioning in the hallway and after reaching their destination. The redirection in the hallway quickly faded. It was also helpful to go over the entire schedule with her at the beginning of the day so that she knew if anything had changed from one day to the

next. The aide would refer to the change if there were one throughout the day to remind Kayla that something would be different.

Kayla had much success with her schedule, but due to the heavy use it received from Kayla, it was moved into a binder for more durability. Kayla's schedule was changed slightly every few days to decrease her reliance on rigid routines.

Case Example #3: Digital Schedule

Samuel was a 7th-grade student with autism. He attended all of his classes in the general education setting with an instructional aide in some classes as needed. He also had one class on social skills with a special education teacher.

Step 1: Identify Behavior & 2: Determine the Length of the Schedule. His special education teacher realized that Samuel was having trouble transitioning from one class to another and knowing what to do when he got to his next class. He would, at times, wander the halls in between classes. When Samuel would get to class, he would sit and wait for the teacher to tell him what to do. A within-activity schedule was decided on for Samuel since his main difficulty was the transition from one class to another and knowing the steps that he needed to take to do so.

Step 3: Determine the Iconicity Level of the Items on the Schedule. Since Samuel could read fluently, using words only for his schedule was appropriate. With an iTouch, this could most easily be accomplished by taking pictures of the written words. This way, they could be organized better into folders, especially if necessary to make another schedule for Samuel.

Step 4: Determine the Level of Technology. Samuel had used activity schedules before but did not like to use the binders because other students did not use them. Since Samuel was high-functioning and a middle school student, it was decided to use a digital activity schedule to make him more likely to access and use it. Samuel had access to an iTouch and knew how to use it for music.

Step 5: Determine the Appearance of the Schedule. The teacher had to do a task analysis to determine Samuel's steps when entering a new classroom (sitting down, getting out books, reading the board). Once this was decided, the teacher could make the words corresponding to the steps that needed to be completed. Pictures were taken of the words or short phrases needed to cue Samuel of the steps he needed to complete. For example, the word pencil reminded Samuel to get out his pencil. These pictures were all placed in an album labeled Change Class. Samuel could open the album and slide to the next picture as he completed the items.

Step 6: Determine the Placement of the Schedule. Since the device was highly portable, all Samuel had to do was keep it in his backpack or pocket. One good thing about using a desirable device is that Samuel was much less likely to lose it since he placed a very high value on getting it.

Step 7: Teach the Student to Use the Schedule. Samuel was already familiar with the device but needed explicit instruction from the special education teacher on accessing the

folders/pictures and when to swipe to the next picture. An alarm was also set on the device to offer Samuel an additional cue, letting him know his current class was over and he needed to access the activity schedule.

The alarm on the device quickly faded since the school was on a bell schedule, and the bell could serve as the same cue after Samuel became familiar with using the schedule. Samuel also needed additional prompting to first refer to the device by the classroom teacher. Samuel learned to use the schedule within weeks independently. He was able to make it to class on time most of the time and independently get ready to start class without relying on teacher prompts. Samuel loved using his device at school, and an activity schedule for preparing for P.E. was also added because transitioning to that class was much different from his other classes.

Conclusion

Activity schedules can visually communicate upcoming events in a student's day or within an activity, help with transitions between activities, and increase student independence (Grosland & Dunlap, 2014). It is a strategy that can be highly versatile and helpful for students of all levels (Banda & Grimmet, 2008). When implementing and creating the materials for this strategy, consider the following suggestions:

1. Activity schedules are a strategy used to promote independence (Koyama & Wang, 2011). Fading prompts over time is a must for the students to be independently successful.

2. The student may need a "check schedule" card at first as a visual cue to go and check his or her schedule. The card is shown to the student when they have completed a task and must move on to the next task on the schedule. The student may need to be led to the schedule at first after being shown the card, but the level of prompting should fade quickly. For an example of a check schedule icon, see Figure 4.

Figure 4: Check Schedule Icon Example

3. The activity schedule should not be considered to be permanent. For example, the prominence of the activity schedule should change over time to be more socially and age-appropriate (Banda et al. 2009). A student may start with a stationary picture activity schedule and move to a mobile activity schedule on a device when he or she gets more advanced. Moving from more concrete objects to picture representations is another way a student's schedule may advance. He or she may also have to start with only a few large icons at a time and later be able to utilize a schedule with smaller icons in larger quantities.

4. If a student has difficulty using his or her schedule independently, try adaptations (shortening the schedule, making pictures larger, switching to more concrete representations) to accommodate that student (Ganz, 2007). Remember that appropriate responses should be reinforced (Milley & Machalicek, 2014). A first-then chart can also show that a reinforcer will be given after completing a task off the schedule.

Activity schedules are tools for the classroom that have been shown to improve on-task behavior and help students with transitions (Banda & Grimmet, 2011). It can also be used in different settings, helping with generalization. Whether using pictures, words, drawings, or objects, activity schedules assist students with ASD in being prepared for what will happen and knowing what is expected of them within that time.

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Precorrection for Youth with EBD in Alternative Education Settings: Implementation Suggestions

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Abstract

Many of the youth with emotional and behavioral disorders (EBD) who are served within alternative education settings experience behavioral challenges including displaying behaviors of concern while having difficulty demonstrating the expected behaviors. Through the low-intensity behavioral strategy of precorrection, staff in alternative education settings can proactively assist youth with EBD in reaching behavioral and academic goals. The following article details the eight specific steps of precorrection, including a review of the prior literature, steps for implementation by staff in alternative education settings, and considerations for implementation.

Precorrection for Youth with EBD in Alternative Education Settings: Implementation Suggestions

Alternative education (AE) settings include alternative schools, therapeutic day programs, residential treatment facilities, and juvenile justice facilities (Kumm et al., 2020). Youth served within AE settings include both those with and without disabilities with some youth also diagnosed with mental health issues. Although not all youth placed in an AE setting are receiving special education services, those who are on an Individualized Education Program (IEP) must have the placement determination for an AE setting made in accordance with the Individuals with Disabilities Education Improvement Act (2004) due to the individual youth's needs and the setting in which the youth can best receive supports per their identified educational needs (Porowski et al., 2014). "Youth with emotional and behavioral disorders (EBD) served in AE settings have a variety of behavioral and academic needs (Gagnon & Barber, 2015). In the context of this paper, all references to EBD include any youth in an AE setting who exhibit challenging behaviors, whether diagnosed or not. Through various interventions, strategies, and programming, youth with EBD in these settings often receive tiered supports to achieve behavioral improvements while also decreasing behaviors of concern. Some of these effective supports may be low-intensity behavioral strategies that can be implemented with minimal cost (Haydon & Kroeger, 2016), minimal staff training (Allen et al., 2020), and ease of implementation to assist with staff buy-in (Lane et al., 2018). Additionally, precorrection is an antecedent-based intervention that helps to prevent behaviors of concern, rather than relying on more consequence-based interventions after challenging behavior has been demonstrated. One low-intensity behavioral strategy, precorrection, may be an appropriate support for these youth as

any staff member in an AE setting can implement it for youth behavioral improvement across facility activities – treatment, programming, and education (Jolivette et al., 2021). Sobeck and Reister (2020) define precorrection as a low-intensity behavioral strategy "in which a teacher delivers a reminder of appropriate behavior before the student has an opportunity to engage in the problem behavior pattern (p. 72)." Precorrection can be used to improve several behaviors of concern, including transition time between classes, off-task classroom behavior, out-of-seat behavior, noncompliance with classroom teacher directives, and physically and verbally disruptive behaviors.

Precorrection

Colvin and colleagues (1993) were the first to introduce the seven steps of precorrection with Lane and colleagues (2015) adding an eighth step offering youth an opportunity to provide their feedback on precorrection implementation (see Table 1).

Table 1
Steps of Precorrection

Step	**Description**
Step One	Identify the context and the anticipated behaviors
Step Two	Determine the expected behavior
Step Three	Adjust the environment
Step Four	Provide opportunities for behavior rehearsal
Step Five	Provide strong reinforcement to students engaging in expected behaviors
Step Six	Develop a prompting plan to remind students about the expected behaviors
Step Seven	Develop a monitoring plan to determine the effectiveness of the precorrection plan
Step Eight	Offer youth opportunities to give feedback on precorrection

Source. Lane, K. L., Menzies, H., Ennis, R. P., & Oakes, W. P. (2015). *Supporting behavior for school success: A step*

A systematic analysis conducted by Ennis and colleagues (2017) of empirical precorrection studies found that precorrection was often used as part of an intervention package (e.g., paired with other evidence-based practices), was utilized across all PK-12 grade levels, and youth with disabilities were included within multiple research studies. Researchers emphasize the time- and cost-effectiveness of precorrection in improving transition behaviors (Colvin et al., 1997; Haydon et al., 2012), recess behaviors (Lewis et al., 2000), and classroom behaviors (DePry &

Sugai, 2002). Precorrection has been shown to positively impact behaviors of concern within the educational environment (e.g., student disruptions, noncompliance with teacher directives, out-of-seat behaviors, disengagement with academic tasks; DePry & Sugai, 2002). Precorrection researchers have shown that staff continue implementing precorrection even after the conclusion of a research study (Haydon et al., 2012); thus, an indication of the sustainability of daily use of precorrection as part of the typical classroom routine. Herein, each of the eight precorrection steps are detailed with applicable examples for youth with EBD served in AE settings.

Precorrection in AE Settings

The following scenario is an example of how precorrection may be implemented within an AE setting with a youth with EBD. Each step, as defined by Lane and colleagues (2015), is detailed in the hypothetical scenario below with the application of those steps with Josh a 15-year-old male.

Josh is a youth with EBD who has been receiving services at a residential treatment facility for the past 5 months. During this time, Josh has demonstrated some behavioral growth in his interactions with the facility staff; yet, his peer interactions have not improved as expected as Josh continues to have difficulties with keeping his hands and feet to himself and maintaining personal boundaries during transitions. Thus far, the staff at the facility have implemented Tier 1 facility-wide positive behavior interventions and supports (FW-PBIS), verbal redirection, and adjusting which peers (e.g., line order) Josh is near during transitions (e.g., from the housing area to the classroom) to address the behavioral difficulties. The facility staff have not noticed much improvement with the previously attempted framework or other strategies specific to Josh's transition behaviors. Facility staff decided that an intervention to address pushing and hitting peers and horseplay that also can be used with multiple youth, when needed, is what would be most beneficial. Additionally, facility staff wanted an intervention which would be easily implemented by staff who serve in different capacities within the facility (e.g., direct care staff, teachers, security personnel) and who have various pedagogies (e.g., mental health, education, corrections).

Step One: Identify the context and the anticipated behaviors

Facility staff (e.g., teachers, direct care staff, therapists, case workers, and administrators) should familiarize themselves with the daily routines, environments, and present youth behavioral data (e.g., through observations, interviews, reviewing of behavioral incident records and school/unit logs; behavioral strengths and areas for focus) to determine the context (e.g., classroom, gym, cafeteria, housing area/milieu, academic instruction, recreational time, transitions, specific routines, visitation) and youth behavior of concern to be addressed through precorrection. This step is completed a priori by the facility staff before actual implementation begins.

During his review of discipline referrals from the past few weeks, Mr. Carlos, a teacher at the residential treatment facility, noticed that Josh, one of his students, has had more discipline referrals than usual for pushing and kicking his peers and engaging in horseplay. Mr. Carlos learns that most of the discipline referrals have occurred immediately after transition times from the housing area to the classroom with transitions taking longer than scheduled with less instructional time at the beginning of class as staff address Josh's misbehavior. Due to this

specific behavioral pattern during transition times from the housing area to the classroom, Mr. Carlos decides to find an intervention to work with Josh on his transition behaviors. Mr. Carlos considers active supervision, activity restrictions, and precorrection. Mr. Carlos reflects on the current supports in place and knows that active supervision is already being provided during the transition time from the housing area to the classroom, so a more intensive intervention is needed to meet Josh's transition difficulties. In considering activity restrictions, Mr. Carlos decides that a punishing approach does not align with the FW-PBIS framework adapted by his facility and agency and looks for a strategy that will teach Josh what to do (i.e., appropriate behaviors) during transitions. Ultimately, due to the proactive nature of precorrection, its focus on teaching appropriate behaviors and the efficiency of implementation as well as its empirical support, Mr. Carlos chooses to implement precorrection with Josh.

Step Two: Determine the expected behavior

The facility staff should specifically operationalize both the behavior of concern and positive, expected behaviors (e.g., what do the behaviors actually look like). It is important to define both behaviors so that others (e.g., those directly or not directly involved with implementing precorrection) can identify problem behavior while focusing on how youth should behave instead (i.e., the appropriate, expected behavior) as both should be objective, observable, and measurable. For example, when operationalizing the expected behavior of on-task, staff would consider what that behavior looks like within the selected environment (e.g., classroom, housing area, hallways, gymnasium) for the youth and include examples (e.g., the youth is seated at their designated desk, holding their writing instrument, looking at their academic assignment) and nonexamples (e.g., the youth is out of their seat, drawing/doodling, sleeping). By clearly defining the behaviors of concern (e.g., pushing and kicking peers, engaging in horseplay) and expected behaviors (e.g., keeping hands and feet to self, maintaining personal boundaries), consistent data collection across staff and across settings/contexts can be achieved with a focus on the youth behavior staff want to see displayed. It is important that data collection be consistent because it adds validity to the information informing decisions (e.g., data used in treatment team meetings). Step Two also is completed a priori by facility staff before precorrection implementation.

Through reviewing Josh's behavioral data (e.g., discipline referrals, his classroom log, the unit log) and observing Josh more closely during transitions into his classroom, Mr. Carlos notices that Josh is having consistent difficulties keeping his hands to himself (e.g., pushing peers, horseplaying) no matter which staff supervises the transition or the prior activities on the unit before class. Mr. Carlos then defines what he wants Josh to do instead - the expected behavior. Mr. Carlos defines Josh's expected behavior of keeping hands and feet to self while maintaining personal boundaries with examples (e.g., keeping hands and feet to self during transitions) and nonexamples (e.g., touching of peers with hands and feet), and from the incident report examples of the behavior of concern (e.g., pushing and kicking peers, engaging in horseplay) to change.

Step Three: Adjust the environment

After the completion of the first two steps, the facility staff that are assigned to supervise and transport the youth from the housing area to the classroom modify the context (e.g., FW-PBIS matrix signage), ensures that all needed supports (e.g., clearly communicated directives and expectations) are presently in place, and that a lack of supports is not the reason for the behaviors of concern. All aspects of the environment should be evaluated by staff including what

programming is taking place, the materials that are being used, the physical layout of the environment (e.g., where staff are positioned, where is FW-PBIS signage posted), and the roles and responsibilities of the staff present (e.g., all staff communicating the behavioral expectations and providing verbal praise to youth engaging in the expectations). This evaluation of the environment by the staff can be conducted through observations and should be discussed with all facility members who are part of the precorrection process.

Next, Mr. Carlos adds a column for transition to the FW-PBIS matrix that the facility utilizes and includes expectations for the youth to encourage safe, efficient transitions (something all youth could benefit from). The column on transition details the behavioral expectations of the youth as they transition across the various areas within the facility (e.g., housing area to classroom, classroom to gym, classroom to housing area). Mr. Carlos ensures that proper signage is placed within the housing area to communicate the expected transition behaviors that are part of the matrix (e.g., keep hands and feet to self, maintain personal boundaries, walk directly to the destination, follow all staff directives; Sprague et al., 2013). Additionally, Mr. Carlos met with the staff of the day shift who work with Josh during the transition from the housing area to the classroom. During the conversation, Mr. Carlos talks with the staff about the importance of consistently communicating and modeling the expected transition behaviors (e.g., keeping hands and feet to self while maintaining personal boundaries) with Josh and verbally praising him when he engages in those behaviors.

Step Four: Provide opportunities for behavior rehearsal

In this step, staff should provide opportunities for Josh to practice the expected behaviors through behavioral rehearsals. A behavioral rehearsal is an opportunity for youth to practice the expected behaviors through discussions of the behavioral expectations and to role play in a similar context to the environment in which the behavior of concern is occurring (e.g., in line transitioning from the housing area to the classroom; Ennis et al., 2018). Behavioral rehearsal examples may include unit-/class-wide discussions, one-on-one discussions, and role-playing behavioral scenarios. The determination on whether to conduct the discussions regarding behavioral expectations in group or one-on-one settings are based upon the needs and preferences of the youth who is working towards the specific behavioral objectives. For example, does Josh have peer relationships that would encourage him to display the behaviors in a group setting, would a group setting stigmatize more than help Josh in engaging in the desired behaviors, could other students benefit from engaging in behavior rehearsal?

Before the group prepares to transition to the classroom from the housing area, one of the supervising staff and Josh practice the transition to the classroom using the expected behavior (e.g., keeping hands and feet to self, maintaining personal boundaries). The staff begins the behavioral rehearsal by stating the expected behavior and then providing multiple opportunities (e.g., behavioral rehearsals with reinforcement and feedback provided after each rehearsal) for Josh to practice demonstrating the expected behavior. After each behavioral rehearsal, the staff provides positive reinforcement to Josh for the expected behaviors that are shown (e.g., "Great job keeping your feet to yourself during the transition, Josh!") and directives on how to fully display the expected behavior (e.g., "remember to maintain personal space throughout the transition to the classroom").

Step Five: Provide strong reinforcement to students engaging in expected behaviors
The facility staff who supervise the transition from the housing area to the classroom provides reinforcement for the youth displaying the expected behavior. It is important to identify reinforcers that are desirable to the youth and provide reinforcement in a meaningful, sincere way (Lane et al., 2015). For example, behavior-specific praise involves specifically linking the verbal praise with the desired behavior that exhibited by the youth. This strategy may be used by staff (e.g., "Josh, I like how you kept your hands and feet to yourself during the transition from the housing area to the classroom!") as a form of reinforcement. Another approach would include linking behavior-specific praise with the facility's FW-PBIS secondary reinforcements such as a "gotcha" (e.g., reward currency), youth-selected special privilege, or facility-approved tangible item (e.g., extra book from the library; Simonsen & Sugai, 2013). Also, it is important for staff to consider whether verbal praise should be delivered publicly (e.g., in front of peers) or privately (e.g., one-on-one with the youth) to ensure that the praise is truly reinforcing and not stigmatizing (Kennedy & Jolivette, 2008). The staff who will be delivering the praise to the youth within precorrection can collaborate with other facility staff (e.g., therapists, psychiatrists, teachers) and the youth themselves to determine whether public or private praise is best.

Prior to transitions, Mr. Carlos is positioned in the hallway outside of the classroom to greet and count the youth as they enter the classroom. Mr. Carlos observes during this time that Josh is keeping his hands and feet to himself. Immediately, Mr. Carlos says, "Great job keeping your hands and feet to yourself, Josh!" Additionally, one of the staff who lead the transition from the housing area to the classroom also observes Josh's behavior and adds, "I really like how you transitioned into the classroom with your hands and feet to yourself, Josh!" As Mr. Carlos plans ahead for how reinforcement can be provided to Josh when the expected behaviors are displayed, he knows that it is important for the reinforcement to be realistic for staff to deliver (e.g., access and permissions to provide privileges and tangibles) and be meaningful to the youth.

Step Six: Develop a prompting plan to remind students about the expected behaviors
In this step, the facility staff prompts the expected behavior of the youth. Prompts may include gestural (e.g., nonverbal reminders like a hand motion to indicate the expected behavior that is created in collaboration with the youth to avoid any further stigmatization of the youth), verbal (e.g., gentle, direct reminders of the expected behavior, "Let's keep our hands by our sides"), environmental (e.g., posted reminders of expected behaviors like signage indicating how to transition such as those found on FW-PBIS matrices), and/or manual (e.g., supervision patterns, change of staff positions in the location; Haydon & Kroeger, 2016). The prompt(s) should be delivered in the form of positive statements and expected behaviors should be reinforced as outlined in step five.

As the staff who supervise transitions continue working with Josh on displaying the expected behavior, they know that there may be times when Josh needs reminders of the expected behavior. The staff wants to have a variety of prompts ready to remind Josh of the expected behavior, so they talk with Josh about the different prompts and how they will be used during transition times. For example, the staff talks with Josh about how verbal reminders may be used during transitions (e.g., "Let's remember to keep our hands and feet to ourselves") but not specifically directed at Josh (e.g., whole group reminder to all youth). Also, the staff tells Josh

that there will be posted signs reminding both Josh and his peers about the expected transition behaviors (e.g., keeping hands and feet to self, maintaining personal boundaries) on the walls between the units and classrooms. Additionally, the staff who supervise transitions have enlisted the assistance of Josh in coming up with a gestural prompt (e.g., staff tapping their side as a reminder for Josh to keep his hands to his side and away from others) to remind Josh of the expected behavior. This reminder would be used by the facility staff supervising the transitions from the housing area to the classroom when Josh is engaging in the behavior of concern (e.g., pushing and kicking his peers, and engaging in horseplay).

Step Seven: Develop a monitoring plan to determine the effectiveness of the precorrection plan

In this step, data should be collected to assess the effectiveness of precorrection. Common data sources may include discipline referrals, incident reports, staff notations (e.g., anecdotal notes based on daily behavior such as unit and class logs), and/or academic engagement data. The data should be collected on the behaviors of concern and expected behaviors across all settings within the youth's environment where there are reports of the behaviors of concern to track progress. It is best for facility staff to utilize the same data collection methods that were used in Steps One and Two when tracking youth progress with precorrection. Any staff who has consistent interaction with the youth during the identified time in which the behavior of concern is being addressed should work in monitoring the precorrection data. The precorrection data should be monitored both daily and weekly (e.g., the number of discipline referrals made for transition-related behavior concerns) to determine whether the youth is progressing with the current intervention or if a change to the intervention is needed. This also is an opportunity for staff to shift from counting problem behaviors to monitoring the positive, expected behaviors.

The staff who supervise transitions from the housing area to the classroom have been implementing precorrection with Josh for a few days and want to make a plan so that the effects of precorrection can be reported to the treatment team at the facility. In order to track Josh's progress, the staff review their unit logs and length of time for transitions, while Mr. Carlos looks at his class logs, time spent in class, and behavioral incident data. Mr. Carlos decides that at the end of every week he will review both the data collected by the staff who supervise transitions from the housing area to the classroom and his data, then compares the information with that of the weeks prior to beginning precorrection to determine if progress is occurring.

Step Eight: Offer youth opportunities to give feedback on precorrection

Staff should ask the youth participating in precorrection about their experiences with the intervention. This important step, which provides youth a voice in relation to the programming they receive, is something that is not typically afforded youth in AE settings (Jolivette et al., 2015). Social validity data, which can inform staff of the youth's perceptions of the effectiveness of precorrection, can be collected formally or informally through social validity assessments (e.g., Children's Intervention Rating Profile; Witt & Elliott, 1985) or informal youth interviews (e.g., "What did we work on together through precorrection that helped you display the specific expected behavior?", "Is there anything I can do better to help you to demonstrate the specific expected behavior?"). Staff can use the feedback provided by the youth to improve future use of precorrection by tailoring the intervention so that the youth is receptive, ensuring progression toward youth behavioral goals, and improving the overall experience of the youth.

After a few weeks of Josh demonstrating the expected behavior during transition times, Mr. Carlos decides to sit down with Josh privately to talk about the experience Josh had with precorrection. Mr. Carlos starts by asking Josh if the precorrection intervention helped Josh with keeping his hands and feet to himself and maintaining personal boundaries. While talking with Josh, Mr. Carlos took detailed notes so that future use of precorrection with Josh could be improved. During their conversation, Josh indicated that he learned more about how to transition appropriately (e.g., keeping his hands and feet to self) through the precorrection process, but made the suggestion that future use of the intervention include more opportunities for youth input (e.g., interviews or social validity assessments prior to implementation, during implementation, and after implementation) throughout the entire process.

Considerations for Implementing Precorrection in Alternative Education Settings

When using precorrection within AE settings, facility staff should be mindful of some considerations prior to implementation. In addition, Table 2 provides additional resources to assist with planning, implementing, and adapting precorrection for use with youth in AE settings.

Table 2
Resources for Precorrection Implementation

Type	Description	Link to Resource
OSEP Guidance Resource	Supporting and Responding to Behavior: Evidence-Based Classroom Strategies for Teachers	Link not available (contact author)
Video	Example of the use of precorrection within a high school setting	Link not available (contact author)
Video	Description of precorrection with examples of how to apply the strategy	https://youtu.be/T_kBhqh__cw?si=Bxtv-tBb79MGkVBg
Empirical Study	A study conducted in a general education classroom to determine the effect of precorrection on behavioral incidents	DePry, R. L., & Sugai, G. (2002). The effect of active super-vision and pre-correction on minor behavioral incidents in a sixth grade general education classroom. *Journal of Behavioral Education, 11*(4), 255–267. https://doi.org/10.1023/A:1021162906622
Empirical Study	A study that investigated the effects of precorrection on the	Haydon, T., DeGreg, J., Maheady, L., & Hunter, W. (2012). Using active supervision and precorrection to improve

	transition behaviors of middle school students	transition behaviors in a middle school classroom. *Journal of Evidence-Based Practices for Schools, 13*(1), 81-94.
Systematic Review	Review detailing prior precorrection studies completed	Ennis, R. P., Royer, D. J., Lane, K. L., & Griffith, C. E. (2017). A systematic review of precorrection in PK-12 settings. *Education and Treatment of Children*, *40*(4), 465-495. doi:10.1353/etc.2017.0021.

A Universally-Delivered Intervention

One of the many benefits of precorrection is that it requires minimal training and can be used with all youth, making this strategy one that can be implemented by any staff member within an AE setting no matter their specific role, responsibilities, or pedagogy (Sobeck & Reister, 2020). The universality of precorrection makes it ideally suited for AE settings in which there are many individuals serving in various capacities as staff. It is important to note that a facility staff member (e.g., classroom teacher) who is trained and knowledgeable regarding precorrection can train other staff within a facility to deliver the intervention. Through the use of a low-intensity behavioral strategy such as precorrection, facility staff can ensure that the needs of the youth in their care are met. Within this manuscript we have detailed a targeted example to support Josh. It is important to note that precorrection plans can be developed for one or a group of students, depending on the current need. If several youth in Josh's class were experiencing similar challenges, the plan could be adapted to meet the needs of all students.

Plan Ahead

It is important for staff to plan ahead when choosing to use precorrection and ensure that all 8 steps are fully implemented. Such planning allows for greater opportunities for youth behavioral improvements (DePry & Sugai, 2002). The time that is required to plan for precorrection can vary based on the behavior of concern and/or the number of contextual modification required. For example, the staff planning for precorrection should be able to easily identify the behavior of concern and the expected behavior based on facility rules and expectations. The staff that implements precorrection will need to allocate enough time to teach, rehearse, and reinforce the expected behaviors with the youth; and do so in the environment in which the behavior of concern is being exhibited, followed by monitoring for effectiveness.

Staff and Youth Buy-In

Additionally, facility staff who are interested in implementing precorrection within an AE setting should be mindful of both youth and staff buy-in relating to precorrection. It is important to secure youth buy-in for increased chances of success with interventions that are selected for use (Boden et al., 2020). Facility staff who choose to implement precorrection can aid with youth buy-in by involving the youth in the precorrection process, as appropriate, following through with each step including reinforcement, implementing the intervention to fidelity, and providing information on the intervention in easy-to-understand terms. As an extension of youth buy-in, it is essential to have facility staff buy-in to the intervention that is being provided to the youth for

the best opportunities for behavioral growth (Boden et al., 2020; Griffiths et al., 2019). Staff buy-in can be improved or increased by providing opportunities for staff to express their thoughts and concerns (e.g., staff voice) in relation to the intervention, empowering staff to implement the intervention to fidelity through initial and follow-up trainings, and working with staff schedules to ensure their time on the clock is maximized (Boden et al., 2020) as well as voice in any adaptations. By promoting the benefits of precorrection to both youth and staff, the ease of implementation, and the proactive nature of the strategy, staff buy-in can be attained.

Consistency of Staff

Throughout the course of the day in an AE setting, youth encounter a number of different staff across the varying environments. Specifically, the different shifts (e.g., day, night, weekday, weekend) of staff can create communication and consistency concerns across shifts in terms of how behaviors of concern are addressed and how youth displaying the expected behaviors (e.g., keeping hands and feet to self, maintaining personal boundaries) are reinforced. The numerous staff in these different environments should be considered when preparing to implement precorrection due to the potential impact on the fidelity of implementation of the intervention. Through staff trainings on precorrection (e.g., led by a facility staff member already knowledgeable regarding precorrection), meetings to review data (e.g., treatment team meetings, shift debriefings, weekly data reviews between staff collecting behavioral data), and daily collaborations between shifts (e.g., what expected behaviors are being displayed by the youth, what behaviors of concern still need to be addressed, are booster trainings needed), facility staff across different shifts can help implement precorrection to fidelity. Facilities can use facility-wide incident report data to determine which behaviors, times of day, and settings to focus their precorrection use (Ennis et al., 2012; Jolivette, 2016).

Plan for Generalizability

As the staff who are implementing precorrection are helping the youth to learn and engage in the expected behaviors for a specific setting or routine, staff also should think ahead to other contexts in which the youth can use those same expected behaviors for behavioral success (Ennis et al., 2017). This is referred to as generalizability or translating the learned behavior to other contexts. For example, in the scenario with Josh, Mr. Carlos can work with Josh on keeping his hands and feet to himself during other transition times (e.g., classroom to the gymnasium, gymnasium to the cafeteria). Additionally, other contexts for the learned appropriate behavior can include crowded versus less crowded hallways or having staff within close proximity versus having staff further in their proximity to the youth. By encouraging generalizability, Mr. Carlos and the other staff who work with Josh can maximize the efforts put into planning for precorrection and help Josh to engage in the same expected behaviors across settings within the facility.

Conclusion

Staff in AE settings can proactively address a wide range of youth behavioral concerns while also encouraging youth to display expected behaviors using precorrection. In the scenario listed, Josh benefitted from the implementation of precorrection because his behavioral needs were addressed in a proactive way, rather than simply relying on more reactive, punitive measures. Josh was provided with reinforcement from the facility staff when he engaged in the behavioral expectations, which encouraged Josh to continue displaying the expected behaviors. Finally, Josh

was encouraged to share his perspective on precorrection, which gave Josh the opportunity to provide his voice in relation to the treatment and programming. The benefits of precorrection for Josh are similar to the benefits that can be experienced by other youth within AE settings who receive this intervention. Precorrection should be considered due to the supported benefits for youth regarding their academic and behavioral progress.

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