

Development and Validation of the Instructional Supervision Sense of Efficacy Scale

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Abstract

The knowledge and skills needed to effectively serve as an instructional supervisor have been well-documented (Cogan, 1973; Glickman et al., 2014; Zepeda & Ponticell, 2018). However, there is a gap in the literature regarding the self-efficacy of instructional supervisors in facilitating teacher growth through reflective practices. Bandura (1997) defined efficacy as one's belief in one's abilities to perform a given task, while Tschannen-Moran et al. (1998) explored teachers' beliefs in their impact on student learning and behavior. This manuscript introduces the Instructional Supervision Sense of Efficacy Scale (ISSES), developed as part of the Instructional Supervision for Educational Excellence in Belize (i-SEE Belize) project, funded by a 2020 CARSI grant. An exploratory factor analysis using principal axis factoring with promax rotation was conducted to investigate the latent structure of the ISSES, providing insights into the self-efficacy of instructional supervisors.

Keywords

instructional supervision; self-efficacy; Belize; field supervision

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Introduction

In collaboration with the Teacher Education Unit within the Belize Ministry of Education, Culture, Science, and Technology (MoECST), Stann Creek Ecumenical Junior College, and The University of Belize – Toledo, The University of Texas at Tyler faculty supported the MoECST's work to improve the education of children in southern Belize through teachers' and supervisors' instructional leadership capacity building. This work was part of a larger project, the Instructional Supervision for Educational Excellence in Belize (i-SEE Belize) project, funded by a 2020 Central American Regional Security Initiative (CARSI) grant through the US Embassy in Belmopan. The supervision-focused activities aimed to develop field supervisors', instructors', and principals' understanding of instructional supervision to enrich the instructional support that pre-service and newly qualified teachers receive from the teacher education institutions and school leaders. Throughout the project, multiple instructional and supervision resources were newly developed to promote instructional supervision and student-centered instruction. The Instructional Supervision Sense of Efficacy Scale (ISSES) presented in this paper is one of the instruments developed, used, and validated as part of the i-SEE Belize project.

At the beginning of the 2020 project, through professional development and in-depth conversations with experienced Belizean educators, the team leaders, including three of the authors, recognized that supervisors' self-perceptions of efficacy were influenced by the hierarchical structure of the Belizean culture. This understanding highlighted the importance of aligning perceptions with effective practices. The understanding of instructional supervision was inconsistent; there was a tendency to use the terms supervision and evaluation interchangeably due to educators' limited awareness of the distinctions between the two processes. The supervisors participating in the project were expected to engage in clinical supervision to support and direct newly qualified teachers within their first three to five years in the classroom after earning their associate degree. The team developed a rubric with expectations for supervisors and the self-efficacy scale. The purpose of this scale was to measure the supervisors' awareness regarding their development of the needed knowledge and skills to effectively serve as instructional supervisors. This manuscript's purpose is to report validation of the efficacy instrument curated and utilized to measure perception progression.

Literature Review

Understanding the dynamics of instructional supervision and the self-efficacy of supervisors is critical in enhancing educational leadership and improving teacher performance and student outcomes. This review examines the theoretical foundations of self-efficacy, the evolution of instructional supervision, the influence of cultural and contextual factors, recent empirical studies, and the identified gaps in the literature. The goal is to provide a comprehensive and updated overview that informed the development of the Instructional Supervision Sense of Efficacy Scale (ISSES).

Theoretical Foundations of Self-Efficacy

Self-efficacy is defined by Bandura (1977) as an individual's belief in their capacity to accomplish specific tasks or achieve goals. This belief is influenced by four primary sources:

mastery experiences, physiological and emotional states, vicarious experiences, and social persuasion, (Bandura, 1986). Bandura (1997) further delineated that beliefs about whether an individual can yield certain actions are not synonymous with beliefs about whether those actions affect outcomes and that Rotter's (1966) scheme of internal-external locus of control is not tied to personal efficacy. Based on these findings, Tschannen-Moran et al. (1998) expanded Bandura's definition to provide specificity of context for teacher efficacy as "the extent to which teachers believe that they can control the reinforcement of their actions and whether control of reinforcement lay within themselves or the environment" (p. 202).

Early self-efficacy research was conducted primarily in clinical therapeutic contexts but has expanded to wide-ranging applications in both education and occupational settings globally (Schunk & DiBenedetto, 2021). Within this scope of research, it has been well documented that self-efficacy influences motivation and performance (Bandura, 1997; Schunk & DiBenedetto, 2020; Tschannen-Moran et al., 1998). However, although self-efficacy is widely acknowledged as a strong predictor of behavior (Schunk & DiBenedetto, 2020), it is not the only determinant of success, as context also plays a crucial role in those self-efficacy perceptions (Bandura, 1977; Tschannen-Moran et al., 1998). Both cultural and contextual differences can significantly impact self-efficacy beliefs as different cultures may emphasize distinct sources of self-efficacy, and different social and environmental contexts can influence an individual's confidence in their abilities (Bandura, 2006; Schunk & DiBenedetto, 2021).

The global exploration and study of self-efficacy, particularly within the realm of education, has led to several foundational constructs that direct the curation of scales to accurately measure and analyze self-efficacy perceptions. Bandura (1977) first developed the foundational Self-Efficacy Scale which aimed to assess individuals' beliefs in their ability to perform a range of tasks. This scale was informed by Bandura's work in defining self-efficacy with its influence in Social Cognitive Theory. Many researchers have since expanded Bandura's scale to provide domain-specificity (Schwarzer et al., 1995) and situational consideration related to occupation with scales specific to professional workplaces and content such as the Self-Efficacy for Managing Chronic Disease Scale (Lorig et al., 1989), and the Career Decision Self-Efficacy Scale (Lent et al., 1994).

In the field of education, variations of Bandura's foundational scale have been created to capture this multifaceted but impactful concept as it relates specifically to teacher efficacy (Tschannen-Moran & Hoy, 2001). The Rand Measure is credited as one of the initial academic measures of teacher efficacy with two items specifically linked to Bandura's theories, and a primary influencer of the development of the Gibson and Dembo's (1984) Sources of Teacher Efficacy Scale (STES) as a definitive and measurable combination of the two's conceptual underpinnings (Tschannen-Moran et al., 1998). From this theoretical intersection, more widely recognized educational efficacy instruments have been utilized such as Tschannen-Moran and Hoy's (2001) Teacher Self-Efficacy Scale (TSES) which measures teachers' beliefs in their ability to impact student learning and behavior.

Additionally, further expansion or narrowing of the instruments has been explored to account for contextual variables and factors related to specific subject matter. Some of the content specific scales more commonly analyzed are Enochs and Riggs' (1990) Science Teaching Efficacy Belief

Instrument (STEBI) and Mathematics Teacher Efficacy Beliefs Instrument (MTEBI), Usher and Pajares's (2006) Sources of Mathematics Self-Efficacy Scale (SMSES), Klassen et al.'s (2009) Preservice Teacher Self-Efficacy Scale (PTSES), and Ertmer et al.'s (2012) Technology Integration and Teacher Efficacy Scale (TITES), among others.

The importance of culture and context together in the development of self-efficacy indicates a need for differentiation in scale instruments to provide consideration and specificity of both context and culture situated within the bounds of a study (Bandura, 2006). This is evidenced by the traceable expansion of instruments built upon foundational self-efficacy theory while accounting for the impact of specific contextual and cultural variations. Furthermore, it is crucial for any self-efficacy scale to undergo rigorous analysis to establish reliability and validity (Klassen et al., 2009), and despite a rich history in research, opportunities for improved generality in diverse contexts remain. Ongoing research in the category of self-efficacy measurement is focused on exploring both the potential impact and improvement to scale implementation and measurement brought forth by technological advancements as well as continued refinement and improvement of scale generalizability to expand self-efficacy theory to diverse contexts and populations (Schunk & DiBenedetto, 2020).

Instructional Supervision

To further understand the role of instructional supervision within the project, reflection on the current cultural context of the project was compared to the foundational and current literature on instructional supervision. In Belize, instructional supervision has been perceived and enacted as a structured evaluative process with the goal of enhancing pre-service and in-service teachers' teaching. The perception and implementation of instructional supervision in Belize, intended to be in alignment to Cogan's definition of cognitive supervision (1973), have been historically misaligned to with the intent of supervision as defined by supervision scholars. Cogan (1973) defined the clinical supervision cycle to operationalize the purpose of clinical supervision—to help teachers improve their teaching (p. 29). Goldhammer (1969) expanded the definition by proposing that clinical supervision is a prescribed, formal process to improve teaching through collaboration between the teacher and supervisor, while Sergiovanni et al. (2013) reiterated that regardless of the form, supervision ought to focus on guiding teachers to reflect on their practices while expanding their understanding of learning, their actions as teachers, and how to grow professionally. This distinction between supervision and evaluation is crucial for effective instructional supervision and illustrates the arc of the evolution of instructional supervision throughout its history (McGhee & Stark, 2021). Acheson and Gall (2010) identified four goals for clinical supervision which include providing teachers objective feedback, addressing instructional challenges, enhancing their teaching skills, and assessing their performance.

Throughout the years, clinical or instructional supervision has transitioned to instructional leadership in various contexts in the United States and educators have adopted a more democratic process where teachers' expertise is valued and conversations are led by the teachers' self-reflection about their practices (Glanz, 2018; Mette et al., 2017). In Belize, the prevailing perception of supervision is often more hierarchical. A shift toward a collaborative, reflective process is supported by Glickman (1992), who highlighted the importance of this shift for effective supervision.

The instructional supervision model and instruments selected for the implementation of the i-SEE Belize project were designed to provide supervisors and school leaders with a structure to enact “an organizational function concerned with teacher growth, leading to improvement in teaching performance and greater student learning” (Nolan & Hoover, 2011, p. 6). The instructional supervision cycle includes a pre-observation conference, classroom observation of a full lesson, and a post-observation conference (Cogan, 1973; Goldhammer, 1969; Zepeda & Ponticell, 2018). The supervisor is expected to collect data during the classroom observation and utilize the gathered data to guide the post-observation conference (Goldhammer, 1969; Zepeda & Ponticell, 2018) with the goal of supporting the teacher in the enhancement of teaching and student learning.

Addressing the Gap in the Literature

Recent studies have provided valuable insights into instructional supervision and self-efficacy. For example, Lee and Yin (2020) explored the relationship between instructional leadership self-efficacy and feedback practices. Additionally, research has examined how supervisors’ self-efficacy impacts teachers’ ability to implement evidence-based instructional strategies. Mancuso and Caprara (2022) investigated how emotional intelligence moderates the relationship between instructional supervisor self-efficacy and teacher collaboration.

Research has also highlighted the critical role of instructional leadership in shaping teacher self-efficacy regarding its broader impact on educational outcomes. Caprara et al. (2006) found that teachers’ self-efficacy beliefs directly influence job satisfaction and student achievement, reinforcing the importance of strong instructional leadership. Similarly, research by Coban, Ozdemir, and Bellibas (2020) demonstrated that trust in principals and a focus on instructional leadership are positively correlated with increased teacher self-efficacy and collaboration among educators.

Building on these findings, Khan, Preeti, and Gupta (2024) identified a strong link between instructional leadership and teacher self-efficacy, with the latter acting as a key mediator between leadership and job satisfaction, particularly in the Indian context. Additionally, research emphasizes the importance of instructional supervision practices, noting that effective leadership significantly enhances teacher efficacy and overall instructional quality (Mette et al., 2023a; Mette et al., 2023b; Oliveras-Ortiz, 2017). These studies collectively emphasize the vital role of instructional leadership in fostering a supportive environment that enhances teacher performance and satisfaction.

Despite the robust body of literature on instructional supervision and self-efficacy, there remains a gap in understanding how supervisors’ self-efficacy specifically influences their ability to perform tasks that facilitate sustained teacher growth through reflective practices. While extensive research exists on the impact of instructional supervision on teacher outcomes such as student achievement and classroom practices (Glickman et al., 2014), there remains a need for more understanding of how supervisors’ self-efficacy specifically influences their ability to perform tasks that facilitate sustained teacher growth through reflective practices (Cormier et al., 2024; Mette et al., 2024). Research has demonstrated the importance of instructional supervisors’

self-efficacy in shaping effective leadership practices (Lee & Yin, 2020). Additionally, studies have been conducted to investigate how emotional intelligence moderates the relationship between instructional supervisor self-efficacy and teacher collaboration for teacher improvement (Mancuso & Caprara, 2022). However, studies directly linking the self-efficacy of instructional supervisors to specific actionable tasks for teacher growth are sparse. The existing body of research adjacent to this connection generally focuses on leadership efficacy as a whole or broader supervisory practices without narrowing in on instructional tasks and the actions necessary for successful instructional supervision (Cummings, 2018).

These studies help to further establish the implications of higher supervisor self-efficacy on teacher growth, however more research is needed to identify the actionable facilitation of instructional supervision combined with supervisor self-efficacy and its impact on the quality and effectiveness of instructional supports. Addressing this gap will both enrich theoretical frameworks on instructional supervision as well as inform practical strategies for supervision training and initiatives aimed at improving instructional supervision approaches and practices.

Scale Development

To ensure the Instructional Supervision Sense of Efficacy Scale (ISSES) was rigorously aligned with instructional supervision literature, a comprehensive and systematic review process was employed. This process began with the identification of core literature, including seminal works by Cogan (1973), Glickman et al. (2014), and Zepeda & Ponticell (2018). A thematic analysis of these foundational texts and other contemporary studies was conducted to extract key competencies and skills necessary for effective instructional supervision. These competencies included the ability to ask reflective questions, build professional relationships, and utilize data to inform instruction. Expert consultation with experienced educators and instructional supervisors from both Belize and the United States was an integral part of the process, ensuring that our interpretations were grounded in practical realities. This collaborative approach allowed us to refine our themes and validate our findings, ensuring the scale's relevance and applicability in diverse educational contexts.

The development involved multiple rounds of iterative revisions, incorporating feedback from pilot studies, expert reviews, and participant responses. This iterative process ensured that the scale was both comprehensive and accurately aligned with established instructional supervision literature. We employed rigorous validation techniques, including exploratory factor analysis (EFA) and reliability testing, which demonstrated strong internal consistency and construct validity. Additionally, the scale was adapted to consider the unique cultural and contextual factors in Belize, ensuring cultural relevance and applicability. By following this systematic and rigorous development process, we ensured that the ISSES is firmly rooted in established instructional supervision literature while also being responsive to the specific needs and contexts of the educators and supervisors involved in the study.

To address this need in alignment with scholars' recommendations for the practice of instructional supervision (Zepeda & Ponticell, 2018), the team developed a rubric to identify the practices and strategies valued by the Belize MoECST, and the expected performance levels for each of the identified performance indicators. Moreover, the rubric aimed to support field

supervisors in the development of a shared understanding of the knowledge and skills teachers should develop through the supervision process, and to guide the dialogue during the pre-observation and post-observation conferences. To shift the focus from evaluation to professional growth, field supervisors were asked not to share rubric-based ratings with teachers after observations, emphasizing the goal of supporting teachers' professional development.

The ISSSES was developed to articulate the knowledge and skills required of instructional supervisors in alignment with the instructional supervision literature. The scale development process undertaken by the i-SEE Belize team was guided by established instructional supervision literature, particularly the seminal work of Glickman et al. (2014), which identified critical knowledge and skills necessary for effective supervision. In alignment with Glickman et al.'s work (2014), the scale was divided into three subscales: technical skills, interpersonal skills, and knowledge.

The comprehensive development process began with a 24-item scale structurally modeled after Tschannen-Moran and Hoy's teacher self-efficacy scale (2001). Once the original 24 items were developed, the team analyzed the items to ensure alignment to instructional supervision literature. Many items were revised, and content rewritten as the thematic structure of Tschannen-Moran and Hoy's scale was not aligned with the instructional supervision scale's content.

During the first revision, the team identified the themes and content required to assess instructional supervisors' efficacy. The scale items focused on conferencing technical skills and capacity to lead data-informed conferences, pedagogical and instructional knowledge, and interpersonal skills (Glickman et al., 2014; Zepeda & Ponticell, 2018). The team delved into the themes and wrote an additional 66 items, a total of 90 items. The 90-item scale was distributed to teacher educators in the United States, educational leaders in Belize, and a selected group of instructional supervisors. The goal was to garner feedback regarding clarity of the items and redundancy of the measures. Based on the feedback, the items were rewritten for clarity and 27 items were eliminated entirely. The new iteration of the scale of 63 items was distributed to instructional supervisors and school principals in Belize, as well as U.S. supervision scholars. The pilot group completed the scale and provided feedback regarding perceived gaps in the scale. The team utilized the feedback to further refine and narrow down the scale to 31 items. Once the final 31 items were selected, the scale was utilized in the i-SEE Belize project. The scale was deployed and used a pre-assessment, mid-point, and post-assessment of instructional supervisors' self-efficacy during the project.

Belize's educational system, characterized by cultural diversity and ongoing reforms, provided the backdrop for the i-SEE Belize project, which aimed to enhance instructional supervision practices. Belize, a Central American and Caribbean country south of Mexico, east of Guatemala and north of Honduras, has a population of nearly half-million residents. Belize has a culturally diverse population; the largest ethnic groups are Creole, East Indian, Garifuna, Maya, and Mestizos. Belize has a diverse education system currently amidst a national transformation after the government transition in 2020. The MoECST is responsible for overseeing and managing the country's education system.

The education system is divided into four levels: early childhood education, equivalent to preschool and kindergarten in the U.S. Primary schools are structured by standards, Standard One through Six, starting at age six. Secondary schools provide education for an additional four years, from Form One to Four. At the tertiary level, the University of Belize, the national public university, offers undergraduate through master level degrees, and six of the junior colleges offer an associate in arts in education degree. Educators are eligible for full teaching licenses upon completion of an associate of arts in education degree. To serve as a field supervisor in a teacher preparation program, at the associate and bachelor program, a full teaching license is recommended by the MoECST's Tertiary Education Unit, but the teacher education institutions have control of who they hire. At the i-SEE Belize project, there were no requirements regarding level of education or experience required to serve as a field supervisor.

Methods

Principals, field supervisors, and teacher educators from various districts in Belize participated in the project, which reflects the diverse demographic and professional backgrounds of the participants. One hundred twenty Belize participants completed the scale for the validity "study." The demographics of the participants were 20% Creole, 13% East Indian, 28% Garifuna, 13% Maya, 23% Mestizo, Spanish or Latino, 3% mixed. Sixty-seven and a half percent were female and 32.5% male. The participants reported years of teaching experience ranging from zero to over 40 years; 14% of participants reported zero to five years of teaching experience, 8% six to 10 years, 46% 11–20, 24% 21–30, and 8% 31–40 or more years of teaching experience. The participants' years of experience as a field supervisor ranged from zero to 26 years; 39% of participants reported zero to five years of teaching experience, 32% six to 10 years, 24% 11–20, and 5% 21–26 years of supervision experience. The participants represented all six districts of Belize; 13% BC; 4% Cayo, 6% Corozal, 3% Orange Walk, 48% Stann Creek, 20% Toledo, and 6% reported working with newly qualified teachers in more than one district.

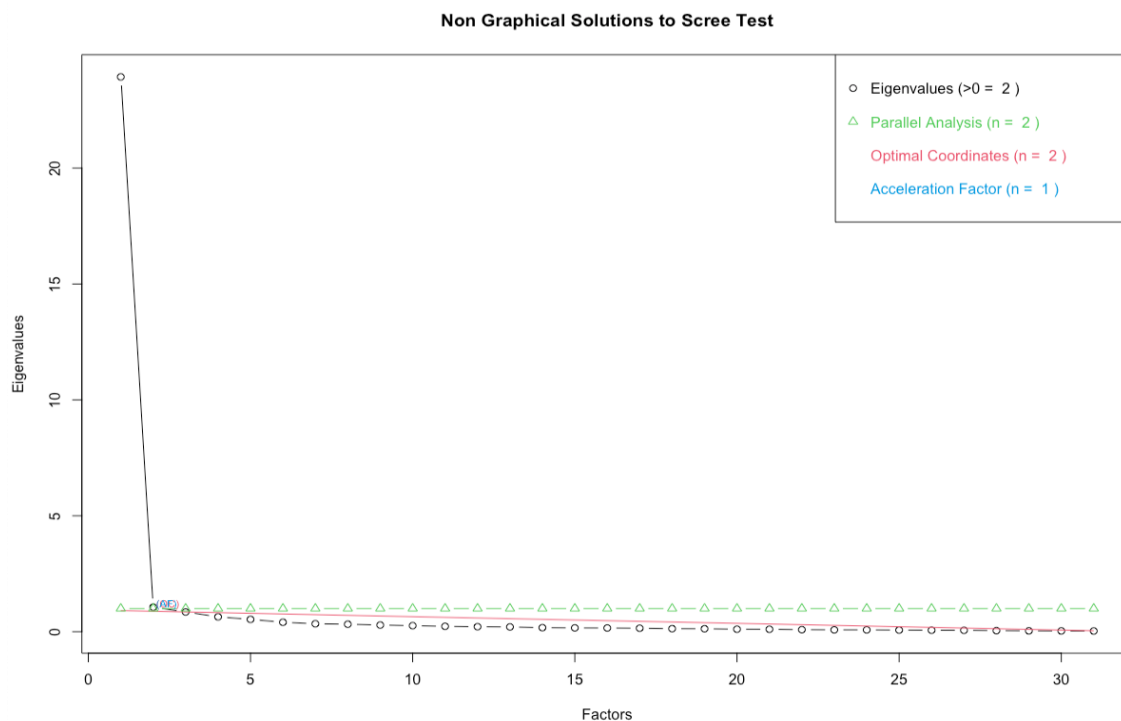
Data Analysis

Exploratory factor analysis (EFA) was employed to investigate the latent structure of the newly developed ISSSES, with a focus on assessing its reliability and validity. Prior to the analysis, we assessed the assumptions of the statistical procedure including multivariate normality, linearity, and the factorability of the data. Mardia's test results indicated that there were issues with multivariate skewness (Skewness = 529.35, $\chi^2 = 9881.36$, $p < .001$) and kurtosis (Skewness = 1267.49, $\chi^2 = 28.60$, $p < .001$) in the observed data suggesting the assumption of multivariate normality was violated in the current study. A review of scatter plots depicting trends among the measured variables indicates the relationship between each possible pair of items is approximately linear. Finally, Bartlett's (1954) test of sphericity ($\chi^2 = 5301.17$, $p < .001$) and the Kaiser-Meyer-Olkin (KMO; Kaiser, 1974) test of sampling adequacy (MSA = 0.96) indicated the relationship between the observed variables was sufficient to conduct exploratory factor analysis.

After assessing the assumptions of the technique, we determined the number of factors to retain using parallel analysis (Horn, 1965), optimal coordinates (Raiche et al., 2006), acceleration factor (Raiche et al., 2006), the magnitude of factor eigenvalues (i.e., Kaiser's Little Jiffy; Kaiser, 1970) and scree plot characteristics. Kaiser's Little Jiffy, parallel analysis, and optimal

coordinates suggest that a two-factor solution would provide the best fit to the observed data while acceleration factor and visual inspection of the scree plot suggest one-factor should be retained (see Figure 1).

Figure 1. Results of non-graphical scree plot analysis techniques used to identify the number of factors to retain.



Thus, we conducted two distinct EFA using the principal axis factoring estimation method and promax rotation to test the viability of a one- and two-factor solution. Principal axis factoring was used in the current investigation because of past work suggesting this estimation is robust to multivariate normality issues (Watkins, 2018). The two-factor model was rejected for two primary reasons. First, the solution was difficult to interpret and did not clearly align with the themes used to guide the development of the instrument. Second, review of standardized factor loading revealed numerous cross-loadings which can be an indicator of model misspecification (Costello & Osborne, 2005).

Results

Overall, we determined the one-factor solution was optimal because the items loaded strongly onto the identified factor, the factor solution was interpretable, and the solution accounted for a sizable amount of variability in the observed data. The identification of a single factor provides quantitative evidence that the ISSSES can be used to estimate overall levels of supervision self-efficacy. Factor loading for the two- and one-factor solutions are presented in Tables 1 & 2, respectively.

Table 1: Factor Loadings for the Two-Factor Solution

Item	Factor 1	Factor 2
Build trust with teachers to encourage open communication.	.041	.800
Coach teachers on the effective use of student-centered strategies	.226	.716
Get teachers to believe they can improve.	-.087	.958
Get teachers to openly share their concerns to engage in problem-solving conversations	-.021	.944
Guide teachers during self-reflection.	.163	.802
Guide teachers in the use of students' responses and progress to adjust instruction during the lesson.	.284	.693
Guide teachers to make wise instructional decisions.	.348	.603
Help teachers use assessment data to evaluate and inform instruction	.679	.261
Model continuous learning and professional development	.851	.068
Support the inclusion of new researched-based practices	.759	.132
Use my knowledge of adult learning to support teachers	.577	.288
Use observation data to guide teachers' self-reflection	.860	.068
Analyze instruction to determine effectiveness in facilitating learning	.517	.356
Analyze the learning outcomes to develop lesson plans aligned to the curriculum	.548	.309
Guide teachers to create student-centered learning environments	.271	.670
Help teachers implement the curriculum at the appropriate developmental level of each student.	.547	.372
Identify best instructional practices	.494	.481
Model student-centered instructional practices	.640	.308
Design differentiated instruction	.884	-.006
Explain best instructional practices	.582	.337

Guide teachers in the design of lessons aligned to the national learning outcomes	.551	.388
Build upon teachers' strengths	-.058	.958
Conduct pre and post conferences focused on the observations to help teachers improve	.408	.475
Craft good reflective questions for teachers	.495	.424
Differentiate supervision to meet teachers' diverse needs	.370	.526
Influence teachers to make decisions aligned to research-based instructional practices	.564	.390

Note. Items were determined to share a meaningful relationship with a latent construct when factor loadings exceeded .33 (Tabachnick & Fidell, 2013). Bolded Items were found to share a meaningful relationship with the identified latent construct.

Table 2: Factor Loadings for the One-Factor Solution

Item	Factor 1
Build trust with teachers to encourage open communication.	.797
Coach teachers on the effective use of student-centered strategies	.898
Get teachers to believe they can improve.	.822
Get teachers to openly share their concerns to engage in problem-solving conversations	.873
Guide teachers during self-reflection.	.918
Guide teachers in the use of students' responses and progress to adjust instruction during the lesson.	.932
Guide teachers to make wise instructional decisions.	.908
Help teachers use assessment data to evaluate and inform instruction	.903
Model continuous learning and professional development	.884
Support the inclusion of new researched-based practices	.858
Use my knowledge of adult learning to support teachers	.831
Use observation data to guide teachers' self-reflection	.894
Analyze instruction to determine effectiveness in facilitating learning	.837
Analyze the learning outcomes to develop lesson plans aligned to the curriculum	.822
Guide teachers to create student-centered learning environments	.898
Help teachers implement the curriculum at the appropriate developmental level of each student.	.881
Identify best instructional practices	.934
Model student-centered instructional practices	.910
Design differentiated instruction	.846
Explain best instructional practices	.882

Guide teachers in the design of lessons aligned to the national learning outcomes	.901
Build upon teachers' strengths	.850
Conduct pre and post conferences focused on the observations to help teachers improve	.845
Craft good reflective questions for teachers	.881
Differentiate supervision to meet teachers' diverse needs	.857
Influence teachers to make decisions aligned to research-based instructional practices	.915
Listen and guide teachers without explicitly giving advice	.879
Collect observation data	.807
Draw from teachers' experiences to lead teachers' self-reflection	.896
Model reflection and inquiry	.858
Reflect on my own practices to enhance my conferencing skills	.866
<i>Note.</i> Items were determined to share a meaningful relationship with a latent construct when factor loadings exceeded .33 (Tabachnick & Fidell, 2013).	

Following the identification of the optimal factor solution, we investigated the internal consistency of the ISSES using Cronbach's α (1951) and McDonald's ω (1999) values. The results of our reliability analysis indicated that the instrument demonstrates excellent internal consistency ($\alpha = .98$, $\omega = .99$). The results of the EFA revealed a one-factor solution, providing quantitative evidence of the scale's efficacy in estimating overall levels of supervision self-efficacy, as demonstrated by its strong internal consistency.

Discussion

The integration of self-efficacy theory with practical applications in instructional supervision is crucial for enhancing educational outcomes. By measuring supervisors' self-efficacy, the ISSES can identify areas where they need additional support and training. This targeted approach can inform the design of professional development programs, emphasizing the importance of building self-efficacy to improve supervisory practices and, consequently, teacher performance and student learning. The literature on self-efficacy and instructional supervision provides a strong theoretical foundation and highlights the critical role of supervisors' self-efficacy in educational leadership. However, there is a need for more empirical research linking supervisors' self-efficacy to specific and actionable supervisory tasks. By addressing these gaps, the

development and validation of the ISSSES can contribute significantly to both theoretical frameworks and practical strategies in educational supervision.

Given the scope of the i-SEE Belize project, a large set of data was collected which will be used to add to the fields of instructional supervision, self-efficacy, teacher preparation and development, teacher evaluation, and Belize primary and teacher education. Further study of instructional supervisors' self-efficacy is needed. Hence, the team has engaged in the analysis of the supervisors' self-efficacy ratings and perceived competencies as outlined in the instructional supervision continuum utilized throughout the i-SEE Belize project to guide the supervisors' self-reflection and the teachers' perceptions of their supervisors' proficiency levels related to instructional supervision. The supervision continuum was developed by the team after the first administration of the ISSSES. The team recognized the need for a supervision continuum to clearly outline and establish a shared understanding of the knowledge and skills needed to serve as instructional supervisors who promote teacher self-reflection and move away from evaluation and authoritative practices.

Self-efficacy is one's beliefs about one's ability to complete a given task. Hence, to validate self-reported levels of efficacy, a forthcoming study will delve into the supervisors' thinking and reasoning behind their sense of efficacy as explained through anecdotal discourse and evidence provided by the supervisors. Moreover, the supervisors' self-efficacy data will be analyzed in conjunction with the supervised teachers' reported experiences. While self-efficacy cannot predict the success of instructional supervision nor the impact the process will have on teaching and learning, the impact of instructional supervision has been documented (Glanz et al., 2007; Chuang et al., 2022). Hence, the need for instructional supervisors who can engage teachers in this process is critical. Professional growth is fostered when supervisors are aware of growth opportunities and actively engage in self-reflection (Miller, 2023). Consequently, awareness of one's efficacy related to the critical components of instructional supervision is imperative for the growth and development of instructional supervisors.

Conclusion

The findings from this study have profound implications not only for the work in Belize but also for the broader field of instructional supervision. The development and validation of the ISSSES represents a significant contribution to educational research, providing a reliable and culturally sensitive tool to assess supervisors' self-efficacy. This scale is crucial in contexts where educational systems are evolving, as it enables stakeholders to measure and enhance the capacity of instructional supervisors effectively. In Belize, where educational reform is ongoing, the ISSSES serves as a critical instrument for fostering reflective practices among supervisors, ultimately leading to improved teacher performance and student outcomes. The study's findings emphasize the need for educational leaders to focus on developing the self-efficacy of supervisors, as this directly influences their ability to support and guide teachers in their professional growth.

Moreover, the implications of this research extend beyond the Belizean context. As the global educational landscape increasingly recognizes the importance of culturally responsive and context-specific tools, the ISSSES provides a model for similar efforts in other regions. The

success of this scale in Belize emphasizes the value of integrating local cultural and contextual factors into the design and implementation of educational assessments. This approach not only enhances the validity and reliability of the instruments but also ensures that they are meaningful and effective in the specific settings where they are applied. The ISSSES could therefore serve as a blueprint for other nations seeking to improve their instructional supervision practices in ways that respect and build upon local traditions and challenges.

Finally, this study highlights the critical role of instructional supervision in educational leadership and its impact on teacher efficacy and student achievement. By demonstrating that supervisors' self-efficacy is a key determinant of their effectiveness, this research advocates for a shift in how professional development programs are designed and implemented. It suggests that building supervisors' confidence and competence in their roles should be a central focus of educational reforms. The insights gained from this study provide a strong foundation for future research and practice, encouraging educational systems worldwide to prioritize the development of instructional supervisors who are not only skilled but also self-assured in their ability to lead and serve as agents of change. The work carried out in Belize through the i-SEE project serves as a compelling example of how targeted, evidence-based interventions can make a tangible difference in educational quality, with lessons that are applicable across diverse educational settings.

Limitations

Despite the promising findings and the significant contributions of this study, several limitations should be acknowledged to provide a balanced understanding of its implications and to inform future research efforts. These limitations pertain to the cultural specificity of the instrument, methodological constraints, and contextual factors related to the implementation of the study. Addressing these limitations in future studies will enhance the generalizability, validity, and applicability of the ISSSES.

First, the cultural specificity of the ISSSES poses challenges to its generalizability. The scale was developed and validated in Belize, where cultural and contextual factors such as hierarchical supervision structures, diverse educational traditions, and unique systemic challenges influenced the design and interpretation of the instrument. While this ensured cultural relevance and contextual sensitivity within Belize, it may limit the scale's applicability in educational systems with differing cultural norms, power dynamics, and instructional supervision practices. For example, the hierarchical perception of supervision in Belize may not align with the more collaborative and democratic supervision models commonly used in the United States and other Western educational contexts. To address this, the team has initiated data collection in the United States to assess the scale's cross-cultural validity. However, the findings reported here are limited to the Belizean context, and further validation across a wider range of cultural and institutional settings is necessary to establish broader applicability.

Second, while the study included a relatively diverse sample in terms of ethnicity, gender, and teaching experience, regional disparities within Belize may have influenced the results. Nearly half of the participants were from the Stann Creek District, potentially leading to an overrepresentation of perspectives and experiences specific to the southern region. Similarly,

other northern districts, such as Orange Walk and Cayo, were underrepresented in the study, which may have limited the scale's representativeness of the full national context. Furthermore, the participants' levels of experience as field supervisors varied widely, ranging from zero to over 26 years. While this diversity provides a broad spectrum of perspectives, the inclusion of supervisors with minimal or no experience may have influenced the self-efficacy ratings, as less experienced supervisors might lack the practical exposure required to accurately assess their own efficacy. Future research should consider stratified sampling to ensure a more balanced representation of participants across districts and levels of supervisory experience.

Third, the reliance on self-reported data for measuring supervisors' self-efficacy introduces the possibility of social desirability bias, where participants may have over- or under-reported their perceptions to align with expected norms or project a favorable image of their capabilities. This is particularly relevant in the hierarchical educational culture of Belize, where individuals may feel pressure to present themselves as highly competent, especially in the context of a study affiliated with the MoECST. To mitigate this limitation, future studies should consider triangulating self-reported data with observational measures, qualitative interviews, or teacher feedback to obtain a more comprehensive and objective assessment of supervisors' efficacy.

Fourth, the lack of standardized qualifications or requirements for field supervisors in Belize may have influenced the study results. While a full teaching license is recommended, there are no formal criteria for field supervisors' education level, teaching experience, or professional training. This lack of standardization could have contributed to variability in self-efficacy ratings, as supervisors' baseline knowledge and skills likely differed significantly. Establishing standardized qualifications for field supervisors would be essential for future studies aiming to replicate or build upon this work.

Fifth, while the ISSSES was rigorously developed and validated, the iterative refinement process involved feedback from both Belizean and U.S.-based educators. The integration of input from these two contexts may have introduced implicit biases that favor one cultural perspective over the other. Although efforts were made to adapt the scale to the Belizean context, the underlying theoretical framework and item design may still reflect assumptions rooted in Western educational paradigms. Future research should engage in a cross-cultural validation process to ensure the scale is equally relevant and meaningful across diverse educational systems.

These limitations highlight the importance of continued research to refine the ISSSES and expand its application beyond the Belizean context. Addressing issues related to cultural specificity, sampling representation, and self-reported bias will enhance the reliability and generalizability of the findings. Furthermore, integrating triangulated data sources will provide deeper insights into the complex relationship between instructional supervisors' self-efficacy, their practices, and the broader educational outcomes. By acknowledging and addressing these limitations, future research can build on the foundational work of this study to advance the field of instructional supervision and self-efficacy in diverse cultural and institutional contexts.

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Appendix A

Instructional Supervision Sense of Efficacy Scale

Directions: This questionnaire is designed to help us gain a better understanding of the knowledge and skills field supervisors and teacher educators possess to support teacher development.

Please indicate your opinion about each of the statements below.

As an instructional supervisor, I can...

1 = cannot do; 9 = highly certain I can do

coach teachers on the effective use of student-centered strategies.	(1) (2) (3) (4) (5) (6) (7) (8) (9)
develop lesson plans aligned to the curriculum	(1) (2) (3) (4) (5) (6) (7) (8) (9)
analyze instruction to determine effectiveness in facilitating learning	(1) (2) (3) (4) (5) (6) (7) (8) (9)
build trust with teachers to encourage open communication.	(1) (2) (3) (4) (5) (6) (7) (8) (9)
build upon teachers' strengths.	(1) (2) (3) (4) (5) (6) (7) (8) (9)
collect observation data.	(1) (2) (3) (4) (5) (6) (7) (8) (9)
conduct pre and post conferences focused on the observations to help teachers improve	(1) (2) (3) (4) (5) (6) (7) (8) (9)
craft good reflective questions for teachers.	(1) (2) (3) (4) (5) (6) (7) (8) (9)
design differentiated instruction.	(1) (2) (3) (4) (5) (6) (7) (8) (9)
differentiate supervision to meet teachers' diverse needs.	(1) (2) (3) (4) (5) (6) (7) (8) (9)
draw from teachers' experiences to lead teachers' self-reflection.	(1) (2) (3) (4) (5) (6) (7) (8) (9)
explain best instructional practices.	(1) (2) (3) (4) (5) (6) (7) (8) (9)
get teachers to believe they can improve.	(1) (2) (3) (4) (5) (6) (7) (8) (9)
get teachers to openly share their concerns to engage in problem-solving conversations.	(1) (2) (3) (4) (5) (6) (7) (8) (9)
guide teachers during self-reflection.	(1) (2) (3) (4) (5) (6) (7) (8) (9)
guide teachers in the design of lessons aligned to the learning outcomes.	(1) (2) (3) (4) (5) (6) (7) (8) (9)
help teachers monitor and adjust instruction.	(1) (2) (3) (4) (5) (6) (7) (8) (9)
guide teachers to create student-centered learning environments.	(1) (2) (3) (4) (5) (6) (7) (8) (9)
guide teachers to make wise instructional decisions.	(1) (2) (3) (4) (5) (6) (7) (8) (9)
help teachers implement the curriculum at the appropriate	(1) (2) (3) (4) (5) (6) (7) (8) (9)

developmental level of each student.

help teachers use assessment data to evaluate and inform instruction.

(1) (2) (3) (4) (5) (6) (7) (8) (9)

Identify best instructional practices.

(1) (2) (3) (4) (5) (6) (7) (8) (9)

encourage teachers to try out new research-based practices.

(1) (2) (3) (4) (5) (6) (7) (8) (9)

listen and guide teachers without explicitly giving advice.

(1) (2) (3) (4) (5) (6) (7) (8) (9)

model continuous learning and professional development.

(1) (2) (3) (4) (5) (6) (7) (8) (9)

model reflection and inquiry.

(1) (2) (3) (4) (5) (6) (7) (8) (9)

model student-centered instructional practices.

(1) (2) (3) (4) (5) (6) (7) (8) (9)

reflect on my own practices to enhance my conferencing skills.

(1) (2) (3) (4) (5) (6) (7) (8) (9)

use my knowledge of adult learning to support teachers.

(1) (2) (3) (4) (5) (6) (7) (8) (9)

use observation data to guide teachers' self-reflection.

(1) (2) (3) (4) (5) (6) (7) (8) (9)