

# Predicting Professional Development Learning Transfer with the Theory of Planned Behavior: A Non-Exploratory Correlational Study

Sara Lea Wicht (Primary author)  
Independent Researcher  
Minneapolis, MN 55406, USA

Chris Cale  
National University, JFL School of Psychology and Social Sciences  
9388 Lightwave Ave, San Diego, CA 92123, USA

Michelle McCraney  
Riley College of Education, Walden University  
Washington Ave S, Minneapolis, MN 55401, USA

Sunddip Panesar-Aguilar  
Riley College of Education, Walden University  
Washington Ave S, Minneapolis, MN 55401, USA

## Abstract

This study addresses a critical gap in evaluating K12 educator professional development (PD) by exploring the transfer of learning into practice through the theory of planned behavior (TPB). Despite significant investments in educator PD, most evaluations focus on teacher self-efficacy or student outcomes, often neglecting individual beliefs, school culture, and educator autonomy—factors essential for consistent evidence of PD effectiveness. This quantitative, correlational research examines how two belief indicators of TPB—normative and control—predict the application of an anti-bias framework learned in PD sessions. The study involved 68 K12 educators from the Mid-Atlantic region of the United States, including teachers across subjects and grades, administrators, diversity, equity, and inclusion directors who participated in the Institute on Teaching Diversity and Social Justice in 2023. Using quantitative surveys, the research assessed participants' normative and control beliefs alongside their intent to implement the Social Justice Standards (SJS). Correlation and regression analyses evaluated the predictive power of TPB indicators on PD learning transfer. Findings highlight factors influencing educators' intent to implement SJS, suggesting that integrating school culture and educator autonomy into PD evaluation frameworks can lead to more effective programs aligned with social justice education. Future studies should explore the role of virtual partnerships and other support systems in enhancing the transfer of PD learnings.

**Keywords:** *K12 educator professional development, Theory of Planned Behavior (TPB), learning transfer, anti-bias framework, Social Justice Standards (SJS), normative beliefs, control beliefs, PD evaluation, school culture, educator autonomy, quantitative correlational study, Mid-Atlantic region, virtual partnerships, social justice education, teacher intent.*

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## Introduction

The Center on Education Policy at George Washington University reviewed the history of public education in the U.S., highlighting its roles in promoting civic engagement, workforce skills, and character development (Kober et al., 2020). Early U.S. schools, or common schools, aimed to bridge social divides and strengthen the economy by educating diverse socioeconomic groups. However, access was limited, especially for BIPOC students, girls, and students with disabilities (McCoy & Villeneuve, 2020; Zephier, O., & Dombrowski, K. 2020). As immigration patterns shifted, schools emphasized English proficiency and cultural assimilation (Kitts, 2022).

Over time, the focus of K12 professional development (PD) has evolved, with U.S. spending on PD reaching billions annually. Despite significant investment, standardized definitions and evaluations for effective PD remain inconsistent (Sims & Fletcher-Wood, 2021). PD evaluations primarily focus on teacher self-efficacy, attitudes, and student outcomes, often neglecting school culture and teacher autonomy. These gaps impact how effectively teachers implement new, inclusive pedagogies. With a majority of U.S. public school students identifying as BIPOC and most educators identifying as White, effective PD should address teacher preparedness for diverse classrooms. However, inconsistencies in PD evaluation and support for post-training implementation create financial and teacher readiness challenges to meet the needs of a diverse student population (Caldwell, 2022; Gupta, 2020; Zimmer & Matthews, 2022).

### **Problem**

This quantitative, non-exploratory correlational study addresses a critical issue in K12 educator professional development (PD): the lack of evaluation measures that account for individual beliefs, school culture, or educator autonomy, despite billions of dollars spent annually on PD programs (NCES, 2022; Sims & Fletcher-Wood, 2021). Current evaluations of K12 educator PD often fail to include factors that influence the transfer of learning from training to classroom practice, relying instead on measures of teacher-reported self-efficacy, attitudes, or student outcomes. These traditional criteria overlook instructional autonomy and the role of campus social norms in facilitating or hindering the application of new skills (Mullen et al., 2022; Sims & Fletcher-Wood, 2021).

A review of commonly used PD evaluation tools reveals that few assess the likelihood of teachers applying what they learn in in-person PD to their practices, missing key indicators like control and normative beliefs, which could predict transfer of learning (Mullen et al., 2022; O'Leary, 2022; Sims & Fletcher-Wood, 2021). This gap in evaluation impacts what we know about the effectiveness of PD programs and how well they prepare K12 teachers to meet their students' needs (Caldwell, 2022; Gibbons & Farley, 2019). When learning from PD does not transfer to practice, educators may feel underprepared, which in turn can affect student engagement and achievement (Abacioglu et al., 2020; Gay, 2018; Gupta, 2020). Additionally, inconsistencies in PD evaluation contribute to varying levels of teachers' perceived authority in curriculum decision-making, often exacerbated by limited training in curriculum design (Taie & Lewis, 2022).

This study also examines how school culture affects individual educators' practice and identifies factors that may encourage or hinder the implementation of new learning. Findings suggest that PD evaluations should consider individual beliefs about control and norms within the school environment, as these elements are significant in determining whether educators apply PD learning effectively.

Beyond implications for student achievement, this research can influence pre- and in-service PD evaluation methods. Addressing the shortcomings in current PD evaluation frameworks could lead to more informed decisions on PD program design, ensuring that training not only builds educators' skills but also fosters an environment where these skills can be effectively applied.

On a broader societal level, improved PD evaluations may shape educational policies and curriculum guidelines by highlighting the importance of teacher preparedness in school culture and student outcomes. Recognizing how individual autonomy and school norms impact learning transfer could drive policy adjustments at state and national levels, aligning educational goals with the needs of diverse school environments and the communities they serve.

### **Purpose**

The purpose of this quantitative non-exploratory correlational research was to test two belief indicators of the theory of planned behavior (TPB)—normative and control—and how TPB indicators statistically significantly predict K12 teachers' transfer of an anti-bias framework learned during in-person PD to practice. The study population included K12 educators from the Mid-Atlantic region of the United States who voluntarily attended the Institute on Teaching Diversity and Social Justice (IDSJ) during June or August 2023. Purposeful sampling was used to elicit participation from a sample group of 68 K12 educators who attended the in-person PD at either the June or August 2023 IDSJ institute. Participants included classroom teachers of all subjects and grade levels, building-level administrators, and directors of diversity, equity, and inclusion.

Voluntary attendance at IDSJ may skew participants' behavioral beliefs regarding implementing the Social Justice Standards: A Framework for anti-bias education (SJS) as a strategy toward culturally responsive instruction (Chiariello et al., 2014–2022). Therefore, the study focused on examining the TPB's formative indicators of normative and control beliefs (independent variables) and observing facilitating conditions

(intervening variable) that impact the implementation of the new learning (dependent variable) using a multi-item questionnaire based on the guidelines and samples provided by Ajzen (2020). The questionnaire was administered electronically using software that anonymizes the data.

### **Theory and Frame of Reference**

This study used Ajzen's theory of planned behavior (TPB) as its theoretical framework (1991, 2008, 2020). Ajzen's work on TPB suggests that three indicators—attitudes, subjective norms, and perceived control—predict the intention to perform a behavior (Ajzen, 1991, 2020; Boslaugh, 2022). The indicators are behavioral, normative, and control beliefs. Normative beliefs represent group opinions about behavior, while control beliefs include factors that facilitate or hinder action (Ajzen, 1991, 2020). This study examined the correlation between normative and control beliefs and the intent to apply new learning from K12 educator PD focused on culturally responsive pedagogy (CRP) at the IDSJ.

The theory of planned behavior has traditionally predicted health and social behaviors, aiming to understand the relationship between behavior and motivation (Boslaugh, 2022). By applying TPB indicators, this study assessed how cultural norms and perceived control within school communities influence teachers' implementation of anti-bias frameworks learned during PD (Caldwell, 2022; Delk, 2019; Gay, 2018; Stewart, 2020).

### **Literature Review and Synthesis of the Literature**

The significant financial investment in K12 teacher professional development (PD) across the United States, amounting to billions of dollars annually, raises questions about the consistency and effectiveness of these initiatives (NCES, 2022; Sims & Fletcher-Wood, 2021). Training for pre-service and in-service educators is intended to prepare teachers to face the diverse and complex situations they encounter in classrooms (Caldwell, 2022; Farmer, 2020; Gibbons & Farley, 2019). However, PD programming, implementation, and evaluation methods are highly inconsistent (Mullen et al., 2022; Sims & Fletcher-Wood, 2021), leading to substantial variation in teacher preparedness (Gay, 2018; Simpson, 2023). The lack of standardized criteria for evaluating PD outcomes complicates efforts to gauge whether K12 educators transfer what they learn in PD into their teaching practices (Sims & Fletcher-Wood, 2021). Thus, questions remain about whether teachers who participate in PD sessions—especially those targeting complex issues like integrating an anti-bias framework—intend to implement these strategies in their classrooms.

To investigate the factors influencing K12 teachers' intent to transfer learning from PD to classroom practice, this study applied Ajzen's (1991) Theory of Planned Behavior (TPB). Specifically, it examined two TPB belief indicators: normative beliefs (reflecting group expectations and social pressures) and control beliefs (reflecting perceptions of autonomy and ability). This study aimed to determine if these indicators predict teachers' intent to apply culturally responsive pedagogy (CRP) after attending an in-person PD on the Social Justice Standards (SJS) in 2023. The SJS, rooted in the anti-bias education goals established by Derman-Sparks and Olsen-Edwards (1989, 2019), focuses on equipping educators with strategies to promote social justice and address diverse cultural needs in the classroom.

Current research highlights the importance of specific, targeted professional learning experiences for educators, especially in response to the increasingly diverse student population across U.S. schools (Simpson, 2023). Although the majority of students identify as Black, Indigenous, or People of Color (BIPOC), most K12 teachers are White, which can create cultural disconnects in educational environments (NCES, 2022). As studies indicate, many teachers lack the preparation to effectively meet their students' varied cultural needs (Gay, 2018; Gupta, 2020). The TPB framework, emphasizing normative and control beliefs, provides a valuable lens to analyze whether educators attending PD on CRP topics like the SJS will likely integrate these principles into their teaching.

The inconsistencies in K12 PD evaluation highlighted by Sims and Fletcher-Wood (2021) span multiple educational levels, disciplines, and contexts. By focusing on a specific PD context—teaching anti-bias frameworks to K12 educators in the Mid-Atlantic U.S.—this study aimed to isolate whether normative and control beliefs could predict educators' intent to implement CRP strategies. The selected context of PD on the SJS provided a controlled environment to examine the influence of these beliefs on teachers' reported intent to apply newly learned strategies.

The TPB, originally known as the Theory of Reasoned Action, posits that an individual's intention to perform a behavior is influenced by their attitude toward the behavior and subjective norms and perceived control (Ajzen, 1991, 2020). Normative beliefs in TPB refer to the social pressures or expectations from others that might

influence an individual's behavior. In contrast, control beliefs refer to the perceived ease or difficulty of performing the behavior, which can impact one's sense of autonomy. These concepts have been empirically supported in various studies across disciplines (Archie et al., 2022; Ateş & Garzón, 2023; Wu et al., 2022), and they offer valuable insight into the factors that might affect teachers' decisions to implement CRP strategies after PD.

The literature relevant to this study encompasses research on teacher preparation, K12 PD, CRP, and the transfer of PD learning to classroom practice. Previous studies indicate that K12 teachers do not always have access to CRP training (Abacioglu et al., 2020; Delk, 2019; Stewart, 2020). By analyzing existing research, this study highlights the gaps in teacher preparedness and the lack of a uniform approach to PD evaluation. While numerous studies have examined CRP, teacher autonomy, and the influence of school culture, this research sought to integrate these themes with TPB to identify predictive factors for implementing CRP in the classroom.

The TPB framework has proven adaptable for exploring various human behaviors and attitudes in professional settings, including education. For example, Wu et al. (2022) used TPB to study teachers' readiness to implement STEM education, revealing that normative and control beliefs strongly influenced the intent to incorporate STEM subjects into teaching. Similarly, Ziaabiadi et al. (2023) examined English teachers' attitudes toward teaching English as an international language and found that discrepancies between teacher beliefs and practices necessitated further investigation. These studies underscore TPB's potential for analyzing how belief indicators might predict behavior in educational settings.

This study focused on K12 teachers' implementation of the SJS after attending a PD session at IDSJ. Since participants voluntarily attended this PD workshop, their behavioral beliefs were assumed to be favorable, as indicated by their willingness to learn about CRP. Thus, this study concentrated on normative and control beliefs, excluding directly evaluating behavioral beliefs. Normative beliefs, as defined in TPB, reflect the social expectations of one's community, while control beliefs consider the autonomy and perceived capacity to implement a behavior (Ajzen, 1991). This research aimed to determine if these beliefs, along with facilitating conditions such as school resources and support, could predict the transfer of learning from PD to practice.

Normative and control beliefs do not operate in isolation but interact within a broader context influenced by factors like school culture and available resources. This study hypothesized that normative beliefs within a school community (reflecting colleagues' and administrators' expectations) and control beliefs (reflecting the teacher's autonomy) would influence educators' intent to implement the SJS. Facilitating conditions, including administrative support, time for collaboration, and access to materials, were also explored as potential predictors. Previous studies have identified school culture and resources as essential factors in determining the success of PD implementation, especially in CRP (Li & Cheung, 2021; Wu et al., 2022).

Teacher preparedness for diverse classrooms has been a focal issue for education reformers, with many suggesting that consistent and standardized methods for evaluating PD effectiveness could improve teacher training. Sims and Fletcher-Wood (2021) emphasize that inconsistent PD evaluation methods make it difficult to assess program quality, resulting in varied teacher preparedness. While some teacher education programs integrate CRP, these offerings are not universally available or adequately supported in many schools (Stewart, 2020). Given the crucial role of normative and control beliefs in influencing behavior, incorporating these TPB components into PD evaluations could help standardize PD assessment.

Many educational researchers advocate for CRP to engage students from diverse backgrounds and create inclusive classrooms. CRP emphasizes connecting curriculum content to students' cultural contexts, fostering trust and collaboration, and nurturing students' intellectual, social, and emotional growth (Gay, 2018; Ladson-Billings, 1995). The integration of CRP, mainly through PD on an anti-bias framework like the SJS, can play a pivotal role in bridging the cultural gap between teachers and their students. However, a teacher's school environment, reflected in the school's culture and supported by facilitating conditions, is crucial to adopting these strategies.

TPB provides a framework for understanding how intent can translate into behavior, especially when considering the role of facilitating conditions. Factors such as school resources, administrative support, and classroom materials enable teachers to implement CRP effectively (Opoku, 2022; Ziaabiadi et al., 2023). By examining these conditions alongside normative and control beliefs, this study explored the extent to which each factor predicts K12 teachers' intent to implement the SJS in their classrooms. For instance, a supportive school culture

that values social justice may strengthen normative beliefs about CRP, thereby increasing the likelihood of implementation.

Inconsistent evaluation methods in K12 PD present challenges for determining the effectiveness of teacher training programs. Although billions of dollars are invested in PD, the lack of standardized assessment makes it difficult to determine whether educators are adequately prepared to apply new strategies (Sims & Fletcher-Wood, 2021). Cochran-Smith and Reagan (2021) argue that PD evaluation should account for the broader social and cultural influences affecting teachers, primarily when the PD targets sensitive topics like social justice. This study, by focusing on TPB indicators, contributes to understanding how school culture and personal autonomy influence teachers' ability to implement anti-bias strategies post-PD.

This research applied TPB to examine the impact of normative and control beliefs on teachers' intent to implement the SJS following PD. The study highlighted the role of school culture and autonomy, as reflected in normative and control beliefs, in influencing teachers' application of CRP. The inclusion of facilitating conditions provided additional insight into factors that can either enable or hinder the transfer of PD learning to classroom practice. By focusing on the predictive role of these TPB indicators, this study offers a framework for enhancing the effectiveness of K12 PD programs, particularly in the context of culturally responsive and social justice-oriented education.

## **Methodology**

### **Participants**

This quantitative, non-exploratory correlational study focused on K12 educators in the Mid-Atlantic U.S., examining the predictive influence of two Theory of Planned Behavior (TPB) indicators—normative and control beliefs—on educators' intent to implement their learning from in-person professional development (PD). The study targeted a population that included K12 classroom teachers, administrators, counselors, and support staff from elementary, middle, and high schools in private, non-sectarian schools. Survey invitations were sent to 68 participants who attended the summer 2023 Institutes for Teaching Diversity and Social Justice (IDSJ) sessions using Qualtrics online engagement software. Based on prior research, a sample size of approximately 80 is generally sufficient for TPB studies (Boslaugh, 2022). However, a minimum of 29 responses from the 68 administered surveys was required to achieve a 99% confidence level with a  $\pm 5\%$  margin of error. An a priori analysis helped determine the necessary sample size before data collection began (Kang, 2020).

The study design involved a single group without a control group, as it aimed to assess the predictive relationship between the TPB indicators and intent rather than explore causal effects. Power analysis conducted with G\*Power indicated that 29 survey responses would provide adequate power (.90) to detect medium effect sizes at a significance level of .05. With a sample size of 29 or more responses, statistical sufficiency was achieved by performing t-tests on the collected data. The predictor variables—normative and control beliefs—were analyzed about the outcome variable (intent to implement) across different school levels, school types, and years of service. No personal data was collected for this study, and the research adhered strictly to the Common Rule principles of respect for persons, beneficence, and justice.

Purposeful sampling was employed to recruit K12 educators who had attended IDSJ in June or August 2023. The study aimed to determine the statistical significance of TPB indicators in predicting a teacher's intent to implement the Social Justice Standards (SJS) following in-person PD. Participants were allowed to reflect on and potentially apply their IDSJ learning during the Fall 2023 semester, providing a realistic timeframe for observing intent to implement. The data collected from this sample group were intended to be generalizable to the broader population of K12 educators in similar contexts within the Mid-Atlantic region. Eligible participants received an email invitation with a link to the online survey, meeting the study's timeline specifications for those attending the June or August 2023 IDSJ sessions.

### **Instrumentation**

This quantitative correlational study used a survey administered via Qualtrics to gather data from K12 educators in the Mid-Atlantic U.S. who attended the 2023 IDSJ in-person PD sessions. Participants provided consent by clicking "I agree" in lieu of a signature, ensuring streamlined access to the survey.

The survey measured normative and control beliefs as predictors of educators' intent to implement the Social Justice Standards (SJS) in their practice. It included five sections: demographic information, intent to implement the SJS, normative beliefs, control beliefs, and facilitating conditions. Most questions used a seven-point Likert



scale to assess attitudes and beliefs aligned with the Theory of Planned Behavior (TPB). Items were adapted from previous TPB-based studies, eliminating the need for an elicitation study.

Demographic information reflected categories from the National Teacher and Principal Survey (NTPS) but excluded race and gender due to their consistent distributions in teaching demographics. Sections on intent, normative, and control beliefs were constructed using TPB guidelines, with items scored to quantify the influence of social pressure and perceived control over implementing the SJS.

In the final section, facilitating conditions, such as supportive school culture, resources, and administrative support, were measured with Yes/No responses to determine their influence on intent. Statistical analysis, including path analysis and regression, assessed the predictive strength of normative and control beliefs. At the same time, Cramer's V was used to evaluate the indirect and direct effects of facilitating conditions on implementation intent. This instrument offered a robust framework for understanding predictors of educators' application of the SJS in practice.

### **Ethical Considerations**

This study adhered to ethical protocols, securing IRB approval before data collection. Participation was confidential, and all collected data was stored securely in Qualtrics, SPSS, and on a password-protected external hard drive. IDSJ granted permission to conduct research with participants from the June and August 2023 institutes, and only the primary author had access to participant information and survey responses. Qualtrics' security settings ensured anonymized responses, blocked multiple submissions, and did not record IP addresses or location data.

Participants were notified of their rights, including the option to skip questions or exit the survey, which aimed to mitigate any minimal risks of discomfort from personal questions. No identifying information will be included in publications. Demographic questions included school type, level, and years of experience, but anonymization protocols were applied to minimize identification risks. Survey data was analyzed in SPSS using numerical codes for participant anonymity.

The study does not directly benefit participants, but findings may inform K12 professional development and support structures. Data will be securely stored for five years, after which it will be deleted. As a contributing author of the SJS and facilitator of the IDSJ workshops, the primary author acknowledges a vested interest in the study's outcomes. However, the 7-point Likert scale and quantitative design reduced subjectivity—all procedures aligned with the Belmont Report standards for research ethics.

### **Procedure**

The researcher created and deployed the survey in Qualtrics. Using the registration database from the in-person PD sessions on the SJS during IDSJ in June and August 2023, eligible participants were identified. Eligible participants were sent an invitation email containing a link to the survey. The survey began with a screener question to confirm eligibility, asking if participants attended the specified in-person PD sessions. Eligible educators were directed to the informed consent form (see Appendix D) and then to the survey. Four days after the initial invitation, the primary author checked the number of responses and sent a reminder email. Over the next week, five additional reminders were sent. The survey was closed 12 days after the initial invitation and once the sample size of 29 was reached.

### **Assessment**

The data analysis on completed questionnaires aimed to examine the statistical significance of Theory of Planned Behavior (TPB) indicators and facilitating conditions in predicting the implementation of an anti-bias framework (Social et al., or SJS) after attending in-person professional development (PD).

The results were mixed for Research Question 1 (RQ1), which asked to what extent normative beliefs predict SJS implementation. Participants generally felt it was expected of them to implement the SJS and that essential individuals, including classroom teachers, supported the implementation. However, they did not feel significant social pressure to do so. Thus, the null hypothesis was accepted and rejected: it was rejected concerning beliefs of close individuals and social pressure but accepted for general expectations among classroom teachers.

Research Question 2 (RQ2) investigated the influence of control beliefs on SJS implementation. Regression analysis and t-tests indicated strong support for the null hypothesis, showing that perceived control, such as the decision being out of the individual's hands or perceived ease or difficulty of implementation, significantly influenced intention. However, confidence in one's ability to implement led to rejecting the null hypothesis for

this aspect. These findings align with previous TPB research, suggesting that control beliefs strongly influence intention (Ajzen, 2020; Dunn et al., 2018; Fishbein & Ajzen, 2010).

Finally, Research Question 3 (RQ3) examined the role of facilitating conditions in predicting SJS implementation. Due to the sample size ( $N=29$ ), Cramer's V was used instead of Chi-Square for more excellent reliability. Cross-tabulations revealed that six facilitating conditions—adequate knowledge, class size, teaching materials, family involvement, administrative support, and staff support—were significant predictors of implementation intent. These findings support previous research on the importance of supportive conditions for transferring PD learning to practice (Bowles et al., 2018; O'Leary, 2022; Schelling, 2018; Spektor-Levy & Yifrach, 2019).

## Results

The study found that elements of TPB—normative, perceived, and actual control beliefs, along with specific facilitating conditions—significantly predict a person's intent to implement the SJS after IDSJ professional development. Using Pearson's  $r$  and frequency distributions, participant motivation to align with normative beliefs was assessed. Results showed that, while close contacts and classroom teachers encouraged SJS implementation, participants did not feel socially pressured to do so, partially rejecting H10 on normative beliefs.

Control beliefs, often a strong predictor of behavior, also supported H20, with participants confident in implementation but preferring shared decision-making. This contrasts with other studies indicating teachers may feel prepared but lack practical knowledge on implementation (NCES, 2022; Taie & Lewis, 2022).

Facilitating conditions, aligned with experience and tenure, were also significant predictors (H30). Teachers with 15+ years of experience showed a stronger intent to implement than those with 3-9 years, yet six of nine facilitating conditions items significantly predicted intent across experience levels.

Overall, TPB indicators were significant for predicting behavior transfer from in-person learning to practice, though they do not guarantee the desired behavior. Each predictor contained subcategories supporting and rejecting the null hypothesis, reflecting TPB's influence on behavioral tendencies without ensuring outcomes.

## Data Analysis

Data from the online questionnaire was directly uploaded to SPSS for analysis. Descriptive and inferential statistics were run to test three hypotheses: (H10) that normative beliefs predict the implementation of an anti-bias framework post-attendance at the Institute for Teaching Diversity and Social Justice; (H20) that control beliefs predict such implementation; and (H30) that facilitating conditions also predict implementation (Green & Salkind, 2017).

Inferential statistics, including regression and correlation analyses, were employed to examine the relationships between subjective beliefs, control beliefs, and facilitating conditions and their impact on the intent to implement new learning from PD (Martin et al., 2019). Independent t-tests compared intent to implement between groups based on years in teaching and years at the current school site, as opposed to grade level, as the responses indicated more variance across years of experience (Cresswell & Guetterman, 2019). Kolmogorov-Smirnov (K-S) tests further assessed relationships between predictor variables and intent to implement.

Pearson's  $r$  correlation tests examined associations between variables without implying causation (Bhandari, 2021). Binary and ordinal data provided a structured basis for analysis (Cresswell & Guetterman, 2019; Martin et al., 2019). Crosstabulations and Cramer's V were applied to support findings on the predictive influence of normative beliefs, control beliefs, and facilitating conditions on intent to implement. Descriptive statistics, including mean, median, mode, and standard deviation, were calculated to verify data reliability and validity, contributing to a comprehensive analysis of the predictors for transferring in-person PD learning to practice.

## Discussion

A key recommendation from this study is to establish regular, dedicated collaboration time for educators following professional development (PD) sessions. This time should be incorporated into the school schedule to allow reflection, discussion, and practical planning for implementing new skills in the classroom. Intentional collaboration sessions can help shape shared beliefs and expectations, influencing teachers' motivation to apply what they have learned, particularly with social justice standards. When teachers see collaboration as a norm, the likelihood of transferring PD knowledge to practice increases.

Another critical step is clarifying teachers' control over curriculum implementation. School leaders should outline which curriculum elements are flexible and which are mandatory. This transparency allows teachers to understand where they have the autonomy to incorporate strategies from PD into their teaching. Explicit communication about teachers' authority to adapt content helps close gaps between perceived and actual control, empowering them to make effective instructional decisions that align with anti-bias and other PD initiatives.

Improving PD evaluations is also essential. Traditional PD assessments often overlook how effectively new skills are applied in classrooms. Incorporating Theory of Planned Behavior (TPB) indicators into PD evaluation can provide insights into whether teachers feel they have the support and control needed to transfer new skills into practice. Evaluations that consider teachers' control beliefs and the influence of shared expectations can improve PD effectiveness by addressing barriers to implementation.

Additionally, ensuring supportive conditions for PD application at the school and district levels can facilitate learning transfer. This includes providing adequate resources, administrative support, manageable class sizes, and additional staff where necessary. These facilitating conditions help educators consistently apply PD learning, especially when implementing culturally responsive practices or significant instructional shifts.

Future research could broaden the focus to include diverse school environments, examine how political mandates affect teachers' curricular autonomy, and study the use of instructional design models like the Successive Approximation Model (SAM) to enhance PD development. Exploring how iterative feedback loops in instructional design can support or hinder the application of PD concepts in real classroom settings can deepen understanding of effective PD transfer.

### **Limitations**

This section presents the statistical findings for each research question and discusses their implications, including alignment with existing research and theoretical frameworks and explanations for unexpected results. The analysis highlights the most significant societal implications of the findings, distinguishing realistic outcomes from those less likely.

Voluntary participation and the relatively small sample size may influence the generalizability of the study findings. Voluntary participation in the IDSJ institutes was believed to be true, although some may have attended due to disciplinary action or other growth plan conditions encouraged by site-based supervisors. It was assumed that those who voluntarily attended IDSJ agreed philosophically with an approach to teaching and learning that incorporates CRP strategies. Participants also voiced agreement with a need to center anti-bias education goals in school-based activities. This shared philosophy assumes TPB's attitude indicator.

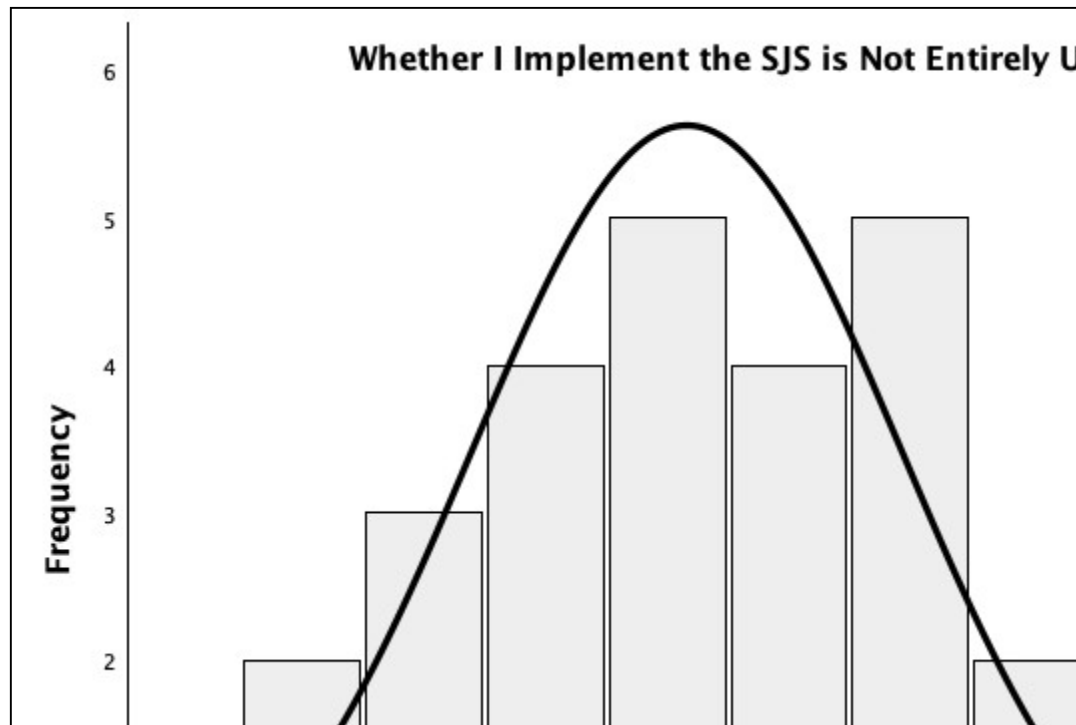
The study's limited sample size of 29 participants from private non-sectarian schools in the Mid-Atlantic U.S. may restrict the generalizability of findings to broader educator populations or different educational contexts. Though this sample met statistical requirements for TPB studies and achieved 90% power with a medium effect size, the narrow demographic scope and private school setting could limit applicability to public schools or other geographic regions.

The data provided mixed results for Research Question 1 (RQ1). While normative beliefs were shown to have some influence on implementing an anti-bias framework after attending the Institute for Teaching Diversity and Social Justice (IDSJ), findings were not uniformly significant, both accepting and rejecting the null hypothesis. Signifying that teachers' social influences and peer expectations have an inconsistent impact on whether they implement anti-bias practices. For educational leaders, this means that relying on peer pressure or social norms alone may not be enough to ensure teachers implement (or do not implement) anti-bias frameworks after training.

For Research Question 2 (RQ2), the data supported the null hypothesis, indicating that control beliefs—such as perceived difficulty, perceived control, and whether implementation was solely up to the individual—were significant predictors of the likelihood of implementing an anti-bias framework. (See Figure 1 *Frequency Distribution for "Whether I Implement Is Not Up to Me."*) For administrators, this means success requires addressing teachers' concerns about implementation challenges and ensuring they feel equipped and empowered to make necessary changes in their classrooms.



**Figure 1**



Frequency Distribution for "Whether I Implement Is Not Up to Me." (N = 25)

*Note.* Whether implementation is entirely up to the participant included a slight skew to the right at value 6.

Regarding Research Question 3 (RQ3), six out of nine identified facilitating conditions were statistically significant predictors of implementation, suggesting that specific contextual factors post-PD support the successful transfer of new learning to practice. (See Table 1 *Years at My Current School and Years of Teaching Experience \* Facilitating Conditions Crosstabulation Using Cramer's V (N = 27)*.) For professional development planners, this means identifying and providing the right post-training support(s) is crucial for getting teachers to apply anti-bias practices in their classrooms.

**Table 1**  
*Years at My Current School and Years of Teaching Experience \* Facilitating Conditions Crosstabulation Using Cramer's V (N = 27)*

Facilitating conditions	Yrs. at current school	Yrs. of exp.
Adequate Knowledge	.411	.219
Accepting School Culture	*	*
Dedicated Time	.548	.395
Class Size	.354	.250
Necessary Teaching Materials	.277	.098
Collaborative Collegial Relationships	.231	.545
Family/Caregiver Involvement	.437	.259
Administrative Support	.219	.367
Additional Staff	.154	.270

*Note.* The effect size magnitude is .1 for small, .3 for medium, and .5 for large.

Overall, the findings suggest that elements of the Theory of Planned Behavior (TPB), including control and normative beliefs, are useful indicators for predicting the transfer of professional development learning to classroom practice among K12 educators, and certain facilitating conditions after training appear to strengthen implementation outcomes.

### Conclusion

TPB has been used across many disciplines to explain human behavior, as it explores how a person's attitude influences their actions or inactions (Archie et al., 2022). The theory of planned behavior has been applied to explore its pertinency in predicting a teacher's intent to transfer their learning from in-person PD to their classroom practice (Archie et al., 2022; Ateş & Garzón, 2023; Bowles et al., 2018; Li & Cheung, 2021; Opoku, 2022; Rad et al., 2023; Wu et al., 2022; Ziaabiadi et al., 2023). This study directly examined TPB's normative and control belief indicators and facilitating conditions that may inhibit or enable intent to implement the SJS after attending in-person PD. In the context of TPB, normative beliefs reflect the attitudes and beliefs of one's community, and individual attitudes and behaviors in relationships with friends, family, and colleagues are considered when factoring normative beliefs (Ajzen, 1991). TPB control beliefs, perceived or actual, cognitive and behavioral, allow researchers to evaluate the level of autonomy one believes they have and how that influences their ability to act (Ajzen, 2008; Boslaugh, 2022; Wu et al., 2022). In the case of K12 educator training, decisions about programming, training implementation, and evaluation are inconsistent (Mullen et al., 2022; O'Leary, 2022; Sims & Fletcher-Wood, 2021), and teacher preparedness varies dramatically as a result (Farmer, 2020; Gay, 2018; Gibbons & Farley, 2019; Simpson, 2023). This research aimed to test whether TPB indicators could be used to predict intent to transfer in-person PD learning to practice, which are not currently considered when judging PD effectiveness. Current PD evaluation measures include teacher-reported self-efficacy, attitude, or individual student outcomes (Sims & Fletcher-Wood, 2021), but not normative and control belief indicators or facilitating conditions. What others believe about the new pedagogy and the individual educator's feeling of autonomy impacts the intent to implement. Facilitating conditions enable (or disrupt) implementation. While the intent to implement new learning contributes to whether pedagogies that aim to increase skills that reduce division across differences will be implemented (Delk, 2019; Gesel et al., 2021; Stewart, 2020), normative beliefs, control beliefs, and job-embedded follow-up contribute to actual implementation.

The findings here demonstrated that K12 educators are more likely to implement the SJS as a CRP approach if other classroom teachers think they should, if they believe it is expected of them to do so, and if they believe they have the power to implement it. As Ajzen (2020) asserted, all three belief indicators—behavioral, normative, and control—impact the frequency of performing the targeted behavior. Overall, the discoveries reported here support TPB's statistically significant predictability for the transfer of in-person learning to practice. K12 educator PD only sometimes considers these indicators, specifically whether campus climate will support the implementation of targeted learning (Zimmer & Matthews, 2022), but if practitioners fail to transfer skills to the classroom, the PD program is ineffective.

It is sometimes assumed that TPB indicators will produce a guaranteed correlation to a desired behavior; however, as shown through the nuances of the results shared here, that is not true. TPB indicators suggest behavioral tendency, largely reliant on attitude about the target behavior, it does not guarantee behavior. Participants reported they want to implement the SJS; they know how to implement the SJS, but if the school culture disallows the implementation, they are less likely to implement the SJS. If the listed facilitating conditions are not present, they are less likely to implement the SJS or will implement the SJS less often. If teachers do not feel they have autonomy over their content and curriculum, they will not implement the SJS, even when their behavioral beliefs support the implementation. In this study, TPB as a theoretical framework offered additional statistically significant data that confirms a known gap between what is learned during in-person PD and what is applied to practice, but the gap is not due to the content or structure of the in-person PD experience. The gap is due to what happens (or fails to happen) after the in-person experience.

### References

- Abacioglu, C. S., Volman, M., & Fischer, A. H. (2020). Teachers' multicultural attitudes and perspective taking abilities as factors in culturally responsive teaching. *British Journal of Educational Psychology, 90*(3), 736-752. <https://doi.org/10.1111/bjep.12328>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Process, 50*(2), 179-211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Ajzen, I. (Ed.). (2008). *Theory of planned behavior*. SAGE Publications, Inc., <https://doi.org/10.4135/9781412953948>

- Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies* 2(4), 314-324. <https://doi.org/10.1002/hbe2.195>
- Allen, M. (2017). *The Sage encyclopedia of communication research methods* (Vols. 1-4). SAGE Publications, inc. <https://dx-doi.org/10.4135/9781483381411.n476>
- Archie, T., Hayward, C. N., Yoshinobu, S., & Larsen, S. L. (2022). Investigating the linkage between professional development and mathematics instructors' use of teaching practices using the theory of planned behavior. *PLoS ONE* 17(4) <https://doi.org/10.1371/journal.pone.0267097>
- Ateş, H., & Garzón, J. (2023). An integrated model for examining teachers' intentions to use augmented reality in science courses. *Education and Information Technologies: The Official Journal of the IFIP Technical Committee on Education*, 28(2), 1299-1321. <https://doi.org/10.1007/s10639-022-11239-6>
- Bhandari, P. (2021, August 2). *An introduction to correlational research*. Scribbr.com <https://www.scribbr.com/methodology/correlational-research>
- Bliske, M. N. (2023). Impact of teacher cognition on the implementation of social-emotional learning practices for EL students [ProQuest Information & Learning]. In *Dissertation Abstracts International: Section B: The Sciences and Engineering* (Vol. 84, Issue 3-B).
- Boslaugh, S. E. (2022). Theory of planned behavior. *Salem Press Encyclopedia*.
- Bowles, T., Hattie, J., & Ryan Jay, K. D. (2018). Using the theory of planned behavior to explore teachers' intentions to engage in ongoing teacher professional learning. *Studies in Educational Evaluation*, 59, 288-294.
- Caldwell, E. C. (2022). *The impact of quality professional development in the areas of culturally relevant pedagogy and culturally responsive teaching: An instrumental case study in an economically disadvantaged rural middle school* (Order No. 29322606). Available from ProQuest One Academic. (2741030520). <https://www.proquest.com/dissertations-theses/impact-quality-professional-development-areas/docview/2741030520/se-2>
- Cochran-Smith, M., & Reagan, E. M. (2021). "Best practices" for evaluating teacher preparation programs. National Academy of Education Committee on Evaluating and Improving Teacher Preparation Programs. National Academy of Education.
- Cresswell, J. W., & Guetterman, T. C. (2019). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (6<sup>th</sup> ed.). Pearson Education Inc.
- Delk, T. D. (2019). Are teacher-credentialing programs providing enough training in multiculturalism for pre-service teachers? *Journal for Multicultural Education*, 13(3), 258-275. <https://doi.org/10.1108/JME-01-2019-0003>
- Derman-Sparks, L., & Olsen-Edwards, J. (1989). *Anti-bias curriculum: Tools for empowering young children*. National Association for the Education of Young Children.
- Derman-Sparks, L., & Olsen-Edwards, J. (2019). Understanding anti-bias education: Bringing the four core goals to every facet of your curriculum. *Young Children*, 74(5).
- Dunn, R. J. K., Bowles, T., & Hattie, J. (2018). Using the theory of planned behavior to explore teachers' intentions to engage in ongoing teacher professional learning. *Studies in Educational Evaluation*, 59, 288-294. <https://www.sciencedirect.com/science/article/pii/S0191491X17303176?via%3Dihub#sec0025>
- Farmer, D. (2020). Teacher attrition: The impacts of stress. *Delta Kappa Gamma Bulletin*, 87(1), 41-50. <https://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=146314001&authtype=sso&custid=s1229530&site=eds-live&scope=site&custid=s1229530>
- Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: The reasoned action approach*. Psychology Press.
- Gay, G. (2018). *Culturally responsive teaching: Theory, research, and practice* (3<sup>rd</sup> ed.). Teachers College Press.
- Gesel, S. A., LeJeune, L. M., Chow, J. C., Sinclair, A. C., & Lemons, C. J. (2021). A meta-analysis of the impact of professional development on teachers' knowledge, skill, and self-efficacy in data-based decision-making. *Journal of Learning Disabilities*, 54(4), 269-283. <https://doi.org/10.1177/0022219420970196>
- Gibbons, S., & Farley, A. N. (2019). The use of video reflection for teacher education and professional learning. *Mid-Western Educational Researcher*, 31(2), 263-273.
- Green, S., & Salkind, N. (2017). *Using SPSS for Windows and Mac analyzing and understanding the data* (8<sup>th</sup> ed.). Pearson.
- Gupta, A. (2020). Preparing teachers in a pedagogy of third space: A postcolonial approach to contextual and sustainable early childhood teacher education. *Journal of Research in Childhood Education*, 34(1), 43-58. <https://doi.org/10.1080/02568543.2019.1692108>

- Kang, H. (2020). Sample size determination and power analysis using the G\*Power software. *Journal of Educational Evaluation for Health Professions*, 18. <https://doi.org/10.3352/jeehp.2021.18.17>
- Kitts, H. (2022). Critical possibilities for teacher education. *Research in Education*, 112(1), 80–94. <https://doi.org/10.1177/0034523720915738>
- Kober, N., Rentner, D. S., & Ferguson, M. (2020). *History and evolution of public education in the US*. Center on Education Policy. <https://files.eric.ed.gov/fulltext/ED606970.pdf>
- Ladson-Billings, G. (1995). Toward a theory of culturally relevant pedagogy. *American Educational Research Journal*, 32(3), 465-491.
- Li, K. M., & Cheung, R. Y. M. (2021). Pre-service teachers' self-efficacy in implementing inclusive education in Hong Kong: The roles of attitudes, sentiments, and concerns. *International Journal of Disability, Development & Education*, 68(2), 259-269. <https://doi.org/10.1080/1034912X.2019.1678743>
- Martin, A. J., Collie, R. J., Durksen, T. L., Burns, E. C., Bostwick, K. C. P., & Tarbetsky, A. L. (2019). Growth goals and growth mindset from a methodological-synergistic perspective: Lessons learned from a quantitative correlational research program. *International Journal of Research & Method in Education*, 42(2), 204.
- McCoy, M. L., & Villeneuve, M. (2020). Reconciling schooling: Centering indigenous experimentation in Indian education history. *History Education Quarterly* 60, 487-519.
- Mullen, C. A., Fitzhugh, G., II, & Hobson, A. J. (2022). District-wide mentoring: Using Kram's model to support educators. *Kappa Delta Pi Record*, 58(1), 26-31. <https://doi.org/10.1080/00228958.2022.2005431>
- National Center for Education Statistics (NCES). (2022). Public school expenditures. *Annual reports and information staff (Annual Reports)*. <https://nces.ed.gov/programs/coe/indicator/cmb>
- O'Leary, K. E. (2022). *Perceptions of inconsistencies in content and delivery of professional development on the personalized learning approach: A qualitative case study* (Ed.D.). Available from Dissertations & Theses @ Northcentral University. (2658833752). <https://www.proquest.com/dissertations-theses/exploring-teachers-experiences-educator/docview/2658833752/se-2>
- Opoku, M. P. (2022). Special educators' intentions towards supporting practice of inclusive education for students with disabilities in secondary schools in Ghana. *African Journal of Disability*, 11(1), 1-12. <https://doi.org/10.4102/ajod.v11i0.875>
- Rad, D., Redeş, A., Roman, A., Egerău, A., Lile, R., Demeter, E., Dughi, T., Ignat, S., Balaş, E., Maier, R., Kiss, C., Mărineanu, V., Bocoş, M., Corina, G., Cuc, L. D., Vancu, G., Rad, G., & Chiş, R. (2023). The use of theory of planned behavior to systemically study the integrative-qualitative intentional behavior in Romanian preschool education with network analysis. *Frontiers in Psychology*, 13, 1017011. <https://doi.org/10.3389/fpsyg.2022.1017011>
- Schelling, N. R. (2018). *Elementary teachers' use of data-driven instruction: An application of the theory of planned behavior*. (2018-48572-133). <https://doi.org/10.1007/s11092-021-09356-w>
- Simpson, F. S. (2023). *Exploring teachers' experiences of educator preparation programs implementing mathematical content and pedagogy: A case study* Available from ProQuest Dissertations & Theses Global. (2838623037). <https://www.proquest.com/dissertations-theses/exploring-teachers-experiences-educator/docview/2838623037/se-2?accountid=25320>
- Sims, S., & Fletcher-Wood, H. (2021). Identifying the characteristics of effective teacher professional development: A critical review. *School Effectiveness and School Improvement*, 32(1), 47–63. <https://doi.org/10.1080/09243453.2020.1772841>
- Spektor-Levy, O., & Yifrach, M. (2019). If science teachers are positively inclined toward inclusive education, why is it so difficult? *Research in Science Education*, 49(3), 737-766. <https://doi.org/10.1007/s11165-017-9636-0>
- Stewart, M. T. (2020). *Multicultural education: A qualitative case study to examine alignment of preservice training to classroom practice* (Order No. 27995682). Available from Dissertations & Theses @ Northcentral University. (2423626189). <https://go.openathens.net/redirector/ncu.edu?url=https://www.proquest.com/dissertations-theses/multicultural-education-qualitative-case-study/docview/2423626189/se-2>
- Taie, S., & Lewis, L. (2022). *Characteristics of 2020-21 public and private K-12 school teachers in the United States: Results from the national teacher and principal survey first look* (NCES 2022-113). U.S. Department of Education. <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2022113>
- Taylor, J. D. (2022). *Exploring the Stories of Culturally Responsive Pedagogy in Teachers' Pre-Education Programs and Professional Development* (Order No. 29326267). Available from ProQuest One

- Academic. (2705753206). <https://www.proquest.com/dissertations-theses/exploring-stories-culturally-responsive-pedagogy/docview/2705753206/se-2>
- United States. (1978). *The Belmont report: Ethical principles and guidelines for the protection of human subjects of research*. The Commission. <https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/index.html>
- University of Pittsburgh. (2021, October 26). *Qualtrics security guide*. Information Technology. <https://www.technology.pitt.edu/qualtrics-security-guide>
- U.S. Department of Education (U.S. DOE). (n.d.). Every Student Succeeds Act (ESSA). <https://www.ed.gov/essa?src=policy>
- Wu, P., Yang, L., Hu, X., Li, B., Liu, Q., Wang, Y., & Huang, J. (2022). How K12 teachers' readiness influences their intention to implement STEM education: Exploratory study Based on decomposed theory of planned behavior. *Applied Sciences*, 12(11989), 11989. <https://doi.org/10.3390/app122311989>
- Young, J., & Young, J. (2021). A systematic review of culturally responsive teaching self-efficacy using confidence intervals. *Multicultural Learning and Teaching*, (0).
- Yuriev, A., Dahmen, M., Paillé, P., Boiral, O., & Guillaumie, L. (2020). Pro-environmental behaviors through the lens of the theory of planned behavior: A scoping review. *Resources, Conservation and Recycling*, 155, Article 104660. <https://doi.org/10.1016/j.resconrec.2019.104660>
- Zephier, O., & Dombrowski, K. (2020). A systematic review of Indian boarding schools and attachment in the context of substance use studies of Native Americans. *Journal of Racial and Ethnic Health Disparities*, 7, 62-71.
- Ziaabiadi, F., Karimi, M. N., & Hashemi, M. R. (2023). English teachers' conceptions of EIL, the associated principles, and corresponding instructional practices: A theory of planned behavior analysis. *Test-Ej*, 27(2), 1-30. <https://doi.org/10.55593/ej.27106s8>
- Zimmer, W. K., & Matthews, S. D. (2022). A virtual coaching model of professional development to increase teachers' digital learning competencies. *Teaching and Teacher Education*, <https://doi.org/10.1016/j.tate.2021.103544>