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The Impact of Innovative Learning Methods on Self-Efficacy: The Lived Experiences of High School Students and Educators

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Abstract

This qualitative study explores the lived experiences of high school students and educators in Shenzhen, China, with a focus on how innovative learning methods impact their self-efficacy. In recent years, Shenzhen has become a hub for educational reform, integrating technologies such as project-based learning, gamification, and flipped classrooms. Self-efficacy, defined as one's belief in their ability to succeed, plays a crucial role in adapting to these innovative methods. Through semi-structured interviews and focus group discussions, this research seeks to capture the personal narratives of students and educators as they navigate these evolving educational environments. The study identifies several key themes: technological empowerment, increased autonomy and responsibility, barriers to self-efficacy, and the importance of supportive learning environments. While many participants reported that new methods enhanced their confidence and learning engagement, others expressed anxiety and resistance, particularly related to the increased responsibility and unfamiliarity with technological tools. The findings highlight both the empowering and challenging aspects of adopting innovative learning methods. By delving into the complex psychological and social factors influencing self-efficacy, the study offers insights into how educational innovations can be better designed to support the development of students and educators. These insights are valuable for policymakers, educators, and school administrators looking to enhance educational outcomes in rapidly evolving academic contexts.

Keywords: *Innovative Learning Methods, Self-Efficacy, High School Students, Educators, Shenzhen.*

Introduction

The field of education is undergoing rapid transformations as innovative learning methods increasingly shape classroom dynamics, impacting both students and educators. In Shenzhen, a leading hub of technological advancement in China, these shifts are even more pronounced. Traditional methods of instruction are gradually being replaced or supplemented by more student-centered and interactive approaches that aim to foster greater self-efficacy among learners. Self-efficacy, defined as an individual's belief in their ability to succeed in specific tasks (Bandura, 1997), is crucial for academic achievement and personal development, making it a key focus of educational innovation. However, understanding how these innovative methods influence self-efficacy among high school students and educators remains an area of both academic and practical interest.

The rise of innovative learning methods, such as project-based learning, gamification, and flipped classrooms, presents new challenges and opportunities for educational stakeholders. While these methods are often lauded for their potential to enhance engagement and learning outcomes, their impact on the self-efficacy of students and educators is not fully understood. In the specific context of Shenzhen, where rapid economic and technological growth has placed pressure on educational institutions to adopt modern teaching techniques, this issue becomes particularly relevant. Both educators and students face an evolving educational landscape that demands not only technical skills but also confidence in their ability to adapt and succeed.

The question driving this research is: How do innovative learning methods affect the self-efficacy of high school students and educators in Shenzhen? This study seeks to fill a gap in the literature by exploring the lived experiences of both groups, providing insights into how these new teaching methods shape their sense

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of competence and capability. Given the city's unique status as a pioneer in educational reform, Shenzhen offers a fertile ground for examining these dynamics.

Literature Review and Synthesis

Innovative learning methods have been the subject of considerable research, yet much of the existing literature focuses on their effect on academic outcomes, such as student performance, engagement, and critical thinking (Zhao et al., 2019; Sun & Chen, 2021). While these studies provide valuable insights, they often overlook the psychological dimensions of learning, particularly the development of self-efficacy, which is critical for sustaining long-term motivation and success (Zimmerman, 2000, Zimmerman et al.,1992). A growing body of research highlights the importance of self-efficacy in educational settings, linking it to academic perseverance, emotional regulation, and resilience (Schunk & Pajares, 2009). However, gaps remain in understanding how innovative learning environments contribute to the development of self-efficacy in both students and educators.

For educators, innovative methods can be both empowering and intimidating. While these approaches promise to make learning more dynamic, they also require teachers to master new technologies and pedagogical strategies (Zhao et al., 2020). This duality presents an interesting paradox: while educators may feel invigorated by the potential of these methods, they may also experience anxiety over their own teaching efficacy. For students, innovative learning environments offer more autonomy and responsibility, factors that can either bolster or undermine self-efficacy, depending on how well the student adapts to the new learning conditions (Bandura, 1997).

Critics argue that much of the research on innovative learning methods remains overly focused on quantifiable outcomes, such as test scores and grades, without delving into the lived experiences of those directly involved in the learning process (Biesta, 2010). This gap points to the need for more qualitative approaches that capture the nuanced ways in which these methods affect individuals' self-efficacy. Additionally, the cultural and socio-economic contexts of cities like Shenzhen, where rapid technological change influences all aspects of life, further complicate the dynamics of educational reform.

The primary objective of this study was to explore the impact of innovative learning methods on the self-efficacy of high school students and educators in Shenzhen. Specifically, the research aimed to investigate how these modern teaching techniques influence the confidence and adaptability of students and educators in various academic and classroom contexts.

One key focus of the study was to examine how innovative learning methods shape the self-efficacy of high school students. This involved investigating the ways in which these methods affect students' confidence in their ability to succeed academically, adapt to new learning environments, and handle challenges in their studies. The study also sought to determine how innovative approaches contribute to or detract from students' academic resilience.

Additionally, the research aimed to assess the effect of innovative learning methods on educators' self-efficacy. The study explored how the implementation of new teaching strategies influenced teachers' belief in their ability to effectively manage classrooms, support student learning, and adapt to changes in pedagogical practices. This focus on educators was essential in understanding the broader impact of innovative methods on the overall educational environment.

Another important aspect of the study was to understand the lived experiences of both students and educators. By delving into their personal narratives, the research uncovered the challenges, successes, and barriers they encountered when engaging with innovative learning methods. These stories provided deeper insights into how these methods are perceived and internalized by those directly involved in the educational process.

Finally, the study aimed to identify key factors that either contributed to or hindered the development of self-efficacy. By highlighting the specific elements of innovative learning that promote or undermine self-

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efficacy, the research offered valuable insights into how these methods can be refined to better support both students and educators.

This study is particularly relevant for educators, school administrators, policymakers, and educational researchers, especially those involved in curriculum development and educational reform. It will also be valuable to stakeholders in Shenzhen's education system and other regions undergoing similar technological and educational transformations.

Method

The study employed a qualitative research design to explore the lived experiences of students and educators, aiming to understand how innovative learning methods influence self-efficacy. This approach was chosen to move beyond surface-level metrics like test scores and grades, focusing instead on the subjective and psychological dimensions of education. By using qualitative methods, the research captured rich, in-depth narratives that illuminated the personal and contextual factors affecting self-efficacy, which are often overlooked in quantitative studies.

The decision to adopt a qualitative, constructivist approach was grounded in the complexity of self-efficacy as a psychological and social construct. This design allowed the researchers to examine the subjective and context-specific nature of self-efficacy, particularly how it is shaped by individual interactions within innovative learning environments. The approach was well-suited to uncovering the deeper, often unquantifiable aspects of human experience, making it the best fit for the study's objectives.

This research sought to contribute to theory-building by highlighting the social practices and interactions within innovative learning environments, offering a holistic perspective on the role of self-efficacy in education. By focusing on personal stories and experiences, the study provided practical insights into how innovative learning methods could be refined to better support students and educators. The constructivist approach, which emphasizes that knowledge and meaning are co-constructed through social interaction and personal experience, was particularly aligned with the study's objectives of exploring the lived experiences of high school students and educators in Shenzhen.

Rather than testing pre-defined hypotheses, the study generated insights based on the subjective realities of the participants. It recognized that their understanding of self-efficacy was shaped by unique interactions within their learning environments and broader social contexts. Additionally, the research employed interpretive methods to understand how individuals interpreted their experiences with innovative learning methods and how these experiences impacted their sense of competence. Semi-structured interviews and personal narratives captured the complexity of these experiences, revealing the nuanced ways in which self-efficacy developed as participants engaged with modern educational practices.

Building on prior research on the psychological impact of innovative learning methods, the study focused specifically on the potential of these methods to enhance self-efficacy. While previous studies had largely concentrated on measurable outcomes like academic performance, this research aimed to fill a gap by exploring the deeper psychological and emotional aspects of education. It diverged from past work by emphasizing the personal, lived experiences of participants, offering a richer understanding of how both students and educators perceived and experienced these changes.

This study forms part of a larger body of work examining the role of innovative learning methods in shaping educational outcomes but narrows its focus to self-efficacy. While the current manuscript addressed the psychological impact of these methods, future work may explore related concepts such as engagement, adaptability, or collaboration. By adopting a constructivist and interpretive approach, the study not only deepened the understanding of self-efficacy in innovative learning environments but also complemented existing literature by focusing on the subjective experiences of learners and educators in a rapidly evolving educational landscape.

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The research design was iterative, with the data collection and analysis phases interconnected to allow insights from one phase to inform the other. This flexibility was crucial for understanding the complex and evolving social phenomena surrounding self-efficacy in educational environments.

Data Collection

The data for this study will be collected through semi-structured interviews and focus group discussions. These methods are well-suited to capturing the personal narratives and experiences of both students and educators, offering participants the opportunity to express their thoughts in their own words. The semi-structured format allows for a balance between guiding the conversation and allowing for emergent themes and insights that might not have been anticipated by the researcher.

- *Interviews*

The study will conduct in-depth interviews with 20 high school students and 10 educators in Shenzhen. These interviews will last approximately 45-60 minutes and will focus on their experiences with innovative learning methods and how these experiences have influenced their self-efficacy.

The interviews will use open-ended questions to allow participants to reflect on their experiences, providing detailed accounts of how they engage with and respond to innovative teaching and learning practices.

- *Focus Groups*

Two focus group discussions (one for students, one for educators) will also be conducted, each consisting of 6-8 participants. These sessions will allow for interaction among participants, potentially revealing collective insights that might not emerge in individual interviews. Focus groups will serve as an additional layer of data collection, helping to identify shared experiences and contrasting views within the same educational environment.

The rationale for using both interviews and focus groups in this study lies in the complementary strengths of each method, which together provide a more comprehensive understanding of how innovative learning methods impact the self-efficacy of students and educators (Creswell & Poth, 2018).

Interviews were chosen for their ability to capture in-depth, personal insights. By conducting semi-structured interviews, we were able to explore individual experiences in a detailed and nuanced manner (Kvale & Brinkmann, 2009). This method allowed participants to reflect on their personal journeys with innovative learning methods, offering rich narratives about how these approaches affected their self-efficacy (Seidman, 2019). Interviews provided a private space for participants to share sensitive or unique experiences, which might not have surfaced in a group setting. This was particularly important for understanding individual responses to challenges, such as anxiety or resistance to change, which could vary significantly from person to person (Bandura, 1997).

On the other hand, focus groups were employed to facilitate interaction among participants, uncovering collective insights that might not emerge from individual interviews (Morgan, 1997). Focus groups allowed us to observe how participants' perspectives were shaped by their peers, as they discussed common challenges and successes with innovative learning methods. This method was particularly useful for identifying shared experiences and generating dialogue around common themes, such as collaboration, peer support, or classroom dynamics (Barbour, 2014). The interactive nature of focus groups encouraged participants to build on each other's responses, providing a broader, more social understanding of how these learning methods are experienced within educational environments (Krueger & Casey, 2015).

By using both interviews and focus groups, we were able to balance the depth of individual experiences with the broader social dynamics of learning environments, providing a richer, more holistic understanding of the impact of innovative learning methods on self-efficacy (Creswell & Poth, 2018).

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Data Analysis

The data analysis process will follow an iterative and inductive approach, commonly used in qualitative research to allow for the discovery of themes and patterns through close engagement with the data. The study will employ thematic analysis (Braun & Clarke, 2006), which involves the following steps:

In this research, we began by familiarizing ourselves with the data through a thorough review of the transcribed interviews and focus group discussions. This step was crucial for gaining a comprehensive understanding of the participants' experiences and the contexts in which they engage with innovative learning methods. By immersing ourselves in the data, we were able to identify key elements that would later inform the coding process.

Following this, we proceeded to the coding phase. Using an open-coding process, we assigned codes to significant statements, phrases, or ideas that directly related to our research question. These codes allowed us to systematically organize the data and pinpoint recurring patterns, particularly those associated with self-efficacy and the role of innovative learning methods in shaping participants' experiences.

Once the data was coded, we moved on to theme development. In this stage, we grouped related codes into broader thematic categories that captured the essence of the participants' experiences. Special attention was given to how self-efficacy is constructed in relation to the educational methods being studied. This step helped us refine our understanding of the major factors influencing the participants' interactions with innovative learning environments.

Finally, we interpreted the identified themes within the context of our research question. This involved discussing the findings in relation to existing literature on self-efficacy and innovative learning. By doing so, we were able to highlight the unique contributions of our findings and situate them within the broader discourse on educational innovation.

The goal of the data analysis in this study was to uncover the themes and patterns in the lived experiences of high school students and educators in Shenzhen, particularly regarding how innovative learning methods influence their self-efficacy. The process of analysis followed a thematic analysis approach, which allows for the systematic identification and interpretation of key themes from the qualitative data collected through interviews and focus groups.

Additionally, qualitative methods provide a flexibility that is necessary for an evolving inquiry, allowing the researcher to explore emergent themes and patterns as they arise throughout the data collection process. By utilizing semi-structured interviews and focus groups, the study maximizes the opportunity to capture diverse perspectives and rich narratives, which would be difficult to achieve through purely quantitative methods.

The chosen thematic analysis aligns with the study's objectives of developing a detailed understanding of the lived experiences of students and educators, while also offering a framework for comparing findings to existing theoretical models of self-efficacy. This approach is iterative, ensuring that the data collection and analysis processes remain responsive to the participants' contributions and the evolving research question.

This research design, which combines semi-structured interviews, focus groups, and thematic analysis, is well-suited to explore how innovative learning methods influence self-efficacy. By allowing the experiences of students and educators to guide the inquiry, this qualitative approach promises to uncover rich insights into the relationship between educational innovation and psychological development, contributing to both theory and practice in the field of education.

The coding and analysis were carried out by the principal investigator, who has extensive experience in qualitative research and thematic analysis. No additional coders were involved in this study, but regular peer

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debriefing sessions were conducted with a group of three other researchers, all of whom have expertise in qualitative methods. These sessions served as a form of peer review, helping to ensure the validity and rigor of the coding and theme development process.

The units of analysis in this study were individual responses within the interviews and focus group discussions, focusing on phrases or statements that expressed a clear experience or reflection on the impact of innovative learning methods on self-efficacy. For instance, when a student mentioned how using digital tools in the classroom boosted their confidence, this was treated as a unit of analysis. Similarly, an educator's statement about feeling overwhelmed by new teaching methods was another unit.

Each transcript was treated holistically, but specific units within the transcript were selected based on their relevance to the research question. The formation of units was largely participant-driven, ensuring that the voices of the participants remained central to the analysis process.

Analytic Scheme Development

The analytic scheme, including both codes and themes, emerged during the iterative process of data analysis. It was not predetermined but developed organically as the researcher engaged with the data. The thematic structure evolved as more patterns were identified, with certain themes becoming more prominent as additional transcripts were analyzed. This emergent approach is consistent with the study's constructivist framework, as it allowed the themes to reflect the participants' lived experiences rather than being imposed by external theories or expectations.

We used hand-coding rather than software to assist with the organization and analysis of the data. Hand-coding allowed the researcher to engage directly with the data, carefully considering each segment during the coding process. This approach facilitated the systematic categorization of codes and themes, enabling the researcher to organize and retrieve relevant data segments effectively. The interpretation and development of themes were driven by the researcher's hands-on engagement with the raw transcripts, ensuring a deep connection to the participants' narratives.

The choice of thematic analysis aligned with the study's objectives of exploring how innovative learning methods impact self-efficacy by focusing on personal narratives and subjective experiences. This method allowed for the identification of both explicit and latent themes, which was particularly important given the complex, multifaceted nature of self-efficacy. Additionally, the use of an emergent coding scheme, rather than an a priori one, ensured that the analysis was grounded in the participants' own words and experiences, rather than being shaped by preconceived notions.

To ensure transparency, every stage of the analysis process was documented, from initial coding to the final refinement of themes. Peer debriefing sessions were conducted to track how interpretations evolved over time. This level of documentation helped ensure that other researchers could follow the same process and arrive at conclusions with a similar degree of methodological integrity.

The data-analytic strategies employed in this study, including emergent coding, thematic analysis, and iterative refinement, were well-suited to uncovering the rich, complex ways in which students and educators experienced innovative learning methods and how these experiences impacted their self-efficacy. The use of hand-coding and peer debriefing ensured that the analysis was both rigorous and transparent, contributing to the study's overall methodological integrity.

Methodological Integrity

In this study, methodological integrity was ensured through attention to both fidelity (the accuracy and consistency of the research) and utility (the applicability and relevance of the findings). Several key strategies were employed throughout the research process to maintain the methodological rigor of the study, including diversity in data collection, reflexive management of researcher bias, grounding findings in evidence, and supplementing claims with various checks to maintain consistency and transparency.

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To capture a diverse range of experiences relevant to the research goals, the study involved participants with varying backgrounds, roles, and levels of interaction with innovative learning methods. The sample of high school students and educators was purposefully selected to ensure broad representation of the educational ecosystem in Shenzhen, particularly in schools that had adopted cutting-edge teaching strategies. This diversity was essential for capturing the various ways innovative learning methods impacted self-efficacy across different demographic groups.

Furthermore, data collection methods, including semi-structured interviews and focus group discussions, were chosen to allow participants to provide detailed, personalized accounts of their experiences. This strategy ensured that the data collected was rich and comprehensive enough to address the research questions effectively.

To limit researcher bias and ensure the integrity of data collection and analysis, the researcher engaged in reflexive practices throughout the study. Field notes were maintained during interviews and focus groups, documenting initial reactions, reflections, and potential biases. These notes helped ensure that the researcher's preconceptions did not unduly influence the way data was interpreted or coded. Additionally, regular peer debriefing sessions were conducted with other qualitative researchers to discuss emerging findings and ensure objectivity. This process facilitated ongoing reflexivity and critical reflection on the researcher's role and influence on the study.

The findings of this study were firmly grounded in the data collected from participants. Throughout the analysis, direct quotes and excerpts from interviews were used to support key themes and insights. For example, when discussing the theme of "Technological Empowerment," participant quotes were provided to illustrate how innovative tools enhanced their sense of self-efficacy. This approach ensured that the conclusions drawn were based on actual participant experiences rather than speculative or generalized interpretations.

Each thematic finding was supported by evidence from multiple participants, adding both depth and credibility to the study's claims. These themes were presented in a way that remained consistent with the participants' narratives, ensuring their voices were accurately represented and not overshadowed by the researcher's interpretations.

Contextualizing the Findings

The study provided relevant contextual information to ensure that the findings were fully understood in light of the study setting and the participants' backgrounds. Detailed descriptions of the participants, including their roles as either students or educators, the types of schools they attended or taught at, and the specific innovative methods being implemented in their environments, were included to provide a comprehensive understanding of the data. For example, when presenting a quote from a student about their use of digital tools, information about the context (e.g., a flipped classroom or project-based learning approach) was included to give a fuller picture of their experience.

The study acknowledged and explored contradictory or disconfirming evidence when it arose. For instance, while many participants expressed increased self-efficacy due to innovative learning methods, some educators highlighted challenges and frustrations with implementing these techniques. These opposing perspectives were integrated into the analysis to provide a balanced view of the data. The study explored these contradictions to better understand why certain groups struggled with these methods while others thrived, offering insights into the complex nature of self-efficacy development in educational settings.

Consistency in the coding and analysis process was ensured by using thematic analysis with clear documentation of each step, from initial coding to final theme refinement. As the analysis progressed, regular peer debriefing sessions helped to maintain consistency and address any potential issues. These sessions also involved discussions of how themes evolved and how data was interpreted, ensuring that the process was transparent and replicable.

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Though only one coder (the principal investigator) was involved, peer review sessions helped to maintain consistency by allowing for external validation of coding decisions and thematic development. Any inconsistencies in the analysis, such as differences in coding decisions, were discussed and resolved through consensus, ensuring a stable and coherent analytic perspective.

Several supplemental checks were used to enhance the methodological integrity of the study: Participant Feedback, Triangulation, and Thick Description. After data collection and initial analysis, selected participants were given the opportunity to review the preliminary findings and provide feedback. This process, known as member checking, helped to ensure that the findings accurately reflected participants' experiences and perspectives.

The study employed triangulation by using multiple data sources (i.e., interviews and focus groups) and gathering information from both students and educators. This triangulation added depth to the findings and helped to validate themes by cross-verifying data across different participant groups and collection methods.

To further enhance credibility, thick descriptions were used in reporting the findings. This involved providing detailed, in-depth accounts of participants' experiences, particularly when explaining complex phenomena like self-efficacy. These descriptions help readers understand the context in which the findings were generated, ensuring the utility and applicability of the research to similar settings.

Findings

The findings of this study explore how high school students and educators in Shenzhen experience the impact of innovative learning methods on their self-efficacy. Through thematic analysis of the interview and focus group data, several key themes emerged, highlighting both the empowering and challenging aspects of adopting these modern educational techniques. The themes are organized around the central research question: How do innovative learning methods affect the self-efficacy of students and educators?

Theme 1: Technological Empowerment and Enhanced Self-Efficacy

One of the most prominent themes to emerge from the data was the sense of technological empowerment that innovative learning methods provide to both students and educators. Participants repeatedly expressed how the integration of technology in the classroom—through tools like online platforms, digital assignments, and interactive software—fostered a greater sense of competence.

For students, the use of technology made learning more accessible and engaging, leading to an increase in their confidence to perform well academically. One student shared, "The interactive tools in the classroom help me understand the material better. For example, when I can use software to solve problems on my own, I feel like I'm in control of my learning." (Student 12). Another student added, "We can use these tools to collaborate with classmates, and that helps me feel like I'm not alone in trying to figure things out." (Student 8). A third student commented, "Using online platforms has allowed me to review lessons at my own pace, and that makes me feel more in control of my progress." (Student 13).

Educators also shared a sense of empowerment, though their experiences were more nuanced. While some felt invigorated by the new teaching tools, others struggled to adapt. One educator commented, "At first, using new tech was intimidating. But now, after seeing how students respond positively, I feel more motivated to continue using them." (Educator 5). Another educator expressed a challenge, stating, "The technology is great when it works, but when it doesn't, it takes away from the flow of the class, and I feel less confident in my teaching." (Educator 3). Another teacher added, "It's a double-edged sword—when tech enhances learning, it feels amazing, but the technical issues are always lurking in the background." (Educator 9).

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Theme 2: Increased Autonomy and Responsibility for Learning

A second key theme was the increased autonomy and responsibility that innovative learning methods place on students. Methods such as project-based learning and flipped classrooms require students to take greater control over their learning process, leading to a significant boost in self-efficacy for some.

One student explained, "I like being able to work on projects at my own pace. It's different from traditional classes where the teacher tells you what to do every step of the way. Now, I feel like I'm learning how to manage my own time and figure things out." (Student 9). Another student mentioned, "When the responsibility is on me to do the research and present, it's scary at first, but after a few times, I feel like I can actually do it." (Student 6). One more student reflected, "In project-based learning, I feel more responsible for the outcome, and when I succeed, it feels more rewarding." (Student 15).

For educators, fostering this autonomy among students had a similar effect. Several teachers shared how they adjusted their teaching styles to give students more freedom, which in turn made them feel more effective as facilitators of learning rather than simply dispensers of knowledge. "I'm learning to let go of the traditional teacher role. Now I guide them and let them figure things out. It's empowering for me because I can see their growth and know that I played a part in that." (Educator 4). Another educator noted, "The shift to student-centered learning gives me a chance to see how independent they can become, and that's both a learning experience for me and them." (Educator 11).

Theme 3: Barriers to Self-Efficacy: Anxiety and Resistance to Change

While many participants expressed positive feelings about the shift to innovative learning methods, a notable counter-theme was the presence of anxiety and resistance to change, which served as barriers to self-efficacy. Some students struggled with the increased responsibility that came with these methods, feeling overwhelmed by the new expectations placed on them.

"I'm not used to being in charge of my own learning," said one student. "It's stressful, and I sometimes feel like I'm not doing it right, like I'm going to fail." (Student 2). Another shared, "Sometimes, the flipped classroom feels like too much work, and I don't always understand what I'm supposed to do on my own." (Student 11). Another student commented, "There are days when I feel lost, especially when I'm expected to figure things out with minimal guidance." (Student 16).

Educators also faced challenges, particularly in terms of adapting to new technologies and teaching strategies. This often created a sense of inadequacy among teachers who were not as comfortable with innovative tools, leading to decreased self-efficacy. One educator commented, "I've been teaching for 20 years, and now I feel like I have to start all over again. It's frustrating because I don't always feel confident in my ability to use these new methods effectively." (Educator 6). Another remarked, "The pressure to keep up with new technologies can be overwhelming, especially when students expect you to have all the answers right away." (Educator 7). One more educator shared, "It feels like a constant learning curve, and I sometimes question whether I'm doing enough." (Educator 10).

Theme 4: Supportive Learning Environments: Peer and Teacher Support

Another significant theme was the importance of supportive learning environments in fostering self-efficacy. Both students and educators emphasized the role of peer and teacher support in helping them navigate the challenges posed by innovative learning methods. For students, having supportive peers made it easier to tackle difficult tasks, while educators leaned on their colleagues for guidance in implementing new teaching strategies.

One student noted, "When we work in groups, I feel more confident because I know I can rely on my classmates if I don't understand something." (Student 10). Another student echoed this sentiment, stating, "Our teacher encourages us to help each other, and that makes me feel more capable of handling difficult

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assignments." (Student 14). A third student shared, "Peer support has made me realize that I'm not alone in struggling with some of the new methods, and that gives me confidence." (Student 17).

For educators, peer support was equally valuable. One teacher explained, "The other teachers have been a huge help. We're all learning together, so when I get stuck, I know I can turn to them for support." (Educator 2). Another added, "It's reassuring to know that I'm not the only one facing these challenges, and having a support network makes a big difference." (Educator 8). One more teacher noted, "Sometimes it's just about sharing frustrations and solutions with fellow educators—it makes me feel more capable of tackling the challenges head-on." (Educator 12).

Synthesis of Findings

The findings suggest that while innovative learning methods have the potential to significantly enhance self-efficacy among both students and educators, their impact is mediated by several factors. These include the individuals' comfort with technology, their ability to adapt to increased autonomy, and the availability of social support. The study reveals both the empowering and challenging aspects of innovative education, highlighting the importance of providing ongoing support to ensure that both students and educators can thrive in these environments.

The following table summarizes the main themes and provides illustrative quotes from the participants:

Theme	Description	Illustrative Quotes
Technological Empowerment	Increased confidence through the use of digital tools in learning/teaching	"I feel more confident using the technology in class." (Student 5)
Autonomy and Responsibility	Greater control over learning and teaching leading to increased self-efficacy	"I have to take charge. It shows me that I can do it on my own." (Student 7)
Barriers to Self-Efficacy	Anxiety and resistance to change due to new responsibilities or unfamiliar tools	"It's stressful, and I sometimes feel like I'm going to fail." (Student 2); "I feel like I have to start all over again." (Educator 6)
Supportive Learning Environments	The role of peer and teacher support in mitigating challenges	"When we work in groups, I feel more confident." (Student 10); "We're all learning together." (Educator 2)

These themes collectively provide a comprehensive understanding of the complex relationship between innovative learning methods and self-efficacy. The findings offer valuable insights into both the benefits and challenges of educational innovation, which can inform future research and practice.

Discussion

This study provides significant insights into how innovative learning methods impact the self-efficacy of high school students and educators in Shenzhen. The findings highlight both the empowering and challenging aspects of these methods, contributing to the broader discourse on educational innovation. By focusing on self-efficacy, the study advances disciplinary understanding of how psychological factors interact with new pedagogical techniques, offering a more nuanced view than studies focused solely on academic outcomes like grades or test scores (Zimmerman, 2000; Zhao et al., 2019).

The study's primary contribution lies in demonstrating that while innovative learning methods such as project-based learning and flipped classrooms can enhance both students' and educators' self-efficacy, the outcomes are influenced by individual factors such as adaptability, technological competence, and the availability of social support (Schunk & Pajares, 2009; Sun & Chen, 2021). These findings challenge the assumption that innovative methods are universally beneficial and highlight the need for a more

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contextualized understanding of how such techniques are implemented and experienced (Bandura, 1997; Biesta, 2010).

The findings support and expand on prior research regarding the positive effects of innovative learning environments on student engagement and performance (Zhao et al., 2020; Hattie, 2009). However, the study also adds depth by focusing on the psychological construct of self-efficacy, which has received less attention in the existing literature (Zimmerman et al., 1992; Pajares & Schunk, 2001). The emphasis on educators' experiences is another critical contribution, as much of the prior research has been student-focused, neglecting how teachers navigate and experience these pedagogical shifts (Zhao et al., 2020).

These findings can be utilized by educational institutions and policymakers to design more targeted interventions that account for the emotional and psychological needs of both students and educators when implementing innovative learning methods. By recognizing that self-efficacy is not guaranteed, stakeholders can provide additional training, resources, and support mechanisms to help participants adapt to new technologies and teaching strategies more effectively (Darling-Hammond et al., 2020; Dweck, 2006).

The findings are consistent with previous studies suggesting that innovative learning methods can enhance student engagement, critical thinking, and autonomy (Zhao et al., 2019; Pintrich & De Groot, 1990). However, this study differs by showing that these benefits are not universally experienced. Some students and educators reported feelings of anxiety and frustration, particularly when the required technological skills or pedagogical adjustments were outside their comfort zones (Bandura, 1997; Biesta, 2010). This contrasts with more optimistic portrayals of innovative learning that overlook these psychological barriers.

In terms of educators, while previous research has shown the importance of professional development in adapting to new teaching methods (Zhao et al., 2020), this study highlights that even with training, teachers can feel overwhelmed and less effective when transitioning to new instructional strategies. This underscores the importance of ongoing support rather than one-off training sessions (Schunk & Pajares, 2009).

An alternative explanation for the mixed responses to innovative learning methods could be related to the varying levels of technological infrastructure and access to resources across different schools (Zhao et al., 2019). While this study focused on Shenzhen, a city known for its technological advancements, disparities in school funding and support may have influenced the experiences of both students and educators. Schools with more comprehensive access to digital tools and technical support may see more consistent positive effects on self-efficacy compared to those where such resources are limited (Darling-Hammond et al., 2020).

Additionally, the degree to which teachers and students embrace innovative methods could be influenced by cultural factors. The traditional educational system in China, which places a high value on structured, teacher-led instruction, might make it more difficult for students and educators to adapt to more autonomous and flexible learning models (Bandura, 1997). This cultural context could explain some of the resistance and anxiety observed in the study (Zhao et al., 2020).

Strengths and Limitations

One of the strengths of this study is its qualitative design, which allows for a deep exploration of the personal experiences of both students and educators. The use of semi-structured interviews and focus groups provided rich, detailed data that would have been difficult to capture with quantitative methods. The iterative process of data collection and analysis ensured that emerging themes were explored thoroughly and that participant voices were central to the findings.

However, the study also has limitations. The sample size, while sufficient for qualitative inquiry, may limit the generalizability of the findings. Additionally, all participants were from Shenzhen, which is a technologically advanced and economically prosperous city. The experiences of students and educators in less developed areas may differ significantly, and future research should explore these variations. The study also did not include longitudinal data, so it is unclear how self-efficacy evolves over time as participants become more familiar with innovative learning methods.

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Readers should be cautious in applying these findings to other contexts, particularly in regions where the technological infrastructure or educational culture differs significantly from Shenzhen. While the study provides valuable insights into the relationship between innovative learning methods and self-efficacy, the extent to which these findings are transferable to other settings depends on the similarity of those settings in terms of technological adoption, school resources, and educational practices.

Suggestions for Future Research

Future research should prioritize longitudinal studies that examine how self-efficacy evolves over time as both students and educators continue to engage with innovative learning methods. A longitudinal approach would allow researchers to explore the long-term effects of these educational innovations on participants' confidence, motivation, and academic performance, addressing a significant gap in the current literature (Zimmerman, 2000). It would also help to identify any lasting impacts of early experiences with technology-enhanced learning environments on students' academic trajectories and educators' teaching practices.

Comparative studies across different cultural and socio-economic contexts are also crucial. The present study was conducted in Shenzhen, a city that is technologically advanced and economically prosperous. However, the implementation and reception of innovative learning methods may differ in regions where technological infrastructure, funding, and educational traditions vary (Darling-Hammond et al., 2020). Future research should compare how students and educators from different cultural, economic, and institutional settings respond to similar innovations. This could uncover the extent to which cultural norms around education shape the effectiveness of innovative methods (Bandura, 1997; Biesta, 2010).

Further research should also explore interventions that address the barriers to self-efficacy identified in this study. These interventions might focus on enhancing both technological and pedagogical competencies for educators through more sustained professional development programs, as well as providing additional support systems for students who struggle with the increased autonomy required by innovative learning methods (Zhao et al., 2020; Schunk & Pajares, 2009). These studies should assess the impact of various support mechanisms, such as peer mentoring, teacher coaching, and technical assistance, on reducing resistance to change and fostering a more positive learning environment.

Finally, examining the role of emotional and psychological factors, such as anxiety, resilience, and adaptability, in the adoption of innovative learning methods could yield valuable insights into how best to support both students and educators in this transition (Dweck, 2006; Sun & Chen, 2021). Research in this area could focus on developing strategies to reduce anxiety and resistance to change, potentially through targeted interventions designed to increase confidence in technological tools and self-regulation strategies (Zimmerman, 2000; Zhao et al., 2020).

By addressing these areas, future research can provide a more comprehensive understanding of the complex dynamics involved in adopting and sustaining innovative learning methods, ultimately contributing to more effective educational reforms that support the development of self-efficacy in diverse learning environments.

Implications for Policy and Practice

The findings of this study have several important implications for both educational policy and practice. First and foremost, educational institutions should adopt a more holistic approach when implementing innovative learning methods. While such methods offer potential benefits for enhancing student engagement, critical thinking, and self-efficacy, their success is contingent upon addressing the diverse psychological, social, and technological needs of both students and educators (Zhao et al., 2019; Zimmerman, 2000). Policymakers should ensure that new teaching approaches are accompanied by adequate infrastructure, professional development, and ongoing support mechanisms to create an environment that fosters growth rather than anxiety (Schunk & Pajares, 2009).

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For educators, professional development should be continuous and adaptive, focusing not only on the technical aspects of new teaching tools but also on the pedagogical strategies that support self-efficacy in students. This may include training on how to scaffold learning experiences, manage classroom autonomy, and provide personalized feedback that encourages student confidence. Educators should also be equipped to handle the emotional aspects of teaching in technology-enhanced environments, including managing student resistance and their own uncertainties about new methodologies (Darling-Hammond et al., 2020).

At the policy level, the integration of innovative learning methods should prioritize equity. Schools in different regions may have varied access to technological resources, which can exacerbate existing inequalities in education. Policymakers should work to bridge this digital divide by ensuring that all schools, regardless of their socio-economic context, have access to the necessary tools and support systems required for the successful adoption of these methods (Bandura, 1997). Moreover, funding should be directed towards not only acquiring technologies but also maintaining them and training staff to use them effectively (Zhao et al., 2020).

From a student perspective, educational institutions should create environments that encourage collaboration, peer support, and self-directed learning, as these are crucial components of fostering self-efficacy. Schools should promote learning spaces where students feel safe to take risks, ask questions, and engage with new materials without fear of failure (Dweck, 2006). Programs that integrate peer mentoring, collaborative projects, and group learning activities can provide students with the social support needed to overcome challenges and enhance their belief in their capabilities (Pajares & Schunk, 2001).

In conclusion, while innovative learning methods hold significant promise for improving educational outcomes, their implementation must be carefully managed. A focus on developing both technological competence and emotional resilience in students and educators will be key to ensuring these methods enhance self-efficacy rather than undermine it. By addressing the practical, psychological, and social dimensions of learning, policymakers and educators can create a more supportive and equitable learning environment that maximizes the benefits of educational innovation.

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