An Evidence-based Education for Elementary Teachers to Manage Students' Misbehaviors

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Author Note

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Abstract

Background and Purpose: Student misbehaving at a K-8 school in the Southern United States stresses out teachers and hinders other students from their work. The lack of effective misbehavior management strategies was disturbing the teachers. Guided by the balancing theory of relationships, this project aimed to inform elementary teachers about the "5:1 positive to negative interaction ratio with their students" and to evaluate their sense of efficacy in managing student misbehavior after education. ***Methods:*** Nine teachers (44% of teachers have age 40-49 years, 78% are non-Hispanic white, and 56% have 10-19 years of teaching experience) provided consent to participate in the project voluntarily. They filled out a pre-test survey and attended an evidence-based presentation at a staff training section on a 5:1 positive-to-negative interaction ratio with the students. An email with a link was sent to them for an online post-test survey two weeks following the presentation. Descriptive and non-parametric statistics were conducted to describe the variable distribution and compare scores of the “Teachers’ Sense of Efficacy” short-form scale over time. ***Results:*** The findings showed increased teachers’ sense of efficacy after the education although the difference was not statistically significant. The efficacy of student engagement had a small effect size (Cohen's d= .37), and the efficacy of instructional strategies had a medium effect size (Cohen's d= .66). ***Discussion/Conclusion:*** This evidence-based education may have a larger impact on elementary school teachers’ sense of efficacy if implemented within a larger sample and over a longer time.

Keywords: student, misbehavior, efficacy, elementary school teachers

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Student misconduct may endanger a positive learning environment that motivates students to focus on and learn more effectively. To de-escalate the student's misconduct, teachers must be aware of how to handle misbehavior in a variety of settings. Through the identification and management of problematic behaviors, teachers can help students meet academic goals and adhere to school procedures.

Background and Significance

The problem and Population Affected

Student behavior in school has been identified as a strong predictor of a conducive classroom environment. When certain actions occur that can be defined as misbehavior, the classroom can become a tense environment, and learning can suffer. Misbehavior in the classroom is a serious challenge to learning, poses a risk to students' academic achievement, and is a significant source of stress for teachers (Narhi et al., 2017). Student misbehaviors interfere with class activities, hinder students, and teachers from accomplishing their goals, and ruin the conducive learning atmosphere (Kholis, 2018). Studies show that dealing with disruptive students is the most frequent challenge for teachers. Disruptive students can be stubborn and have outbursts for no apparent reason, disrupting the regular schedule of the classroom, disconnecting socially, or being miserable, drowsy, or grumpy, which affects the entire class (Rappaport & Minahan, 2022). Issues with classroom management caused by student misconduct have been one of the most prevalent indicators of teacher stress and a barrier to teacher motivation (Shamnadh & Anzari, 2019). Student misconduct is the root cause of teacher burnout and has been linked to higher levels of emotional exhaustion, social withdrawal, and worse levels of personal accomplishment in teachers (Huk et al., 2018). More emotional exhaustion and less job passion were indicated by teachers whose classes had more disturbances, tardiness, or disciplinary difficulties (Aldrup et al., 2018). An increased likelihood of student disobedience and a lack of efficient solutions were

connected to a teacher's heightened worry over classroom management (Camacho & Parham, 2019). The ability to manage challenging conduct is a skill that effective teachers must possess (Miller, 2022).

Purpose and Rationale

Teachers must use effective ways to foster a peaceful and favorable learning environment since student misbehaving in the classroom is upsetting and adverse to outstanding learning. This project's goal was to provide evidence-based education to elementary school teachers at a K-5 school in the Southern United States about the "5:1 positive to negative interaction ratio with students" and evaluate teachers' perceptions of their efficacy in dealing with students' misbehaviors after the education. Students behaved better in class, exhibited greater academic engagement, displayed less disruptive behavior, improved classwide on-task performance, and teachers reported being satisfied with classroom management as the ratio of positive to negative contact with students increased (Cook et al., 2017). The 5:1 ratio can help teachers create situation-appropriate responses to dealing with misconduct while upholding a positive learning environment and classroom activities.

Epidemiological Data

The National Center for Education Statistics (2018) reports that between 2011 and 2012, 41.3 percent of educators in public schools in Arizona acknowledged that student misconduct interfered with their ability to teach, 44.5 percent stated that student tardiness and class cutting interfered with their ability to teach, 67.9 percent acknowledged that other teachers had imposed school rules, and 83.4 percent revealed that the principal had enforced school rules. 56 percent of schools indicated that in 2021–2022, there were more disruptions in the classroom due to student misconduct than in years before the Covid epidemic (George, 2022). Forty-six percent of schools reported an increase in physical threats and fighting (George, 2022).

National Initiative

The Center on Positive Behavioral Interventions and Supports (PBIS), which receives funding from the Office of Special Education Programs (OSEP) and the Office of Elementary and Secondary Education (OESE) of the U.S. Department of Education, assists schools, districts, and states in developing the capacity of their systems to implement a multi-tiered approach to social, emotional, and behavioral support (PBIS, 2022). The overarching goal of PBIS is to increase the efficacy, efficiency, and equity of schools and other organizations (PBIS, 2022). All kids, including those with impairments and those from marginalized groups, have improved social, emotional, and academic achievements because of PBIS (PBIS, 2022).

Internal Evidence

The teachers at a K-5 school in the Southern United States are dissatisfied with the lack of effective classroom management strategies and report significant challenges with student misbehaviors. The primary aim of this school is to give students an excellent, proper education using an art- based educational system that offers a range of learning opportunities through various platforms to inspire students to pursue lifelong learning and give them a platform to express their skills and talents. According to the principal of the school, if something goes wrong in the classes, students may crawl on the floor, run around, throw things on the ground, disregard teachers, yell, or shut down, impacting teachers' classroom management (M. Koperno, personal communication, October 7, 2021). When these kids were assisted in realizing their wrongdoing, they became irritated and disobedient. Every time a student misbehaves, other pupils are diverted from their work, and instructor stress levels increase, decreasing their capacity to do quality work. Correct student misbehavior de-escalation and misbehavior control

techniques are not known to teachers. The general functioning of the class and classroom norms are being jeopardized by students' misbehavior.

PICOT Question

In elementary school teachers (P), how does education on a 5:1 positive to-negative interaction ratio with students on handling student misbehavior (I), compared to no education (C), improves teachers' perception of their efficacy in dealing with students' misbehavior to maintain a productive classroom?

Evidence Synthesis

Search Strategy

The following electronic databases were used: PubMed, APA PsycInfo, and CINAHL to conduct a thorough search of the literature to address the PICOT topic. These databases were selected due to their applicability to the subjects of student misconduct and management techniques. These databases are also renowned for their accuracy and financial support of research into human behavior and mental health. Additionally, a search of grey literature was conducted, including federal government documents and Arizona State government studies on student misbehavior.

Keyword Selection

The databases were looked up using words, word combinations, and synonyms that fitted every part of the PICOT query. The following keywords were used to search the databases: *teachers, educators, instructors, trainer, tutor, mentor, elementary school teacher, elementary teacher, primary school teacher, primary classroom instructors, training, educating, coaching, learning, retraining, instructors training, teachers training, teachers' education, student misbehavior, children misconduct, off-task behavior, disruptive behavior, student misconduct,*

student disobedience, productive classroom, effective classroom, efficient classroom, constructive classroom, efficient schoolroom, and successful classroom. More results were retrieved when an asterisk or a combination of keywords was used. The use of a MeSH term helped to narrow down the results. Keywords or phrases were combined using the AND and OR Boolean operators.

Initial and Final Search Yields

PubMed

In PubMed, the terms *elementary school teacher, teacher training, student misconduct, AND effective classroom* yielded only two results. The results were increased to 1414 by employing a combination of keywords with Boolean operators and an asterisk. To find the exact words, quotations were used. The combination of MeSH phrases and filters such as publication within the last five years, age limit (6-12 years), randomized control trial, systematic review, meta-analysis, English language, peer-reviewed journal articles, and clinical trial yielded a final result of 30. Eight articles were selected for further review as they were thought to be the most relevant to PICO.

CINAHL

In the CINAHL database, the key phrases *effective classroom, teachers, training, AND student misconduct* generated zero results. By combining keywords with Boolean operators, applying equivalent subjects, and utilizing asterisks, the results increased to 109. The age limit (6-12) and peer-reviewed journal articles were utilized to narrow down the findings to nine. The result decreased to four when a publication limit was applied (2017-2021). Two articles were chosen for deeper review as they were the most pertinent to PICO.

PsycInfo

The initial search of APA PsycInfo produced 10,829 results using a combination of keywords, Boolean operators, and asterisks. After applying filters such as publication date (2017-2022), age (6-12), peer-reviewed, randomized control trial, systematic review, meta-analysis, and clinical trial, the final result was 54. Ten articles were chosen for additional review because they were most related to PICO.

Inclusion and Exclusion Criteria

After the abstracts and titles were examined, articles addressing classroom management and student misbehavior management techniques were added to the final yield. After performing quick critical reviews on 20 identified studies, the final 10 publications for this literature review were selected. These ten investigations consist of one cross-sectional study, one multiple baseline study, five randomized controlled trials, one reversal study, one pretest-posttest study, one qualitative research, and one quasi-experimental randomized-block study. Articles that did not cover misbehavior management strategies and those that only addressed the causes of student misconduct or the impact of student misbehavior and articles before 2017 were excluded.

Narrative of Literature Review, Foundation of Research, and Evidence of the Clinical Issue

Ten papers were chosen after a thorough and rigorous study of the research based on the knowledge, they provide regarding controlling misbehavior among school pupils (see Appendix A, Table A1). Melnyk and Fineout's (2019) Overholt's fast critical assessment was used to analyze the studies. None of the research revealed any indication of bias, seven of the ten studies received funding (see Appendix A, Table A1). Despite having a tiny sample size, three of the studies were chosen because they each addressed a different aspect of the PICOT question. The literature evaluation also covers three international studies and seven American studies (see

Appendix A, Table A1). Except for one study, which included only male students with diverse ethnicities, all studies included students and teachers of all genders, ethnicities, and cultural backgrounds (see Appendix A, Table A1). Although all studies are quantitative, they all have unique designs. Half of the research contains level II evidence, while the other half contains level VI and level IV evidence (see Appendix A, Table A1, Table A3). The chosen studies' designs are as follows: single-subject design & reversal designs, randomized controlled microtrial, quasi-experimental randomized-block pre-post control design, blocked cluster random assignment design, multiple baseline design, uncontrolled pretest-posttest design, and longitudinal design (see Appendix A, Table A1).

Each study focused on dealing with misbehavior in elementary school kids (see Appendix A, Table A1). The variety of research techniques, contributing variables, study sites, and sample shows that there are numerous ways to identify and address student misconduct. Each study included a thorough explanation of how independent variables affect dependent variables (see Appendix A, Table A1). This evaluation of the evidence indicates that CW-FIT, CW-FIT Tier 2, social work group intervention, and teacher training on the 5:1 ratio are all helpful in enhancing on-task conduct in the classroom (see Appendix A, Table A3). It has been demonstrated that teacher training on the 5:1 ratio, CW-FIT, teachers' use of praise, and CW-FIT Tier 2 all improve teachers' praise and reprimands (see Appendix A, Table A1, Table A3).

Additionally, the results of this review demonstrate that CW-FIT, kinder training, or ABI/CBI can be used to enhance target students' on-task behavior (see Appendix A, Table A3). Evidence suggested that teacher training and IY TCM training on a 5:1 ratio improved academic success results (see Appendix A, Table A3). The two interventions—CW-FIT and teacher training with a 5:1 ratio—were scrutinized for their social validity. The majority of the kids and the teacher preferred CW-FIT, but the teachers felt that the 5:1 ratio method

was more workable, logical, and effective (see Appendix A, Table A1, Table A3). The relationship between teachers and students, as well as teachers' understanding of off-task actions, were only examined in one study (see Appendix A, Table A3). All of the instruments used in these investigations, including the rating scales, evaluation techniques, questionnaires, direct observations, and computerized testing, were valid and reliable (see Appendix A, Table A1). Furthermore, statistical data analysis was utilized in each study to determine whether the results were helpful or not (see Appendix A, Table A1).

Discussion on Evidence Synthesis

The integration of these study results shows that misconduct among elementary school children can be effectively addressed to enhance classroom function and teachers' perceptions of their effectiveness in handling students' misbehavior. Although the studies employed a variety of approaches and strategies to deal with the misconduct among primary school kids, the end outcome was an improvement in classroom performance and instructors' perceptions of dealing with student misconduct. According to the data, in the ten-research examined, combining CW-FIT and CW-FIT Tier 2 and training teachers in a 5:1 ratio produced better results. Training instructors on a 5:1 ratio, one of the two interventions listed above, can boost class-wide on-task behavior, academic success outcomes, instructor praise, and instructor reprimands, all of which support a positive learning environment. Teachers also consider the 5:1 ratio technique to be reasonable, acceptable, and effective.

The classroom's overall on-task behavior, intervention integrity, and instructor praise and reprimands are all improved when CW-FIT and CW-FIT Tier 2 are combined. CW-FIT and CW-FIT Tier 2 were well-liked by the instructor and the majority of the students, but since it wasn't reviewed, it's not clear if they will help academic performance results. The research suggests that training teachers to use a 5:1 ratio is a workable intervention for fostering and maintaining a

constructive classroom atmosphere and enhancing instructors' perceptions of handling students' misbehavior. What is known and what is unknown about a research question is made clearer through evidence synthesis (Gough et al., 2020). Researchers can gather all relevant information on a research topic using evidence synthesis, which could be useful for identifying knowledge gaps, creating a solid evidence base for best-practice recommendations, or helping practitioners and policymakers (London School of Hygiene & Tropical Medicine, 2022).

Theoretical Framework & Implementation Framework

Theoretical Framework

The Balancing Theory of Relationships was applied in this project. According to psychologist Dr. John M. Gottman's studies on relationships and marital stability, a successful marriage has a "magic ratio" of positive to negative interactions of roughly 5 to 1, which is known as the Balancing Theory of Relationships (Johnson, 2017). Negativity is most harmful when it isn't counterbalanced with nearly five times as much optimism (Gottman, 1993). The 5:1 approach instructs teachers to find at least 5 good things about a student who has received corrective action for misbehavior and to praise the student in front of the class before class ends to compensate for the bad remarks. Teachers have a natural human proclivity to focus on disruptive, inappropriate behavior that contradicts their goals rather than desired, acceptable acts (Cook et al., 2017). As a result, teachers are more likely to have negative interactions with their students than positive interactions (Cook et al., 2017). To increase the proportion of good to negative contact with students, instructors at the project site were trained and supported. Teachers were inspired to take the initiative to use constructive redirections to deal with disruptive student behavior. If a student opted to sit in the back row and talked with friends, the instructor might ask the student to move to the front row so she could speak with the student and commend or appreciate him or her for coming to class and engaging in the activities. Before class ended, the teacher should try to identify five good qualities about this student so she could recognize them in front of the whole

group. This would motivate the student to participate in class activities and discourage disruptive behavior, enabling the teacher to successfully manage the class. Cook et al. (2017) found that providing teachers with information about the 5:1 ratio led to a significant improvement in the ratio of positive to negative interactions between teachers and students, as well as a significant drop in disruptive behavior and an increase in academically engaged time. This improvement in student behavior supported classroom management.

Implementation Framework

The implementation phase of the project was guided by the Rosswurm and Larrabee (1999) model since the goal of the project was to alter how primary school pupils' misbehavior was handled. This model was selected because it outlines a step-by-step procedure for integrating evidence-based change into practice. The procedure included 1) evaluating the need for practice change; 2) establishing a connection between the issue, the intervention, and the outcome; 3) generating the best evidence; 4) creating practice change; 5) installing and analyzing the change in practice; and 6) incorporating and sustaining change in practice (Rosswurm & Larrabee, 1999).

The primary stakeholders and their roles were identified in the first step, which also examined the need for practice change. Both internal and external data showed that teachers frequently fail to create a learning environment that was favorable to learning and that student misconduct interfered with the smooth operation of the entire class. In the second stage, a connection between the intervention and the desired outcomes was made. The data showed that training teachers to use a 5:1 ratio resulted in a substantial rise in positive-to-negative interaction ratios between teachers, as well as a significant decrease in disruptive behavior, an improvement

in class-wide on-task behavior, more academic engagement time, and enhancing teachers' perceptions of their efficacy in working with students' misconduct. An analysis of the literature and the synthesis of the data was part of the third step.

The analysis of the academic literature and synthesis of the data revealed that teaching teachers to employ a 5:1 ratio could aid in improving student behavior. The effectiveness, risks, and benefits of the intervention were assessed. During the design phase, proposed changes were determined, the project's required resources were decided, the implementation strategy was outlined, and the project's outcomes were determined. In this project, educational intervention techniques and pre-and post-test evaluation designs were used, and a “Teachers' Sense of Efficacy” scale (TSES) was used to assess instructors’ perceptions of their efficacy in dealing with students’ misbehavior. The presentation of the project, the evaluation of the processes and results, and the choice to modify, adapt, or reject practice change were all part of the implementation and evaluation of change in the practice phase (Rosswurm & Larrabee, 1999). Communication with stakeholders about proposed changes, in-service training on change in practice, incorporation of standards into practice, and analysis of processes and results are all part of the phase of integrating and maintaining change in practice (Rosswurm & Larrabee, 1999). These procedures served as a general roadmap for carrying out the project.

Methods

Ethical Considerations

Participation in this project involved no physical risks. Any project activities and survey questions that participants did not want to complete could be skipped. The consent form was included at the beginning of the pretest, participants who completed the pretest indicated their consent for participation. The project's details, including the advantages and disadvantages of joining, as well as the voluntary nature of participation, were explained to potential participants. Only the principal investigator (PI) and the co-investigator (Co-I) had

access to data via the secure web application REDCap. Before dealing with the participants or having access to the data, the PI and Co-I had formal training on the protection of human subjects. The ID for the pretest and post-test surveys was a nickname that each participant creates on their own. There were no questions requesting personally identifying information (name, birthday, address, etc.). Only aggregated and de-identified data were included in the paper. The project protocol was examined and approved by Arizona State University IRB.

Settings and Participants

The project site located in the southern United States is a competitive K-5 academic institution that emphasizes the arts and technology. It combines academics with art and technology to create a more practical learning environment that caters to various student learning styles (Mesa Arts Academy, n.d.). This school has a student population of 228 students with a single classroom for each grade level (Mesa Arts Academy, n.d.). The principal, who served as the site champion, claimed that elementary students frequently misbehaved. According to the principal, the stoplight Behavior Management chart is currently used to help children comprehend appropriate behavior and classroom norms, however, it is no longer beneficial as teachers have reported an increase in misconduct by some students. The principal organized the project meetings, shared information about the problem, and participated in project planning and execution. The participants were elementary school teachers. The ability of the teachers to work effectively was damaged by student misbehavior. Teachers were not aware of adequate de-escalation and misbehavior control strategies for students, which could aid with classroom management. As a result of disruptive peers, other students in the classroom were diverted from their schoolwork.

Project Description

During the Wednesday professional development meeting of the school in November 2022, the Co-I handled participant recruitment and consent. All elementary teachers got a flier outlining the project during the recruitment process, and those who exhibit interest in taking part were reviewed and given approval if appropriate. The PowerPoint presentation was delivered in the school room which was convenient for the participants after the participants gave their consent. The Co-I introduced herself, the project's goal, its process, and any potential advantages and hazards for participants. The research-based benefits of maintaining a 5:1 ratio of positive to negative contact with students were discussed in the PowerPoint presentation. Co-I offered discussion and responded to queries from participants. Before the presentation, the pretest was administered, and 2 weeks following the presentation, the posttest. All variables were described using descriptive statistics (mean, standard deviation, and percentages), and non-parametric statistics were used to compare the scores over time.

Data Collection Plan and Measures

Data was gathered before (pretest) and 2 weeks following the presentation (posttest). Pretest (T0) includes sociodemographic questions (such as age and years of schooling) as well as items from a scale "Teachers' Sense of Efficacy" (TSES). According to Tschannen- Moran and Woolfolk (2001), the short form of the TSES is trustworthy (Cronbach's alpha =.90). The purpose of the TSES questionnaire is to give the evaluator a better understanding of the types of problems that teachers encounter when carrying out their tasks in the classroom. From the 12 questions on the "Teachers' Sense of Efficacy Scale" (TSES) short form, three subscales were developed: efficacy in student engagement, efficacy in instructional strategies, and efficacy in classroom management. Each subscale has four TSES items. Each response is graded according to the amount of influence teachers have, with scores ranging from 1 to 9 with categories for nothing (score=1), very little (score=2-3), some influence (score=4-5), quite a bit (score 6-7), and a great deal (score 8-9). The TSES scale and seven evaluation items made up the posttest

(T1), which was used to gather feedback from participants after the presentation. Before the presentation, the Pretest (T0) was handed over to each participant. Participants who completed the T0 at the start of the Pretest (T0) signed the consent form, indicating their agreement to participate. They were given instructions on how to make a special nickname that they could use as their participation ID. Participants were asked to complete an online posttest with the same participant ID two weeks following the presentation at the time and location set by the school. It took 10 to 15 minutes to finish each survey. To ensure that the survey data is anonymous, the ID was used to link survey data obtained over time. The databases and online surveys were managed using REDCap, a data management program.

Data Analysis

All variables were described using descriptive statistics (mean, standard deviation, and percentages), non-parametric statistics (Wilcoxon Signed Ranks test) was used to compare the scores over time, and effect sizes were calculated due to the small sample size. Data were examined using SPSS 27.0.

Budget and Funding

The budget included all expenses, direct and indirect. Direct expenditures include things like printing study materials, Zoom fees, travel costs, and the price of snacks and drinks. The indirect costs include purchases of office supplies, training materials, and internet expenses. Funding for this project is not currently available. The student/Co-I provided financial support for the project.

Results

The participants have age ranges from 20 to 59 years and the majority (44%) of teachers have age between 40-49 years (n=4). About 22% (n=2) of teachers belong to Hispanic/Latino ethnicity and the rest are non-Hispanic white(n=7). More teachers (56%) have teaching experience between 10-19 years (n=5). About 67% (n=6) of the teachers have a professional or graduate degree and 56% (n=5) had received similar training before. The TSES short form was used to

assess teachers' beliefs and learn more about the issues that hinder them in their work with students. The mean score of efficacy in student engagement was 7.33 (Std=1.28) before education and 7.93 (Std=0.86) post-education. The change over time was not statistically significant differences (Z= -.69, p= .49) although the mean score had increased as expected. The mean score of efficacy in instructional strategies was 7.25 (Std=.73) before the education and 7.95 (Std=.76) after the education. The change over time was not statistically significant differences (Z= -1.29, p=.20), even though the mean score had increased as anticipated. The mean score efficacy of classroom management before education was 7.44 (Std=.78), and after education was 7.60 (Std=0.68). The change over time was not statistically significant differences (Z= -.41, p=.68) although the mean score had increased as expected.

The effect size of the three subscales was also calculated. Cohen's *d* 0.20 indicates a small effect size, Cohen's *d* 0.50 implies a medium effect size, and Cohen's *d* 0.80 represents a large effect size (Grove & Cipher, 2020). The efficacy in the student engagement subscale, had a small effect size (Cohen's *d*= .37), the efficacy in the instructional strategies subscale had a medium effect size (Cohen's *d*= .66), and the efficacy in the classroom management subscale had a very small effect size (Cohen's *d* is .06). The efficacy of instructional strategy showed the greatest improvement among the three subscales due to its medium effect, whereas student engagement has shown some progress and classroom management has not.

In the project evaluation, the information presented was appropriate for addressing teachers' understanding of student misbehavior management has obtained the highest mean (4.80) score. The topics covered today are pertinent to what I need to know as a teacher received the second highest mean (4.60). My understanding of student misbehavior management has increased, attained the third-highest mean (4.40). I am more at ease employing a 5:1 positive-to-negative interaction ratio with students, and after this presentation, I will change how I respond to student misbehavior, which received the lowest mean (4.20). The findings demonstrated that the project intervention led to positive changes in teachers' perceptions of their effectiveness in dealing with student misbehavior.

The project evaluation reveals that teachers require additional assistance to use a 5:1 ratio of positive to negative interactions with students and to alter their responses to student misbehavior. Therefore, the 5:1 ratio may be incorporated into new teacher training programs and in the continuing education of teachers which helps them to promote positive interactions with their students.

Discussion

Cook et al. (2017) discovered that a 5:1 ratio of positive to negative encounters with students reduced student misbehavior and teachers in this study agreed that the 5:1 ratio was acceptable, feasible, and effective. A teacher who maintains a high positive-to-negative interaction ratio will be helpful to a student who becomes quickly frustrated with their academic work (Sabey et al., 2019). In this project, all three subscales (efficacy in student engagement, efficacy in instructional methods, and efficacy in classroom management) showed improvement after education on the 5:1 ratio. Both instructional strategy and student engagement effectiveness have improved, as indicated by the effect size. The 5:1 positive-to-negative interaction ratio is helpful because it gives students a sense of importance and respect in the classroom, which motivates them to follow the rules (Wise, 2021). The teachers agreed that the information provided during education was related to what a teacher should know and was appropriate for addressing teachers' understanding of managing student misconduct. Overall, the project led to an improvement in the teachers' belief in their efficacy in managing challenging students. The small sample size (n=9 in the pretest, n=5 in the posttest) and the fact that most of the teachers were very experienced and had similar training in the past may influence the results of the project. A future study with a larger and more representative sample of teachers is needed to confirm the effect of a 5:1 ratio of positive to negative interactions with students.

Conclusion

Teachers must employ efficient techniques to establish a comfortable and friendly learning atmosphere because student misbehavior can hamper successful learning. An increased likelihood

of student misbehavior and a lack of efficient strategies were connected to a teacher's heightened stress over classroom management (Camacho & Parham, 2019). Therefore, the project intends to teach and motivate the teachers at the project site to employ a 5:1 positive-to-negative interaction ratio with their students. This can help teachers acquire skills and practices that promote good relationships with their students. The evidence reveals that teachers who adopt a 5:1 ratio are effective at managing student misbehavior and keeping the classroom under control. The project also seeks to evaluate teachers' belief in their ability to manage student misbehavior after education. The results reveal that the project had an impact on teachers' confidence in their capacity to control student misconduct, even if the project's outcomes were not statistically significant. Incorporating a 5:1 positive-to-negative interaction ratio with students into teacher training programs is therefore beneficial for teachers. Thus, teachers can manage difficult students more effectively and students can engage well in classroom activities. Teachers' stress levels will also decrease, making it easier for teachers to control the class.

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Appendix A

Evaluation and Synthesis Tables

Table A1
Evaluation Table for Quantitative Studies

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice. Generalization
Naylor et al., (2018). The Effects of the CW-FIT Group Contingency on Class-wide and Individual Behavior in an Urban First Grade Classroom. **Country**: U.S. **Funding**: The Office of	Systematic instruction model (i.e., direct instruction, model, and role-play).	**Design:** A reversal design is used. **Purpose:** To evaluate how a multi-component intervention CW-FIT affected the behavior of first-graders in an urban elementary charter	**N= 12** -11 first-grade kids and their teacher. **Demographics:** - Students were male and female. - Students from different countries. - 3 target students (LY, AT, FH) are African emigrants with misconduct. -Most students qualified for free lunch. **Setting:** The first-grade classroom at a CES.	**IV1:** CW-FIT intervention. **DV1:** TS OB **DV2:** Class-wide OB **DV3:** Teacher behavior. **Definitions:** OB means staying in the instructional area, following instructions, and paying attention in class. -General disruptive means performing any inappropriate or unacceptable behavior.	**Tools:** MOOSES. -20-min observations using PPM and a 30-s MTSP. FCSVQ, 5-point LS, and OQ. **Validity/Reliability:** - Two observers were present to collect data. -A additional observer was used. - Observers were trained to 90% criteria for two observations.	**Statistical Tests Used:** Mean (M) is used to describe study variables. Descriptive or summary statistics are used.	**DV1:** OB of 3TS improved, LY has M of 99%, FH has M of 97%. -DB reduced in each TS. **DV2:** For class OB rose (M=84%). - The GC was effective for a large group of students and high-risk individual students.	**Level of Evidence**: VI **Strengths**: Quantitative/Empirical Study. High-risk kids had fewer disruptions and more OB. Effective intervention for the entire class. -Consistent teacher praise and reprimands. **Weakness**: Fewer participants and frequency of BS taught not assessed. -Maintenance of OB and DB not assessed. -Degree of EC is affected by trends in the disruptive data,

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice. Generalization
Special Education and Rehabilitation Services, Department of Education. **Bias**: None listed.		school with a high percentage of ELL.	- Most students were ELL. -School followed SWPBS. -School used DIC. - More focus on science and social studies. **Exclusion:** None listed. **Attrition:** None.	-Praise/points are any verbal comment, physical expression, point counted, or hole-punch delivered as social attention in return for suitable behavior. -Agreement is defined for a group as both observers observing the same behavior.	-IOA percentages were computed. -PF data were collected in 25% of observations. -Used direct observation and the average PF was 89%. - Students and teachers completed SV assessment. Sufficient baseline data was gathered.		**DV3:** Teacher's praise and point delivery to reprimand ratio climbed to 7.5:1. - CN of praise led to the improvement in OB and a decrease in DB	IOA not obtained during baseline, and low range for DB agreement. **Feasibility**: Simple intervention influence both group and individual behavior **Application**: Beneficial to teachers and schools as it is simple, practical, evidence-based, and effective for problematic students.
Chuang et al., (2020). Effects of a Universal Classroom Management Teacher Training Program on	Hierarchical linear regression model.	**Design:** Randomized controlled trial. **Purpose:** Investigate the impact of IY TCM	Teachers (N=105). Students (N=1817). **Demographics:** -TP female 97% -TP white 75% -TE 11 years. -Students: male 52%,	**IV1:** IY TCM training **DV1:** Academic achievement outcomes. **DV2:** Social-emotional outcomes.	**Tools**: -TOCA-C - Direct observation: rate per minute of aggressive acts. - WJ-III ACH - MOOSES **Validity/Reliability:**	**Statistical Tests Used:** -Zero-inflated Poisson (ZIP) Analysis. -Descriptive statistics.	**DV1:** Students with high BA showed more progress in math achievement ($p < .01$) **DV2:** Students with BA	**Level of Evidence**: II **Strengths**: Results confirm IY TCM's capacity to deal with student aggression. -RCT design. -Observers are blinded to intervention status. **Weakness**: Small effect size.

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Elementary Children with Aggressive Behaviors **Country:** U.S. **Funding:** The United States Department of Education's Institute of Education Sciences **Bias**: None found.		intervention on the outcomes of elementary school children with aggressive conduct.	black 76%, with FRM 61%, and with SES 9%. **Setting:** 9 primary schools in the urban Midwestern education system. **Exclusion:** Not listed. **Attrition:** 6.4% to 7.3%.	**DV3:** TP Classroom management skills. **Definitions:** None.	-TOCA-C had amassed substantial evidence of VR. -IC of AS in TOCA-C from the sample has alpha .89. - AS: reliability of 6-month test-retest was.75. Observers trained to 85 % reliability utilizing films and practice sessions. - 30% of observations had reliability checks. -Observers were continuously supervised -Utilized MOOSES software. - Used WJ-III computer scoring software.	-Poisson model.	improved their emotional management ($p < .001$). -Students with high BA have better prosocial behaviors ($p<.001$). **DV3:** Teachers improved in CMS.	-New student hostility subscale requires testing. -Possible decreased power to identify moderation effects. -Unable to rule out expectancy impacts for instructors in TG. -Findings' generalizability is restricted. **Feasibility**: Children with aggressiveness benefit academically and behaviorally from IY TCM. **Application**: IY TCM assists students with aggressive behavior to avoid acquiring further social or academic issues.

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					- Strong psychometrics are applied in WJ-III ACH.			
Streimann et al., (2019). Effectiveness of a Universal, Classroom-Based Preventive Intervention (PAX GBG) in Estonia: A Cluster-Randomized Controlled Trial **Country:** Estonia **Funding:** The European Social Fund and Estonia's	The logic model of PAX GBG-Nurturing environment framework.	**Design:** Cluster-randomized waitlist-controlled trial. **Purpose:** Assess the effects of the PAX GBG on first-grade students' mental health and behavior.	Teachers(N=42). Students(N=708). **Demographics:** -In the 2016/17 academic year, students were in first grade. -Age 7 to 8 years old. -In the 2017/18 school year, kids were in second grade. -Girls 50.1% and boys 49.9%. -42 schools participated. -First-grade teachers. - Almost all the teachers were female. -Participants speak the Estonian language. - Instruction language was Estonian.	**IV1:** PAX GBG intervention. **DV1:** Children's mental health and pro-social behavior. **DV2:** Teacher's self-efficacy. **Definitions:** None.	**Tools**: -Rating scales. -Assessment forms. -Questionnaire. -A visual computerized Go/No-Go task. -Structured observations using the PAX IR. -TSR **Validity/Reliability:** -Internationally, the SDQ is valid and reliable. - Prior studies have shown that the SNAP-IV questionnaire is reliable.	**Statistical Tests Used:** GEE with the sandwich estimator. -Inverse probability weighting (IPW) was used. -Mixed-effects linear regression - Intra-cluster correlation (ICC). Moderation analysis.	**DVI:** The intervention group's average total MH difficulties score was 1.6 units lower than the control group's ($p = 0.014$) during the second academic year. - MH and behaviors were moderately affected by the intervention (Cohen's d= -0.39).	**Level of Evidence**: II **Strengths**: -Every school from a pair was randomized. -Attrition rate 7.2%. - Within two years, the data was collected twice. -Utilizing a multi-informant strategy and a variety of measuring tools. -Few missing data values for the primary result. **Weakness**: The variables used to match were unrelated to the outcomes. - There were only a few clusters in this study. -Many class sizes changed after the matching was done.

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Ministry of the Interior supported the study. **Bias**: None found.			**Setting:** Primaryschools in Estonia. -First-grade classroom. **Exclusion:** Students needing special education. - Single-gender classes. -EBP-enabled primary schools. **Attrition:** Students= 51 (7.2%).		- Validity and dependability have been demonstrated by TSES. -The IC of the TSES was high (alpha >0.9), whereas the IC of the CB measure, was adequate (alpha > 0.7).		**DV2:** Teachers' evaluations of their self-efficacy as educators improved.	**Feasibility**: Children at risk of MH problems and students with low prosocial behavior benefited from the PAX GBG intervention. **Application**: PAX GBG had a favorable and long-term impact on teacher self-efficacy and classroom behavior.
Reinke et al., (2018). The Incredible Years Teacher Classroom Management Program: Outcomes from a Group Randomized Trial **Country:** U.S.	Three-level hierarchical linear models (HLM).	**Design:** A blocked cluster random assignment design. **Purpose:** To use a large group RCT to examine the efficacy of	Teachers(N=105). Students(N=1817). **Demographics:** - Kindergarten to third-grade students. - From the Midwestern part of the USA. - Teachers: female 97%, white 75%, AA 22% & other 3%.	**IV1:** IY TCM training **DV1:** Teacher's implementation skills. **DV2:** Teacher's proactive management implementation. **DV3:** Students' social behavior. **DV4:** Academic Outcomes. **Definitions:** None.	**Tools:** TOCA-C - Direct observations. - T-COMP - WJ III ACH **Validity/Reliability:** - Data collected by well-trained independent researchers. -TOCA-C has a factor structure and strong evidence of	**Statistical Tests Used:** - SAS PROC MI -SAS PROC MIXED - SAS PROC MIANALYZE	**DV1:** Teachers' implementation skills substantially improved ($p < 0.001$) **DV2**: IY TCM teachers employed more proactive techniques ($p < 0.01$)	**Level of Evidence**: II **Strengths**: In youth with low baseline social competence, the intervention enhanced their social competence. - IY TCM reduces emotion dysregulation, which is beneficial to academic progress. - Prosocial behavior enhancements.

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice. Generalization
Funding: 5-year grant from the US Department of Education, Institute of Education Sciences. **Bias**: None listed.		the IY TCM program on student social-emotional, disruptive behavior, and academic results in schools.	-Students: males52%, white 22%, AA 76% & other 2%. -Students with FRPM 61%, and special education services 9%. **Setting:** -Nine Urban Schools. -PBIS was implemented in every school. **Exclusion:** Those who refused to participate (354) **Attrition:** Students =137 (7.5%).		subscale predictive validity. -T-COMP scales have good internal consistency, a constant factor structure across time, and the ability to distinguish between high-risk and normative groups. -The psychometric features of the WJ III ACH are strong.	-Moderation analysis. - ANOVA -Descriptive statistics.	**DV3:** Prosocial conduct ($p = 0.038$), overall social competence ($p = 0.032$), and decreased emotional dysregulation ($p < 0.001$). **DV4:** For students with lower proficiency levels, IY TCM promoted teacher-rated academic competency.	**Weakness**: No noticeable effects on disruptive behavior or focus issues. - The effect of IY TCM was limited as all of the schools consistently used PBIS. - Findings focused mostly on instructor evaluations. - Long-term follow-up lacking. - No data on the indirect effects of teacher behavior on student outcomes. **Feasibility**: Motivates teachers to adopt effective classroom management strategies. **Application**: IY TCM helps students develop prosocial conduct, emotional regulation, and social competency.

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Chen & Lindo (2018). The Impact of Kinder Training on Young Children's On-Task Behavior: A Single-Case Design **Country:** U.S. **Funding:** Funded by UNTCE, the Texas Counseling Association's JKEE Fund, and the Dan E. Homeyer Play Therapy	Filial therapy and Alfred Adler's individual psychology.	**Design:** A multiple baseline design and an experimental single-case methodology. **Purpose:** To examine how KT affected children's on-task conduct.	Teachers(N=3). Students(N=3). **Demographics:** Teachers: 1 Hispanic/2 Caucasian. -All-female teachers. Students: 2 KG/1 FG, 2-male/ 1-female, 1-biracial/ 2- Caucasian. **Setting:** 2 primary schools in a suburban school district in the U.S. southwestern area. **Exclusion:** Students & teachers must meet inclusion criteria **Attrition:** None	**IV1:** Kinder training. **DV1:** OB. **DV2:** Teacher-Student Relationships. **DV3:** Teachers' Understanding of OTB **Definitions:** None	**Tools:** DOF -DOF scoring software. -10-min observations **Validity/Reliability:** -Qualified Observers used. -For classroom observations, the mean r of IR was .88. -Observers had an overview of play therapy. -Treatment status of the students was hidden from the observers. -Examined observers' IOA on four practice instances. -Mean on-task IOA was 86 %.	**Statistical Tests Used:** - Mean (M) &Standard Deviation (SD). -Vertical analysis. -Tau-*U* statistic. -Variability analysis.	**DV1:** SP-1 has a small TET on OB (Tau-U =.47). -SP-2 has moderate to high TET on OB (tau-U=.74). -SP-3 has a large TET on OB (tau-U=.90). **DV2:** Enhancing teacher-student relationships. **DV3: P**ositive reactions to OTB of SP.	**Level of Evidence**: VI **Strengths**: Teachers' perspectives are better understood. - Relationship between teachers and students is enhanced. - Teachers' negative beliefs about students' misbehavior were altered. **Weakness**: Limited external validity, restricting the capacity to be generalized. -Few participants. - Extraneous factors occurrence. - Possibility of researcher bias. **Feasibility**: Elementary students demonstrating off-task conduct could benefit from KT. - KT is tailored to each teacher's specific needs.

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Research Award. **Bias**: None								**Application**: Children's academic engagement is boosted with KT.
Larkin & Crumb (2017). The Impact of Self-Esteem Group Work Practice with Rural Elementary Male Students **Country:** U.S. **Funding:** Not mentioned. **Bias:** None.	Group-work practice approach	**Design:** Uncontrolled pretest-posttest design. **Purpose:** To explore the impact of a social work self-esteem group on disruptive male students' self-esteem and classroom behavior.	Students (N=10). **Demographics:** -Male students 100% - Students from the 1st, 2nd, and 3rd grades. -Mean (M) age of 8.2 & SD of .919. -White students= 9. -AA student= 1 **Setting:** In northeast Georgia, a rural primary school. **Exclusion:** Students should meet inclusion criteria. **Attrition:** None.	**IV1:** Social work group intervention. **DV1:** SSE **DV2:** PCB **Definitions:** None	**Tools:** RSES -Coopersmith SEI. - Behavior grades. **Validity/Reliability:** -RSES has test-retest reliability, as per two studies, with correlations of.85 and.88. - RSES has high internal consistency, with a reproducibility coefficient of .92. - Concurrent validity of the Coopersmith SEI is high (r =.83). - Behavior grades follow a standard framework used in schools.	**Statistical Tests Used:** - Dependent t-test was performed. - Standard deviations (SD) and means (M) were done.	**DV1:** Between the pretest and post-test assessments, SSE improved SS (RSES scores, t = −3.2857, p = .0094.). **DV2:** Teachers detected a positive improvement in SCBs (t = 4.993, p = .0007).	**Level of Evidence: VI** **Strengths**: MS in grades 1-3 has a beneficial impact. - In 8 weeks, SPs' self-esteem and PCB improved. -RSES is a validated and quantifiable instrument. - Findings back with earlier researchers' assertions. **Weakness**: Small sample. - Absence of non-RS, a CG, and a singularly STM. -Unable to generalize the results. **Feasibility**: Results showed, that SSE and PCB improved in 8 weeks. -GWI supports student development.

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice. Generalization
								Application: GWI can enhance elementary MS self-esteem and CB.
Nelson et al., (2018). Improving Student Behavior in Art Classrooms: An Exploratory Study of CW-FIT **Country:** U.S. **Funding:** Funded partly by a grant from the IES and the U.S. DE awarded to the UK in cooperation	Effective classroom Management model.	**Design:** Single-subject design & reversal designs. **Purpose:** To find if CW-FIT is socially valid, if it improves student OB, if it enhances the teacher's PR ratio, and if art teachers apply CW-	Students (N=66). Teacher (N=1). **Demographics:** Hispanic-34, Caucasian-25, Asian-3, and Pacific Islander-4. -Male-35, Female-31. -Age 8 to 12. **Setting:** 2 third-grade classes and 1 fifth-grade class of title I- ES in suburban Utah. **Exclusion:** None **Attrition:** None.	**IV1:** CW-FIT Tier 1 **IV2:** CW-FIT Tier 2 **DV1:** Group on-task behavior. **DV2:** Treatment fidelity. **DV3:** Teacher praise and reprimands. **DV4:** Social validity. **Definitions:** Group on task: In a group, every student must be listening to the teacher. Teacher praise: Verbal expressions reflecting agreement with conduct or a right answer.	**Tools:** Direct observation. - Treatment fidelity checklist. - Paper & pencil methods. - 18-item questionnaire on CW-FIT social validity. - 15 Likert-type scale items. **Validity/Reliability:** - OB, PR and treatment fidelity were identified and recorded. - Observers achieved 90% reliability in training sessions.	**Statistical Tests Used:** - Descriptive statistics, mean (M), & standard deviations (SD). -Tau-U analyses.	**DV1:** CR 1: OB rose to 84.44 % (SD = 4.95) and a SS effect (Tau-U = 1.00, p < .01). CR 2: OB grew to 90.31 % (SD = 3.12), with a SS impact (Tau-U = 1.00, p < .01). CR 3: OB rose to 90.17 % (SD = 4.91) with a SS impact (Tau-U = 1.00, p < .01). **DV2:** Fidelity level was 80%. **DV3:** PR ratio rose to 4.35:1	**Level of Evidence: VI Strengths**: CW-FIT resulted in greater PR ratios and enhanced student OB. - Teacher and students affirmed CW-FIT's social validity. The teacher and most students liked CW-FIT. **Weakness**: Only 3 classrooms and 1- artteacher. -Teacher was not a licensed art teacher. - Intervention was tweaked by the art teacher to fit her needs. - Impact of CW-FIT on individual students is unknown. **Feasibility**: Art teachers might be able to successfully

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with BYU and VU **Bias:** None.		FIT with fidelity in an EAC.		Teacher reprimands: Negative verbal remarks aimed to stop misbehavior by a student.	- 54 % of the time, 2 observers took data on same observation. - IOA for group OB averaged 96.35 %, treatment fidelity 98.78 %, and teacher PR rates 86.26 %. The questionnaire & checklist were reliable and valid.		after re-enforcing CW-FIT. **DV4:** CW-FIT is simple to use and improves SCBs, 90.2 % of students liked CW-FIT.	apply CW-FIT in their courses. -CW-FIT is simple to use. **Application**: For primary art teachers, CW-FIT helps manage SCBs.
Staff et al., (2021). Effectiveness of Specific Techniques in Behavioral Teacher Training for Childhood ADHD: A Randomized	Principles of behavioral theory.	**Design:** Randomized Controlled Microtrial **Purpose:** To test antecedent-and-consequent-based	Participants (N=90). **Demographics:** **S**tudents ages=6 to 12. -Students have ADHD symptoms & are primary school students. - 91% were female teachers. - MA of teachers was 38.3 years. **Setting:** 52 primary schools in the rural and	**IV1:** ABI. **IV2:** CBI. **DV1:** Intervention Fidelity. **DV2:** Effects of techniques on PB. **DV3:** Moderators of technique effectiveness. **Definitions:** Contamination: Therapist behaviors	**Tools:** -EMA procedure. -5-point Likert scale. -SSQ, TTI, IRS, TSES, RSES, STRS, and CEQ. **Validity/Reliability:** -EMA entails real-time analyses of the participant's behavior in its natural setting.	**Statistical Tests Used:** Analysis of variance (ANOVA), and chi-squared or Fisher's exact tests. -Sensitivity analyses.	**DV1:** TRF in ABI 98.9% & in CBI 99.4%. RF in ABI 98% & CBI 97.8%. -In CBI & ABI fidelity did not differ (p = .391). **DV2:** In ABI, PB reduced from T0 to T1 (p = .002) and stayed	**Level of Evidence**: II **Strengths**: ABI and CBI are successful regardless of IQ, ADHD and ODD symptom intensity, school impairment, or baseline assessments of PB. -With both sets of techniques, substantial effect sizes were attained. **Weakness**: ABI and CBI are combined in BTT, but

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Controlled Microtrial **Country:** Netherlands **Funding:** The Netherlands Organization for Health Research and Development **Bias:** None.		behavioral teacher training strategies for students with ADHD symptoms.	urban areas of the Netherlands. **Exclusion:** EN=8 For students: Approximate full-scale IQ < 70. - Were on psychiatric medication in the prior month. - Diagnosis of autism spectrum disorder or conduct disorder. - Teacher with BTT for ADHD or other behavioral issues. **Attrition:** 22%	resulting in elements from the non-assigned intervention being included in the allocated intervention.	-Current sample's list of TB had good reliability (α = .90). - Rating scales, assessment forms, and questionnaires used are excellent in validity and reliability.	Independent *t*-tests. -Calculated Cohen's *d.* -Moderation analyses.	steady from T1 to T2 (p = .866). -In CBI, PB reduced from T0 to T1 (p < .001) and stayed steady from T1 to T2 (p = .133). -In CBI & ABI, PB stayed stable from T2 to T3 (for antecedent: p = .562; & in consequent: p = .649). **DV3:** CBI effective than ABI in children <8.5 years (p = .030). -ABI effective than CBI in children > 8.5 years (p = .013).	they are employed separately in this study. -Unable to rule out the probability that learning ABI skills prompted the use of CBI skills, and vice versa. -Intervention's effects were determined using teacher-initiated measures. **Feasibility**: The study's strategies focus on a single behavior, making it easier for teachers. - The intervention strategy is basic and personalized, easy to remember and implement. **Application**: Treatments in the study are short, succinct, and tailored to meet teachers' needs.

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							-With small SN, ABI impact was big ($p < .001$). -CBI impact was irrelevant to SN ($p = .700$).	
Cook et al., (2017). Evaluating the Impact of Increasing General Education Teachers' Ratio of Positive-to-Negative Interactions on Students' Classroom Behavior **Country:** U.S. **Funding:** None	Classroom management model-Balancing Theory of Relationships	**Design:** Quasi-experimental randomized-block pre-post control design **Purpose:** To create a practical and contextually relevant strategy for training and assisting teachers to enhance their	Students (N=159). Teachers (N=6). **Demographics:** Students: Male (N = 81; 51%), ES students (N= 105; 66%),49% AA, 47% Caucasian, 4% Other, 68% FRM, 13% SES, and 8% ELL. Teachers: 5-Caucasians & 1-AA, MA of teachers was 32.3 years. **Setting:** 6 CR from two schools in a southeastern U.S. public district. **Exclusion:** Not listed **Attrition:** None	**IV1:** Training teachers on the 5:1 ratio. **DV1:** Ratio of PTN teacher-student interactions. **DV2:** AET and DB. **DV3:** Intervention acceptability. **Definitions:** PI: Contingent and non-CVP or non-verbal pleasant gestures between a teacher and students. Praise: Any verbal or nonverbal expression by a teacher indicating	**Tools:** Direct observations. -BOSS: BCC is composed of AET and DB. - IRP-15 **Validity/Reliability:** -On a 30-minute CO, observers must reach a 90 % agreement. -On 20% of the CO, IOA was gathered and calculated. -Average IOA was 86%. -2 observations to present a more	**Statistical Tests Used:** -Descriptive and inferential statistics were used. -Descriptive statistics: Central tendency and variability. -Mixed-factorial ANOVA.	**DV1:** Average POR of PTN interactions for teachers in IG was 4.7:1. -Average POR of PTN interactions for teachers in CG was 0.17:1. **DV2:** SS interaction impact among time and IG, [$F(2, 300) = 5.22$, $p < .01$.]. When the intervention began, IG's AET	**Level of Evidence**: II **Strengths**: Conditions of each teacher were hidden from observers. -Quasi-experimental RCT design. -Teachers' ratios of PTN interactions improved greatly due of the 5:1 ratio instruction. **Weakness**: After the prompting device was removed, teachers' PTN interaction ratios were not checked. -Small N of teachers

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice. Generalization
Bias: None.		PTN interaction ratios with students, and to study the effects of the 5:1 ratio on SCB.		support of the desired student conduct. NI: Comments of disapproval, reprimands, or other punitive actions. AET: Student paying attention to the instruction when the student was gazing at the teacher or focused on the academic activity at hand. DB: Behaviors that were detrimental to learning or the classroom atmosphere and were unrelated to the task at hand.	accurate picture of SB. -IRP-15 is reliable and valid.		grew, while CG's AET stayed stable. -The IG's DB fell, while the CG's DB stayed constant. **DV3:** Teachers find the 5:1 ratio method to be practical, acceptable, and effective (AR was 5.7).	**Feasibility**: The technique was practicable, agreeable, and effective among teachers. -Decreases in DBs and a rise in AET. **Application**: Improvement in academic involvement by 22% on average. - 5:1 tactic provides a better teaching experience by preventing PB and increasing student academic involvement.
Ingemarson et al., (2019). Teacher's Use of Praise, Clarity of	Behavioral Science-behavioral school psychology.	**Design:** Longitudinal design. **Purpose:** To find any	Students (N=2266) Schools (N=20) Classes (N=109) **Demographics:** -Grades 5-7.	**IV1:** Clear school rules **IV2:** Teacher's use of praise **DV1:** classroom	**Tools:** Eight items from the 15-item scale BPSCY -CC Scale -PS program survey	**Statistical Tests Used:** -Bivariate regression analyses	**DV1:** Clarity of SR does not significantly improve CC.	**Level of Evidence**: IV **Strengths**: Multiple imputation is used. - Used reports from students.

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School Rules and Classroom Climate: Comparing Classroom Compositions in Terms of Disruptive Students **Country:** Sweden **Funding:** Not mentioned **Bias:** None.		differences in student perceptions of SR, praise, and CC between students in CR with fewer DB and CR with more DB students; if CC is connected with the clarity of SR and the use of praise by teachers; if the possible longitudinal relationship changes	-Class with LN of DS has girls 53% & with HN of DS has girls 47%. -Spoke Swedish AH 76% & AH 24% used a FL. **Setting:** 20 public schools from Stockholm County and nearby commuter cities. **Exclusion**: EN=941 Students who didn't meet inclusion criteria. **Attrition:** None	Climate **Definitions:** None.	**Validity/Reliability:** -CC Scale had previously proven to have good psychometric qualities. The rating scales, assessment forms, and questionnaires used are good in validity and reliability.	-Intra-correlation coefficient (ICC) was Calculated. -Multiple regression analyses -Multiple imputation to deal with missing data. -Multiple regression analysis.	-Classes with LN of students with DB: clarity of SR has p= .045 & teacher's use of praise has p=.001. -Classes with HN of students with DB: clarity of SR has p= .495 & teacher's use of praise has p=.018. -Current findings suggest that a teacher's use of praise is related to CC.	**Weakness**: The study does not provide information on the forms of praise that teachers utilized. - Validity of the CC Scale has not been proven. **Feasibility**: Praise can be useful in all classes, irrespective of composition, in terms of DB. **Application**: Use of praise by teachers helps to create a positive CC which improves student academic performance.

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Table A2
Synthesis Table

Author/ year	Naylor et al., (2018)	Chuang et al., (2020)	Streimann et al., (2019)	Reinke et al., (2018)	Chen & Lindo (2018)	Larkin & Crumb (2017)	Nelson et al., (2018)	Staff et al., (2021)	Cook et al., (2017)	Ingemarson et al., (2019)
Design/LOE	RD/VI	RCT/II	CRWCT/II	BCRA/II	MBASD/VI	UPPD/VI	SSD & RD/VI	RCM/II	QRPCD/II	LD/IV
Sample										
Mean Age (in years)	UKn	UKn	SMA 7	SMA 7	UKn	SMA 8.2	SMA 9.6	TMA 38.3/SMA 8.8	TMA 32.3	UKn
Sample Size	12	1922	750	1922	6	10	67	90	165	2266
Attrition	None	6.4%-7.3%	7.2%	7.5%	None	None	None	22%	None	None
Settings	1 GCR	9 PS	PS, 1GCR	9 US	2 PS	PS	ES	52 PS	4ES/2MS	20 PS
Measurement Tools	MOOSES, PPM, MTSP, FCSVQ, LS, OQ	TOCA-C, DO, MOOSES, WJ-III ACH	RS, AF, QN, VCGT, PAX IR, TSR	TOCA-C, DO, T-COMP, WJ-111 ACH	DOF, DOFSS, DO	RSES, CSEI, BG	DO, TFC, PPM, QN CW-FIT, LS	EMAP, LS, SSQ, TTI, IRS, TSES, RSES, STRS, CEQ	DO, BCC, IRP- 15	BPSCY, CCS, PSPS
Interventions										
CW-FIT	X						X			
IY TCM Training		X		X						
PAX GBG			X							
Kinder Training					X					
Social Work Group Intervention						X				
CW-FIT Tier 2							X			
ABI/CBI								X		
Training Teachers on 5:1 ratio									X	
Clear School Rules										X
Teachers' Use of Praise										X
Outcomes/ Themes										
TS OB	IM				IM			IM		

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Class Wide OB	IM					IM	IM		IM	
Social Emotional outcomes		IM		IM						
TP-CRM Skills/TIS/PMI		IM		IM						
Teachers' Self-efficacy			IM							
Teachers-Student Relationship					IM					
Teachers' understanding of OTB					PR					
Students' Self-esteem						IM				
Teachers' Praise and Reprimands	IM						IM		IM	IM
Social Validity							G		G	
MTE: Age<8.5 years								CBI -Ef		
MTE: Age>8.5 years								ABI- Ef		
MTE: SN small								ABI- Ef		
Classroom Climate										IM
Academic Achievement outcome		IM		IM					IM	
Children Mental Health & PSB			IM							
Intervention Fidelity							IM	IM		

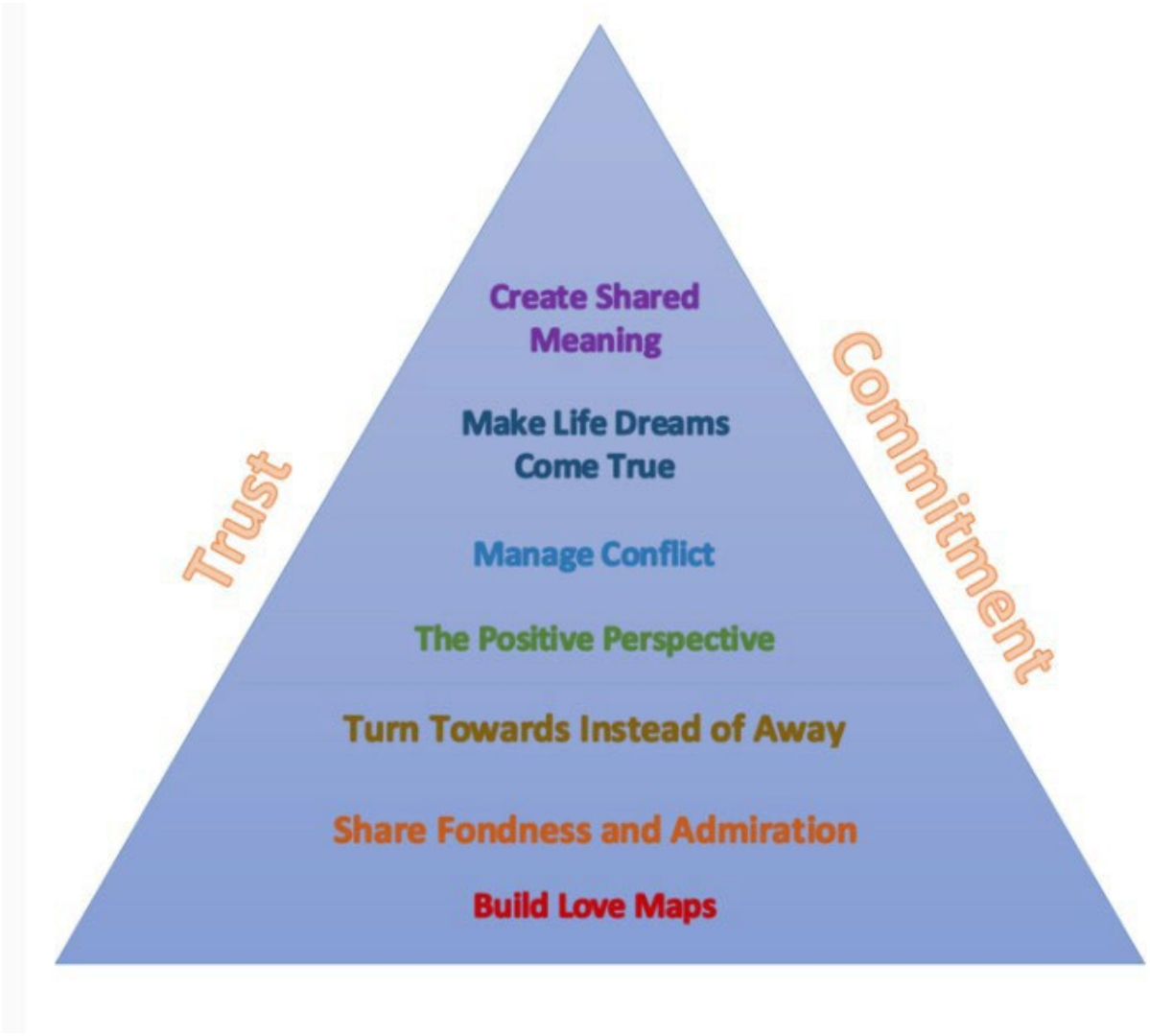
1 GCR First Grade Classroom, **ABI** Antecedent-Based Intervention, **AF** Assessment forms, **BCC** Behavioral Coding Categories, **BCRA** Blocked Cluster Random Assignment, **BG** Behavior Grades, **BPSCY** Behavior Problem Students in Class this Year, **CBI** Consequent-Based Intervention, **CCS** Classroom Climate Scale, **CEQ** Credibility/Expectancy Questionnaire, **CRM** Classroom Management, **CRWCT** Clustered Randomized Waitlist Controlled Trail , **CSEI** Coopersmith Self-Esteem Inventory, **CW-FIT** Class-wide Function-related Intervention Teams, **DO** Direct Observation, **DOF** Direct Observation Form, **DOFSS** Direct Observation Form Scoring Software, **Ef** Effective, **EMAP** Ecological Momentary Assessment Procedure., **ES** Elementary School, **FCSVQ** Frequency Counts and Social Validity Questionnaires, **G** Good, **GBG** Good Behavior Game, **IM** Improved, **IR** Interrater Reliability, **IRP-15** Intervention Rating Profile-15**, IRS** Impairment Rating Scale, **IY TCM** Incredible Years Teacher Classroom Management Program, **LD** Longitudinal design, **LOE** Level of Evidence, **LS** Likert-type Scale, **MBASD** Multiple Baseline Across Subjects Design, **MOOSES** Multiple Option Observation System for Experimental Studies, **MS** Middle School, **MTE** Moderators of Technique Effectiveness., **MTSP** Momentary Time Sample Procedure, **N** Number, **NA** Not Applicable, **OB** On -Task Behavior, **OQ** Open-ended Question, **OTB** Off-Task Behavior, **PCB** Positive classroom behaviors, **PMI** Proactive Management Implementation, **PPM** Paper Pencil Method, **PR** Positive Reaction, **PS** Primary School, **PSB** Pro-Social Behavior, **PSPS** Priority Survey Program Survey, **QN** Questionnaire., **QRPCD** Quasi-experimental Randomized-block Pre-post Control Design, **RCM** Randomized Controlled Microtrial, **RCT** Randomized Controlled Trail, **RD** Reversal Design, **RS** Rating Scale, **RSES** Rosenberg Self-Esteem Scale, **SCBs** Student Classroom Behavior(s), **SMA** Student Mean Age, **SN** Student Number, **SSD & RD** Single-Subject Design & Reversal Designs, **SSE** Student Self-Esteem., **SSQ** School Situations Questionnaire, **STRS** Student-Teacher Relationship Scale, **T-COMP** The Revised Social Competence Scale-Teacher version, **TFC** Treatment Fidelity Checklist., **TIS** Teachers' Implementation Skills, **TMA** Teachers Mean Age, **TOCA-C** Teacher Observation of Classroom Adaptation-Checklist, **TP** Teacher Participant, **TS** Target Student, **TSES** Teachers'Sense of Efficacy Scale**, TSR** Teachers' Self-reporting, **TTI** Teacher Telephone Interview, **UKn** Unknown, **UPPD** Uncontrolled Pretest-Posttest Design, **US** Urban School, **VCGT** Visual Computerized Go/No-Go Task, **WJ-III ACH** ACH Woodcock-Johnson Achievement Battery 3rd ed.

Appendix B

Models and Frameworks

Figure B1

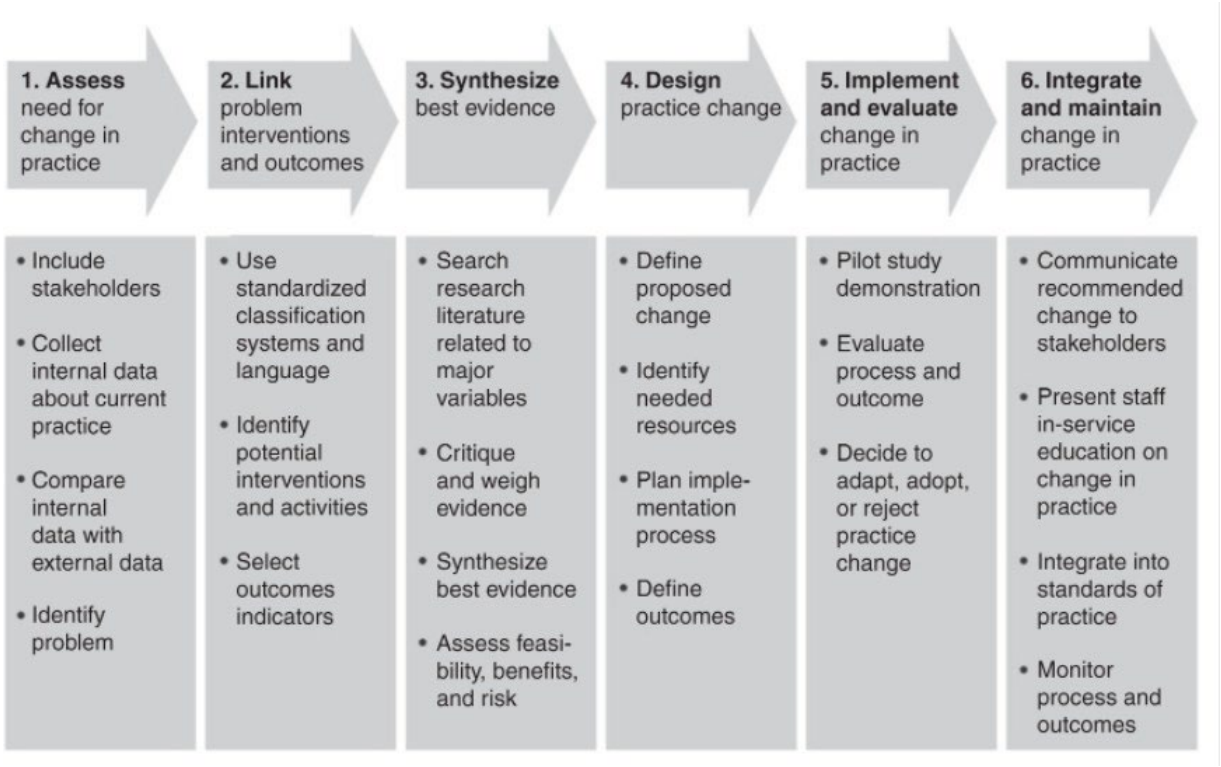
Balancing Theory of Relationships



(Gottman, 1993)

Figure B2

Rosswurm and Larrabee Model for Change



(Rosswurm & Larrabee, 1999)

Appendix C

Budget

Elements	Item/Service	Cost for the Project	Subtotal	Total
1) Direct Costs	a) Print study materials and handouts	$ 10		
	b) On their assigned day for professional development, the teachers and the behavioral consultants will receive the training.	$ 0		
	c) Purchase Zoom/ Zoom pay.	$ 30		
	d) The student (writer) needs to take time off from her job to do the project.	$600		
	e) Travel expenses	$ 40		
	f) Coffee & Snacks provided during meetings and training.	$100	$780	
2) Indirect Costs	a) Office Supplies/ Training materials.	$ 20		
	b) Internet connection expenses.	$ 100	$ 120	$ 900
Revenue/Cost Saving	support for the project.	having the teachers complete the training during the time of the school day allotted for their professional development.		

3) Funding	There is currently no funding available to support this project's teacher training on student misbehavior management in the context of classroom management.	Not Applicable (NA)	NA	NA
4) Potential Revenue/Cost Saving	The student (writer) will provide financial support for the project.	The institution will save money by having the teachers complete the training during the time of the school day allotted for their professional development.	NA	NA

Budget Justification: The items budgeted for this grant application amount have the following justifications.

Direct Cost:

- Printing study materials for potential participants requires paper and ink cartridges.
- There is no additional cost for teacher training and behavioral consultant training because it occurs on their designated day for professional development.
- To communicate with the project's site champion, mentor, and other stakeholders, the video communications software Zoom will be used.
- The student must take time off from her job because she is the project's Co- investigator.
- My round-trip travel distance to the project site is 48 miles. Thus, the total cost of the trip might be about $40.
- Planning to set up refreshments for each participant following in-person training and data collection.

Indirect Cost:

- Office supplies include whiteboards and writing utensils for training sessions for prospective participants.
- To do literature searches, locate the tools necessary to carry out the prospective intervention, and hold Zoom meetings, a reliable internet connection isnecessary.

** The student (writer) is responsible for paying any direct and indirect costs associated with the project and for taking time off from her work to complete the project.

Appendix D

PRETEST

HOW TO CREATE YOUR UNIQUE ID: This survey is anonymous, meaning none of your identifiable information (e.g., name, birthday, social security number, etc.) will be asked. Please create a unique ID below so we can link your data collected at different times. Once you create it, please record it at a place that only you could access. You will need it for the survey 2 weeks after today's presentation.

ID_____

- **Age** (*Birth Year only*): _____
- **Ethnicity:**

  _____African American _____Caucasian
  _____Native American _____Hawaiian/Pacific Islander

  _____Asian _____Mixed Race
  _____Other (*Please specify*)
- **Gender:**

  _____Male _____Other (please specify)
  _____Female

- **Educational Background:**

  _____Less than high school
  _____Technical degree
  _____High School
  _____Some College
  _____College degree
  _____Professional/ Graduate degree

- **Years as an educator:**_____(*In years*)

- **Ever Received Training in Student Misbehavior Management in the Past?**

  _____YES (*Pleases specify*)_____.
  _____NO

Teachers' Sense of Efficacy Scale[1] (short form)

Teacher Beliefs	How much can you do?								
Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.	Nothing		Very Little		Some Influence		Quite A Bit		A Great Deal
1. How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2. How much can you do to motivate students who show low interest in schoolwork?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3. How much can you do to get students to believe they can do well in schoolwork?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4. How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5. To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6. How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7. How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8. How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9. How much can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
10. To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
11. How much can you assist families in helping their children do well in school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
12. How well can you implement alternative strategies in your classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Appendix E

Posttest (T1) ID_____
Teachers' Sense of Efficacy Scale[1] (short form)

Teacher Beliefs	How much can you do?								
Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.	Nothing		Very Little		Some Influence		Quite A Bit		A Great Deal
1. How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2. How much can you do to motivate students who show low interest in schoolwork?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3. How much can you do to get students to believe they can do well in schoolwork?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4. How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5. To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6. How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7. How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8. How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9. How much can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
10. To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
11. How much can you assist families in helping their children do well in school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
12. How well can you implement alternative strategies in your classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Please tell us what you think of this training by checking the boxes that you think best applies.

	Strongly Disagree	**Disagree**	**Not sure**	**Agree**	**Strongly Agree**
The information presented was suitable for addressing teachers' understanding of student misbehavior management.					
My knowledge about student misbehavior management has improved.					
I am more comfortable in using a 5:1 positive to negative interaction ratio with students.					
After this presentation, I'm probably going to modify the way I handle student misbehavior.					
The topics covered today are relevant to what I need to know as a teacher.					

What was the ***most*** useful learning that you obtained through the presentation?

What advice do you have for enhancing the presentation?

Thank you for your invaluable time and input!

Appendix F

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
T0 mean score of Efficacy in Student Engagement subscale	9	7.3333	1.28019	5.00	8.67
T1 mean score of Efficacy in Student Engagement subscale	5	7.9333	.86281	6.67	9.00

Wilcoxon Signed Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
T1 mean score of Efficacy in Student Engagement subscale - T0 mean score of Efficacy in Student Engagement subscale	Negative Ranks	1[a]	5.00	5.00
	Positive Ranks	4[b]	2.50	10.00
	Ties	0[c]		
	Total	5		

- T1 mean score of Efficacy in Student Engagement subscale < T0 mean score of Efficacy in Student Engagement subscale.
- T1 mean score of Efficacy in Student Engagement subscale > T0 mean score of Efficacy in Student Engagement subscale.
- T1 mean score of Efficacy in Student Engagement subscale = T0 mean score of Efficacy in Student Engagement subscale.

Z	-.687[b]
Asymp. Sig. (2-tailed)	.492

Wilcoxon Signed Ranks Test
Based on negative ranks.

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
T0 mean score of Efficacy in Instructional Strategies subscale	9	7.2500	.72887	6.50	8.50
T1 mean score of Efficacy in Instructional Strategies subscale	5	7.9500	.75829	7.00	9.00

Wilcoxon Signed Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
T1 mean score of Efficacy in Instructional Strategies subscale - T0 mean score of Efficacy in Instructional Strategies subscale	Negative Ranks	1[a]	1.50	1.50
	Positive Ranks	3[b]	2.83	8.50
	Ties	1[c]		
	Total	5		

- T1 mean score of Efficacy in Instructional Strategies subscale < T0 mean score of Efficacy in Instructional Strategies subscale.
- T1 mean score of Efficacy in Instructional Strategies subscale > T0 mean score of Efficacy in Instructional Strategies subscale.
- T1 mean score of Efficacy in Instructional Strategies subscale = T0 mean score of Efficacy in Instructional Strategies subscale.

Z	-1.289[b]
Asymp. Sig. (2-tailed)	.197

Wilcoxon Signed Ranks Test
Based on negative ranks.

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
T0 mean score of Efficacy in Classroom Management subscale	9	7.4444	.77840	6.50	9.00
T1 mean score of Efficacy in Classroom Management subscale	5	7.6000	.67546	6.50	8.25

Wilcoxon Signed Ranks Test
Ranks

		N	Mean Rank	Sum of Ranks
T1 mean score of Efficacy in Classroom Management subscale - T0 mean score of Efficacy in Classroom Management subscale	Negative Ranks	2[a]	3.00	6.00
	Positive Ranks	3[b]	3.00	9.00
	Ties	0[c]		
	Total	5		

- T1 mean score of Efficacy in Classroom Management subscale < T0 mean score of Efficacy in Classroom Management subscale.
- T1 mean score of Efficacy in Classroom Management subscale > T0 mean score of Efficacy in Classroom Management subscale.
- T1 mean score of Efficacy in Classroom Management subscale = T0 mean score of Efficacy in Classroom Management subscale.

Z	-.406[b]
Asymp. Sig. (2-tailed)	.684

Wilcoxon Signed Ranks Test
Based on negative ranks.

Paired Samples Effect Sizes

			Standardizer[a]	Point Estimate	95% Confidence Interval Lower
Pair 1	T0 mean score of Efficacy in Student Engagement subscale - T1 mean score of Efficacy in Student Engagement subscale	Cohen's d	.72265	-.369	-1.259
		Hedges' correction	.90571	-.294	-1.005

Paired Samples Effect Sizes

			Standardizer[a]	Point Estimate	95% Confidence Interval Lower
Pair 1	T0 mean score of Efficacy in Instructional Strategies subscale - T1 mean score of Efficacy in Instructional Strategies subscale	Cohen's d	.83666	-.657	-1.607
		Hedges' correction	1.04860	-.525	-1.282

Paired Samples Effect Sizes

			Standardizer[a]	Point Estimate	95% Confidence Interval Lower
Pair 1	T0 mean score of Efficacy in Classroom Management subscale - T1 mean score of Efficacy in Classroom Management subscale	Cohen's d	.81777	-.061	-.935
		Hedges' correction	1.02492	-.049	-.746