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Teacher noticing in reviewing Student Anxiety and Engagement in the Classroom: A Systematic Literature Review

Rivan Gestiardi, Siti Salina binti Mustakim, Subanji, Toto Nusantara, and Muhammad Alfian

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C/O Suan Dusit Rajaphat University
295 Nakhon Ratchasima Rd, Dusit, Dusit
District, Bangkok 10300, THAILAND
email:seair.info@gmail.com
<http://www.seairweb.info/>



TEACHER NOTICING IN REVIEWING STUDENT ANXIETY AND ENGAGEMENT IN THE CLASSROOM: A SYSTEMATIC LITERATURE REVIEW

***Rivan Gestardi¹, Siti Salina binti Mustakim², Subanji³,
Toto Nusantara⁴, Muhammad Alfian⁵**

Postgraduate School, Malang State University, Malang Indonesia¹³⁴⁵

Faculty of Educational Studies, University Putra Malaysia, Sri Serdang, Malaysia²

**rivangestiardi.2321039@students.um.ac.id¹, mssalina@upm.edu.my²,
subanji.fmipa@um.ac.id³, toto.nusantara.fmipa@um.ac.id⁴,
[muhammad.alfan.fs@um.ac.id⁵](mailto:muhammad.alfan.fs@um.ac.id)*

ABSTRACT

Numerous studies have examined how anxiety affects students in academic settings. However, there is still a lack of understanding regarding the role of educators in addressing this issue. This study aims to evaluate the role of "teacher noticing" in assessing students' anxiety and their involvement in classroom activities through a systematic literature review. This study uses the Systematic Literature Review (SLR) protocol, which refers to the PRISMA approach. Data were obtained from publisher Elsevier (Science Direct) with indexed articles randomized from Q1-Q3. Thematic analysis of 65 articles from the Scopus database (2010-2023) revealed three main themes: teachers' observational skills, student anxiety and engagement interpretation, and teacher responses and interventions. Findings highlight the importance of teachers' ability to recognize anxiety indicators, especially in post-COVID-19 distance learning contexts. Effective strategies include using motivational messages, integrating social networks, gamification, and mindfulness programs. Key implications involve developing teacher training programs focused on "noticing," adjusting educational policies to prioritize students' mental well-being, and implementing learning strategies that support student resilience.

Keywords: *Teacher Noticing, Anxiety, Systematic Literature Review*

Introduction

Developing skilled human resources requires a strong emphasis on education. According to, active student involvement in learning is crucial for academic success. However, depressive anxiety can hinder some students from fully engaging in their education, particularly during class presentations. This issue is a growing concern for educators and researchers as it can hurt academic performance and result in lower grades (BlackDeer et al., 2023). Despite extensive research on student anxiety, there are still gaps in understanding the role of teachers in recognizing and addressing anxiety in the classroom. Teacher noticing, which refers to the teacher's ability to observe, interpret, and effectively respond to learning situations, has not been fully explored in the context of emotional engagement (Kaiser et al., 2017; Styers et al., 2020; Tekin-Sitrava et al., 2022).

The ability to observe, interpret, and respond appropriately to learning situations is a key skill teacher must possess, known as teacher noticing (Amador et al., 2024; Bakker et al., 2022). This skill becomes particularly important in recognizing anxiety symptoms in students during presentations and understanding their underlying causes. Students who feel anxious during a presentation may exhibit physical symptoms such as shaking, sweating, and difficulty speaking (Li et al., 2023; Walkup et al., 2023). By honing their mindfulness skills, teachers can identify these signs and recognize that students are experiencing anxiety. For example (Ní et al., 2022; Wang & Zhang, 2021) found that 84% of primary school teachers accurately identify anxiety in students. Additionally, teachers can identify factors that contribute to student anxiety, such as inadequate preparation, fear of negative feedback from peers, or past negative presentation experiences (Romano et al., 2020a; Wang & Zhang, 2021).

Research indicates that effective teachers play a vital role in recognizing and interpreting student behavior during learning, implementing teaching strategies, fostering inclusive classroom environments, and appropriately responding to reduce anxiety and increase engagement (Anjomshoaa et al., 2021; Hsu & Goldsmith, 2021). To achieve these goals, teachers must offer emotional and verbal support, create an inclusive classroom environment, and provide constructive feedback (Anjomshoaa et al., 2021; Hsu & Goldsmith, 2021). Moreover, teachers can provide guidance and emotional support to help students prepare for academic learning (Romano et al., 2020b; Shen et al., 2021). However, previous research has primarily focused on factors influencing student anxiety in learning, such as students' lack of social adaptation and perceived importance of the learning process (Liu et al., 2022), fear of negative judgment, and feelings of burden and isolation from peers (Pineda, 2024), without specifically investigating the role of teacher noticing without being influenced by perceptions of competence (Schwchow et al., 2022).

Excessive anxiety is among the most common forms of pediatric psychopathology in the United States of America (USA) and globally and impairs academic functioning (Battaglia et al., 2017; Ghandour et al., 2019; Racine et al., 2021; Swan & Kendall, 2016). Students with anxiety present challenges to teachers who are tasked with managing their students' social,

emotional, behavioral, and educational impairments caused by excessive anxiety. For instance, data show that students with higher (compared to lower) levels of anxiety are more dependent on and have more conflict with their teachers (Zee & Roorda, 2018). A majority of teachers report that student anxiety negatively impacts their classrooms (Birnbaum et al., 2017). While teachers are not responsible for diagnosing student anxiety, their accurate observations of student anxiety often affect their teaching methods (i.e., how they respond to students in the classroom to optimize their learning); moreover, teachers may refer a student to a school mental health professional. The mental health needs of students internationally have risen dramatically in light of the global COVID-19 pandemic, highlighting the likelihood that teachers globally will encounter excessive student anxiety (Chavira et al., 2022; World Health Organization, 2022).

Another important dimension of this work has been a consideration of attention, which is critical to engagement – that is, a learner must direct their attention to tasks and to connections between language form and its meanings in use to be truly engaged. While there are marked parallels to (Hiver et al., 2024) pioneering work on noticing, the field of language learning is still notoriously divided regarding the role of deliberate attention and awareness in language acquisition (Cevikbas et al., 2024). Nevertheless, as (Maral, 2024) explains, attention itself is the gatekeeper of our working memory and the ultimate currency of instructed L2 settings. Because engagement is ‘the major force of learning’ (Klarin, 2024), engagement research in language learning raises critical questions about the link to implicit and explicit learning mechanisms and knowledge and the elements that learners’ attention is being directed to – whether that is formal features of the language, the task, the content, and/or the social interaction.

Therefore, through a systematic literature review, this study aims to evaluate the role of "teacher noticing" in assessing students' anxiety and their involvement in classroom activities. Further research is necessary to explore the relationship between teacher noticing and student anxiety during presentations and class participation. This research is crucial for evaluating the impact of teachers' noticing on student anxiety concerning classroom activities. The findings will be a foundation for developing effective approaches to address presentation-related anxiety and enhance student engagement. Ultimately, this will lead to improved learning outcomes and optimal development of students' presentation abilities. The specific objectives of this study are:

- RQ1. Exploring how teachers’ skills in observing signs of anxiety and student engagement in the classroom
- RQ2. Analyze how teachers interpret students’ anxiety and engagement
- RQ3. Identify teacher-provided responses or interventions to support students experiencing anxiety and increase their engagement

To improve this study, we will incorporate the theoretical framework of the chosen method, educational environment strategies, and prospects. The findings of this study can contribute to the development of more effective training programs for teachers. This will enable them to

better recognize and address student anxiety during presentations by utilizing teacher noticing to its fullest potential.

Methods

This study uses the Systematic Literature Review (SLR) method to identify, evaluate, and interpret all available and relevant research related to teacher attention and student anxiety in classroom activities. The SLR protocol refers to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure a systematic and comprehensive review (Moher et al., 2009; Page et al., 2021).

The inclusion criteria used in this SLR are (1) Research journals published in Scopus ; (2) Research that uses the search terms "teacher paying attention", "student anxiety", and "classroom engagement".; (3) Research that reports on learning outcomes, motivation, or student involvement in learning; (4) The search is limited to English-language journal articles; and (5) Articles published in the period 2010-2023.

Meanwhile, the exclusion criteria include (1) Articles that do not address at least two of the main constructions; (2) Articles that focus on non-teacher populations or are not in the classroom context are also excluded to maintain a focus on teacher perceptions and experiences (3) Research that cannot be downloaded in pdf form.

Performing keyword search: ("teacher" OR "educator" OR "instructor" OR "professor") AND ("noticing" OR "observing" OR "detecting" OR "identifying") AND ("student" OR "learner" OR "pupil") AND ("anxiety" OR "stress" OR "tension" OR "worry") AND ("engagement" OR "involvement" OR "participation" OR "interaction").

A total of 1,576 articles from 2010-2023 were collected from Scopus and ScienceDirect. The researchers filtered the 415 unique articles down to 65 articles for analysis by developing inclusion and exclusion criteria based on the relevance of the articles to teacher concern, student anxiety, and classroom engagement. Filtering articles will be presented using the PRISMA flowchart in Figure 2. They reviewed each article's abstracts, keywords, and full text to determine their alignment with the established criteria. Articles that did not meet the criteria, such as those not addressing at least two of the main constructs, focusing on non-teacher populations, or being outside the classroom context, were excluded from the analysis. Articles that did not address at least two of these main constructs were excluded, as the analysis focused on these specific research areas. Articles that focused on non-teacher populations or were not in a classroom context were also excluded to maintain a focus on teacher perceptions and experiences. Performance metrics, such as ranking the top 10 journals and SJR journals, are calculated for 65 articles that meet the analysis criteria.

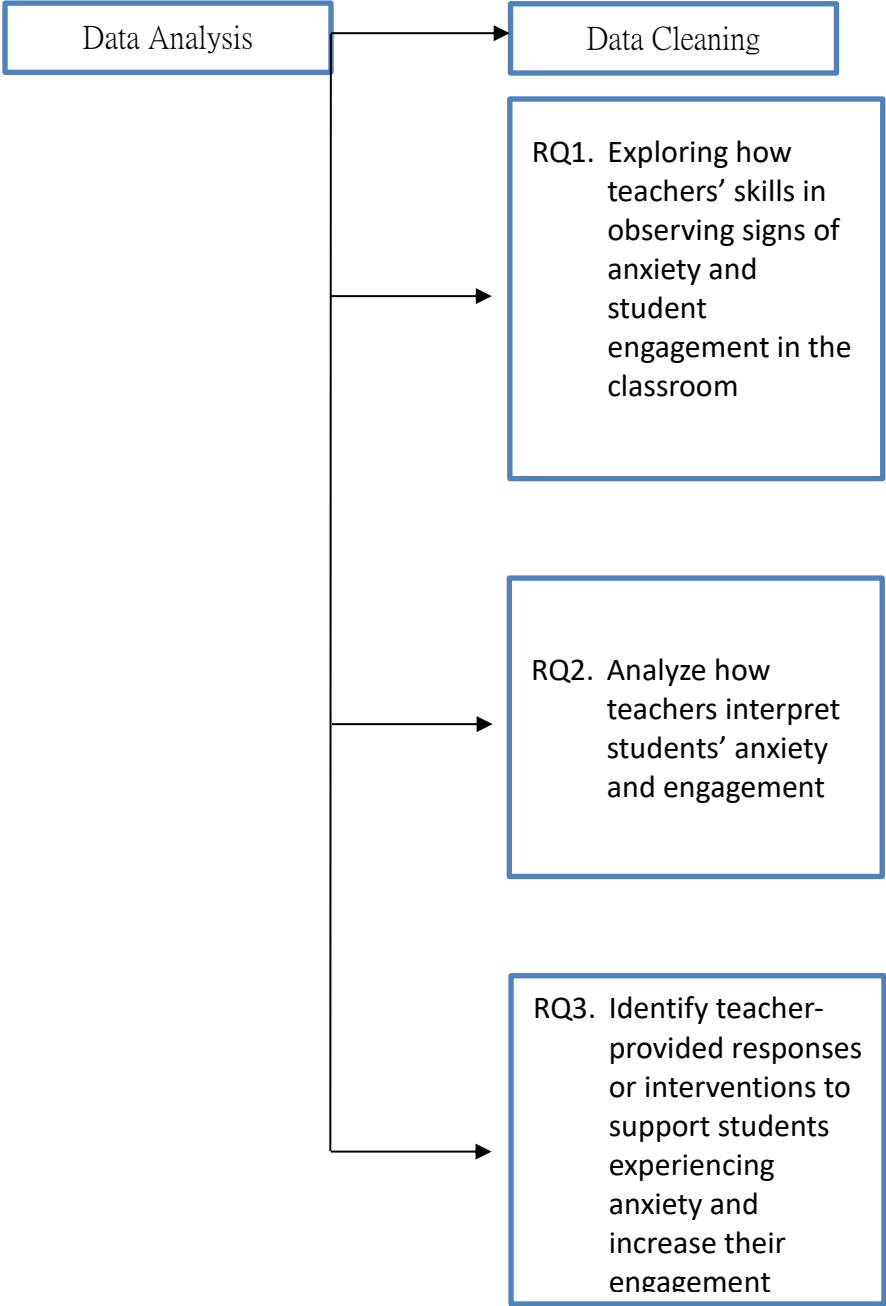


Figure 1: Systematic Literature Review Process Flow Diagram

The data analysis technique in SLR adopts a thematic-based narrative synthesis approach. It can be seen in Figure 1. Every article that passes the final selection will be read thoroughly. The analysis begins with an in-depth reading of each article to understand its context, methodology, and key findings. Furthermore, the relevant information from each article is coded according to the predetermined research questions, covering aspects such as teachers' skills in observing students' anxiety and engagement, teachers' interpretations of students' behavior, and interventions carried out to support students.

The coding from the various articles is then grouped into broader themes that align with the

research question. These themes are organized into a coherent and comprehensive narrative, answering each research question with the support of evidence from the analyzed articles. Finally, based on this narrative synthesis, general conclusions are drawn about how teachers pay attention, interpret, and respond to students' anxiety and involvement in the classroom.

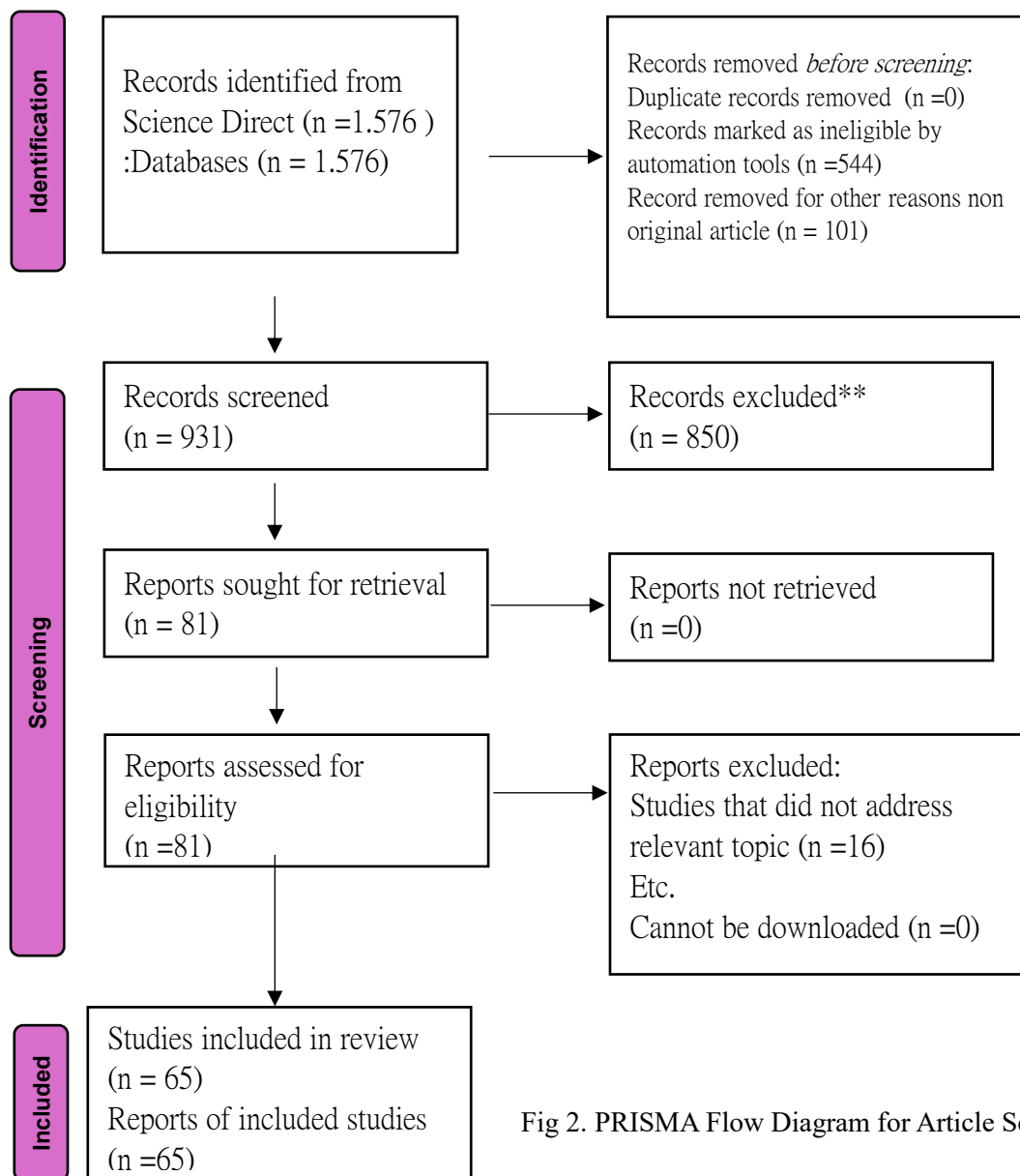


Fig 2. PRISMA Flow Diagram for Article Selection Process

Through this analysis process, the study aims to analyze the effectiveness of teachers' skills in paying attention to and responding to students' anxiety and involvement in the classroom based on relevant research in the Scopus database.

In this study, narrative insights are carried out on a subset of relevant articles selected based on their relevance to comparing the theories used, the setting of educational strategies, and future expectations. Filtering articles will be presented using a PRISMA flowchart, as shown in Figure 2. Before entering the analysis based on the research question, the researcher wanted

to see the relativity and distribution of data from the final paper, which identified the following results:

- **Sample articles include studies:** These studies involved various samples. In the study of (Harb et al., 2023), a survey was distributed among teachers and students from different colleges, with a total of 253 responses collected from 123 teachers and 130 students. In the study (2023), a population sample consisting of 51 teachers and 815 children was selected from 70 primary schools in Finland. The population sample in the Dragomir & Dumitru study (2023) was 415 undergraduate accounting students. The population sample consisted of six students aged 16-17 years (Wilkie et al., 2023). The sample size of the research population is 313 elementary school students aged 7 – 12 years. The sample size consisted of more than 900 students for the Tosto et al. (2023) study. The research of Yin et al. (2023) used a population sample of about 650 EFL students, and 591 EFL students were accepted to participate in this study.
- **The most commonly used methods:** The research methods varied. Face detection and alignment algorithm used for emotion recognition, Neural Architecture Search (NAS) for optimizing emotion classification architecture, speech emotion recognition using deep learning and multimodal analysis, data mining of online forums for emotional state classification, illumination compensation and background segmentation for image processing and multi-task Cascaded Convolutional Networks (MTCNN) for face cropping in the study of Harb et al., (2023). The study used statistical analysis, correlation analysis, and visual examination of scatter plots, and a random group was established for the research design (Dragomir & Dumitru, 2023). Cheng (2023) is a review article. Cluster randomized control trial designs, ManCoVAS and ANCOVA, were used in the research of Garc a-Rubio et al. (2023). Class-based studies, SvCMC and FTF, and task performance were recorded and transcribed for analysis (Aubrey & Philpott, 2023). The study design of mixed methods and integrated statistical analysis (Tosto et al., 2023). The research of Yin et al. (2023) used multivariate regression and Pearson correlation coefficients, and SPSS and AMOS software were used for data analysis.
- **The Context includes studies:** The context of the research covers the problems of students' diverse emotional states and provides an interactive dashboard for teachers (Harb et al., 2023). This study examines teacher-child interaction and social competence (Soininen et al., 2023). The research of Dragomir & Dumitru (2023) analyzed online learning during the COVID-19 pandemic, focusing on student engagement and learning outcomes. This research focuses on students' mindfulness, creativity, anxiety, and boredom in education (Cheng, 2023). The research context of Wilkie et al. (2023) emphasizes the importance of student voice and student engagement related to classroom context features. This study highlights the role of mindfulness in education (Garc a-Rubio et al., 2023). This study emphasizes the importance of empathy and connection in the learning process (McLaughlin et al., 2023). The context of this study emphasizes a positive classroom atmosphere that facilitates engagement (Aubrey & Philpott, 2023). The study addresses gaps in previous research on online education (Tosto et al., 2023). This research explores academic engagement spanning cognitive, emotional, and social-behavioral components (Yin et al., 2023).
- **Country:** The research was conducted in various countries: Saudi Arabia (Harb et al., 2023),

Finland (Soininen et al., 2023), Romania (Dragomir & Dumitru, 2023), Israel (Wilkie et al., 2023), Spain (García-Rubio et al., 2023). The research of McLaughlin et al. (2023) involving the United States and Mexico also refers to the West Bank and Palestine. (Tosto et al., 2023) conducted research in the United States, and Yin et al. (2023) in Guangdong Province, China. Cheng's (2023) research is by (Arai & Takizawa, 2024), and research (Baker et al., 2013) is an article review that does not mention a specific country but includes studies from various international contexts.

Result

An overview of educational publications in the past decade is presented in Table 1. A significant portion of educational research is made up of articles. While the annual growth rate of publications is 8.49%, the average annual number is 1,576. A total of 171 countries have contributed to educational research.

Table 1. Top 10 Journal of the topic

No.	Authors	Article Title	Journal	Quartile
1.	(Yin et al., 2023)	Chinese students' perceptions of social networks and their academic Engagement in technology-enhanced classrooms	Heliyon	Q1
2.	(Tosto et al., 2023)	Online learning in the wake of the COVID-19 pandemic: Mixed methods analysis of student views by demographic group	Social Sciences & Humanities Open	Q1
3.	(Aubrey & Philpott, 2023)	Second language task engagement in face-to-face and synchronous video-based computer-mediated communication modes: Performances and perceptions	System Journal	Q1
4.	(McLaughlin et al., 2023)	Decolonizing internal and external borders: Reflections on therapeutic engagements with asylum seekers	The Arts in Psychotherapy	Q3
5.	(García-a-Rubio et al., 2023)	Effectiveness and mechanisms of change of a mindfulness-based intervention on elementary school children: A cluster-randomized control trial	Journal of School Psychology	Q1
6.	(Wilkie et al., 2023)	Exploring ways to engage disaffected mathematics students through formative assessment processes with rich tasks	Teaching and Teacher Education	Q1
7.	(Cheng, 2023)	Delving into the role of mindfulness in the relationship between creativity, anxiety, and boredom among young EFL learners	Heliyon	Q1
8.	(Dragomir & Dumitru, 2023)	Two years into the COVID-19 pandemic: An analysis of learning outcomes and student engagement at an economics university	Journal of Accounting Education	Q2
9.	(Soininen et al., 2023)	Reciprocal associations among teacher-child Interactions, teachers' work Engagement, and Children's social competence	Journal of Applied Developmental Psychology	Q1
10.	(Harb et al., 2023)	Diverse distant-students deep emotion recognition and visualization	Computers and Electrical Engineering	Q1

In Table 1, the Top 10 Journals on the topic provide a comprehensive list of the best journals that publish high-quality research on various topics. One such topic is "Teacher Attention in Assessing Student Anxiety in Class Activities". These journals maintain strict standards for article selection, peer reviews, and impact assessment.

Scopus ranks these journals as Q1 and Q2, indicating their popularity and readability. Experts review articles to ensure quality, accuracy, and relevance. These articles provide valuable guidance for researchers studying how teachers can identify and support anxious students in the classroom. They help identify future internal disorders while providing mental health literacy training and efforts to implement easily applicable strategies (Ginsburg et al., 2022; Poorman et al., 2019). The study, published in the journal, emphasizes the importance of teachers paying attention to anxious students as it can impact their learning in the classroom. These articles are widely read within the scientific community, promoting the exchange of knowledge and learning. Researchers can follow the lead of these journals to produce high-quality work that aids teachers in better understanding and managing student anxiety, ultimately improving students' problem-solving skills and anxiety management (Minahan & Ablon, 2022). These articles highlight the significance of conducting thorough research on how teachers can support students experiencing anxiety in the classroom. This list underscores the importance of publishing exceptional work in these journals. By following the example of these leading journals, researchers can produce superior articles that help teachers discover more effective ways to address student anxiety, ultimately enhancing student learning.

Teacher

An analysis of the 65 articles provided shows that teachers should consider several factors when assessing students' anxiety in classroom activities. These factors include stress, anxiety, cognitive involvement, and behavioral involvement. It is very important for teachers to actively observe and recognize the signs of stress in students during classroom activities, as stress can exacerbate or trigger anxiety. Furthermore, students' behavioral engagement levels, including active participation and self-disclosure, serve as important indicators for teachers to identify students experiencing anxiety.

The study of Garc a-Rubio et al. (2023) describes awareness-based interventions for student development. Increased attention by teachers improves emotional regulation, academic performance, and student engagement, highlighting the role of mindfulness in education. In addition, teachers should also consider the level of cognitive engagement shown by students. It involves evaluating how well students can stay mentally focused on their learning and overcome academic difficulties, even when anxious. By recognizing and understanding these various factors, teachers can develop effective strategies to help students manage their anxiety effectively and stay actively engaged in classwork.

A significant increase in the keyword "anxiety" occurred from 2010 to 2023, in 2020 and 2022, to be precise. This shows the substantial impact of the COVID-19 pandemic on the mental health of students in the learning environment. Tosto et al. (2023) explained from the perspective of students who said that online learning during the COVID-19 pandemic, students were concerned about the reduced interaction of teachers when the learning process was online. There was a gap in online learning. During the pandemic, pandemic studies were

confounded by stress and abrupt transitions. The abrupt transition to remote or hybrid learning as a result of the pandemic has increased anxiety levels among students, presenting new challenges for teachers to acknowledge and address these issues. In this context, an important skill for teachers is their ability to pay attention, which allows them to assess students' anxiety during classroom activities. Teachers must cultivate sensitivity to recognize indicators of anxiety, including behavioral changes, decreased participation, or difficulty concentrating, which can be subtle in a remote learning environment. Failing to identify these signs can lead to untreated mental health problems among students, which adversely affects their learning and overall development. In addition, the high level of student anxiety experienced during the peak of the pandemic necessitated changes in learning practices. Teachers should prioritize emotional support and build a psychologically safe learning environment. (Regaieg et al., 2022; Tshering & Dema, 2022; Xu & Wang, 2023).

Interpreting student anxiety and engagement

Student anxiety is a common problem in education, and teachers play an important role in identifying and addressing these problems. Recent research highlights the different ways teachers deal with anxiety and the techniques they use to minimize their impact on student learning outcomes. Teachers closely observe the relationship between student anxiety and academic achievement, monitoring how anxiety affects classroom participation, engagement, and use of digital technology. They also acknowledge the influence of anxiety on students' motivation and creativity, understanding that anxiety can inhibit their desire to take risks and engage in creative activities. Regarding online learning, teachers have noticed that anxiety affects how students use the camera and interact with the material. They realize that anxiety can hinder active participation in virtual classes.

Teacher-provided responses or interventions to student anxiety and engagement

When teachers encounter conditions where students feel anxious in the learning process, teachers use various strategies to overcome them. Research by Harb et al. (2023) explains that recognizing emotions can monitor student engagement and find the right teaching strategies. They encourage positive thinking and goal-setting techniques, use teacher lecture strategies to relieve anxiety and encourage engagement, and carefully craft messages that predict student motivation and academic performance. By addressing boredom and anxiety, teachers seek to increase students' creativity and improve learning outcomes.

The study emphasized the important influence of student anxiety on academic achievement and engagement in the classroom. Teachers must identify and address these anxieties through appropriate strategies to create a positive learning environment and improve student well-being and success. By understanding how teachers provide attention and the effectiveness of various interventions, educators can better prepare themselves to address the challenges posed by student anxiety in a religious education environment. To help students manage anxiety and maintain engagement in learning, it is important to incorporate various strategies such as relaxation techniques, mindfulness activities, and open discussions about mental health. Given

the urgency of this trend, it is crucial to research "Teacher Attention in Assessing Student Anxiety in Classroom Activities." The findings of such research can directly impact teachers' professional development, equipping them with the skills and strategies necessary to identify and address student anxiety effectively. Furthermore, the focus of this research can contribute to the development of educational policies that prioritize students' mental well-being not only during times of crisis, such as the pandemic but also in regular learning environments. Students can cultivate resilience and coping mechanisms with adequate teacher support and understanding, ensuring their long-term academic success and emotional well-being.

Discussion

To enhance the robustness of this research, we have included information about the theoretical approach employed, the educational setting strategy utilized, and our aspirations for the future.

Theoretical Comparison and Relation with the Personality Traits

The researcher by (Go et al., 2024). Can collaborate and leverage their expertise in educational psychology and measurement to develop a valid and reliable tool for assessing student anxiety and teachers' ability to recognize it. On the other hand, (Pina et al., 2023) can collaborate and combine clinical psychology and educational perspectives to create effective interventions to reduce students' anxiety in the classroom. Additionally, cross-disciplinary collaborations, such as (Pina et al., 2023), can offer valuable insights into contextual factors that influence student anxiety, such as social dynamics or classroom climate, and their impact on "teacher anxiety." Such collaborations can also encourage the development of a more comprehensive theoretical framework for understanding student anxiety and the role of teachers in learning environments.

The author's collaborative analysis emphasizes the importance of an interdisciplinary and collaborative approach when studying "Teacher Attention in Reviewing Student Anxiety in Classroom Activities." Researchers can produce more comprehensive and relevant findings that inform educational practices and policies by integrating expertise from fields such as psychology, education, and measurement. This collaboration also accelerates the sharing and application of best practices in identifying and addressing student anxiety in the classroom, ultimately improving learning outcomes and overall student well-being.

Integrating Big Five personality theories into educational strategies offers a nuanced approach to addressing student anxiety and enhancing classroom dynamics. The Big Five traits—neuroticism, conscientiousness, extraversion, agreeableness, and openness—significantly influence students' and teachers' behaviors and interactions within educational settings (Williams et al., 2023). Students with high levels of neuroticism, for instance, are more susceptible to anxiety, suggesting that educational strategies should foster positive and inclusive environments to mitigate these effects (Meyer et al., 2023). This aligns with findings that neuroticism predicts emotional challenges, while conscientiousness is linked to resilience

and effective stress management (Thalmayer et al., 2022). Conversely, students characterized by high conscientiousness may leverage their intrinsic motivation and cultural resources more adeptly, benefiting from strategies that emphasize competence and autonomy (Kumar & Tankha, 2023)

This trait's association with positive health outcomes and behaviors underscores its role in navigating academic challenges (Kumar & Tankha, 2023). Teachers' personalities also critically impact the implementation of educational strategies. Those with high openness and agreeableness are better equipped to meet students' emotional needs and foster supportive classroom interactions (Duong, 2021; Usslepp et al., 2020). Their approachability and adaptability can enhance the delivery of educational content and engagement strategies (Mitchell et al., 2021). Moreover, conscientious teachers are likely to apply educational interventions systematically, potentially increasing the effectiveness of anxiety-reducing strategies (Schutter et al., 2020). This indicates a potential connection between the conscientiousness of teachers and the use of theory-based interventions, like Keller's ARCS model, to cultivate a less anxiety-inducing learning atmosphere. Integrating Big Five personality theories into educational research and practice can establish a more comprehensive and personalized strategy for addressing student anxiety and fostering involvement, ultimately enhancing educational achievements and emotional wellness.

Educational Setting Strategy

Student anxiety is a frequent issue in educational settings, and teachers have a crucial role in recognizing and applying strategies to lessen its impact on learning results. This systematic review examines different educational and environmental strategies to tackle student anxiety and enhance engagement, motivation, and academic performance. One effective strategy highlighted in the literature is using compelling messages by teachers to motivate students (Yosep et al., 2023). Research has found that autonomous motivation positively impacts academic performance, whereas controlled motivation has a negative effect. Therefore, teachers should focus on practices that support autonomy to improve student outcomes.

Integrating social networks in educational settings has been proven to enhance academic engagement, motivation, and the availability of personalized learning materials (Hawes & Arya, 2023). Using social networks, teachers can create interactive learning environments that captivate students and cater to their needs. Another effective technique for reducing student anxiety and boosting engagement is gamification. This approach incorporates game elements like points, badges, and rankings to create a more immersive and motivating learning experience. However, it is important to note that excessive exposure to gamification can lead to decreased motivation, as students may become reliant on external rewards.

Mindfulness programs have effectively reduced anxiety and enhanced students' creativity (Fagioli et al., 2023). Teachers can help students overcome anxiety and become more engaged in the learning process by creating a positive classroom atmosphere and incorporating

mindfulness techniques. Innovative teaching methods and student-centered approaches can provide a more supportive and engaging learning environment (Flatekval, 2023). In clinical settings, online Objective Structured Practice Exams (OSPES) and Objective Structured Clinical Exams (OSCEs) have been suggested to assess students' skills while reducing anxiety. Collaborating with technology companies for faculty software training and holding faculty training sessions on effective student engagement is also recommended.

Continuous monitoring of student progress is essential to identify and overcome anxiety and lack of interest. Teachers should explore students' perceptions of silence in the classroom and identify the causes of student silence to increase participation. Proposing effective guidelines for instructing quiet learners can also contribute to a more inclusive and supportive learning environment. The structure of the classroom environment plays an important role in shaping students' goal orientation and cognitive engagement. Teachers should create an environment focusing on mastery and progress goals to foster a growth mindset and reduce anxiety. Structural equation modeling has been used to analyze the mediating role of goal achievement in the relationship between classroom structure and student engagement. Finally, school-based exposure exercises have been proposed as a strategy to overcome anxiety in students. By collaborating with teachers and caregivers to monitor progress and provide support and using fear hierarchies to set exposure goals, students can gradually overcome their anxiety and engage more fully in the learning process.

Recommendations for Future Research: Moving Forward in Addressing Student Anxiety

A systematic review explored educational and environmental strategies for addressing student anxiety. The review identified several promising approaches, such as engaging messaging, social networking, gamification, mindfulness, and supportive classroom environments. However, future research should consider the following recommendations to enhance our understanding of student anxiety and develop more effective interventions.

Firstly, it is crucial to delve into the impact of culture on anxiety treatment for BIPOC youth and address social disparities and barriers to care. This exploration should be expanded to examine the influence of technology on academic achievement among students with disabilities (Cosby et al., 2023), utilizing cross-national data and considering the challenges and benefits of virtual reality (Rizk & Hillier, 2022). Secondly, future research should examine strategies to promote engagement in diverse educational contexts, such as ESL learning environments and native English teacher talk (Aliabadi & Weisi, 2023). These investigations should also consider individual teachers' specific characteristics concerning their engagement strategies. This can offer valuable insights for professional development (Santana-Monagas et al., 2022). Replicating the study with diverse student populations can help validate any demographic differences and enhance the overall applicability of the findings (Santana-Monagas et al., 2022).

Thirdly, it is recommended that longitudinal designs be used to establish causal relationships between variables. Furthermore, it is important to explore the influence of factors such as tone of voice and grades on student motivation (Santana-Monagas et al., 2022). Additionally, there is a need for further investigation into the impact of social networks on academic engagement across different levels of education (Yin et al., 2023). Researchers should also prioritize studying the impact of individual traits on gamification strategies for motivation, as well as exploring the long-term effects and novelty of gamification (Ratinho & Martins, 2023).

Fourthly, several areas warrant further examination, like the impact of mindfulness on students' creativity, anxiety reduction, boredom alleviation, and overall well-being should be explored in greater detail (Aghazadeh & Abedi, 2014; Ratinho & Martins, 2023). Additionally, future research should investigate mindfulness programs' effectiveness in various educational settings and age groups (Cheng, 2023). It would also be valuable to conduct cross-cultural comparisons of students' satisfaction with e-learning and its impact on mental health during the pandemic, as this could offer insights into educational policy and practice (Aghazadeh & Abedi, 2014). It is crucial to assess the preparedness of medical schools in underdeveloped countries for e-learning (Fahim et al., 2022).

Fifth, conducting replication research in various global regions can enhance our comprehension of student anxiety and engagement (Pirhayati, 2012). This research should examine the reasons behind and outcomes of student hesitation across diverse cultural contexts and the influence of linguistic, psychological, and sociocultural factors. Such research can contribute to the development of culturally responsive interventions (Conroy et al., 2022).

Finally, in future research, it is important to consider cultural factors and biases in assessments and adapt strategies accordingly, depending on the understanding and involvement of relevant stakeholders (Han & Hyland, 2015). Additionally, researchers should explore alternative methods of assisting students with anxiety, as not every child may require school consultation (Wang & Zhang, 2021).

Limitation

The article has several limitations that should be considered. These include using specific databases, restricted time frames, a lack of input from other involved parties, a lack of explicit evaluation of research quality, and potential bias in the review process. However, despite these limitations, the article provides a strong foundation for future research. It can guide efforts to enhance support for student well-being and learning in the classroom and inform the development of more effective and culturally sensitive interventions to address student anxiety.

Conclusion

This study aims to present a comprehensive review of recent research conducted between

2010 and 2023 on teacher attention in assessing students' anxiety and engagement in the classroom. This review uncovers some of the key themes that emerge from the literature. These themes include teachers' ability to observe, interpret, and respond effectively to learning situations and future research recommendations.

Teachers are vital in recognizing and addressing student anxiety in the classroom. They need to be aware of signs of anxiety, such as stress, decreased cognitive engagement, and changes in behavior. By understanding and identifying the various aspects of student anxiety, teachers can create effective strategies to help manage anxiety and encourage active participation in learning. Several theoretical models and approaches, including the ritual chain theory of interaction, cultural capital theory, and motivation theory, have been used to understand student anxiety and the role of teachers in educational settings. Comparing these models shows different perspectives and approaches to addressing this multifaceted issue.

Strategies in educational settings to address student anxiety include using engaging messages, integrating social networks, implementing gamification, promoting mindfulness, and creating supportive classroom environments. In addition, ongoing monitoring of student progress, exploring student perceptions, and adjusting classroom structures are crucial for reducing anxiety and increasing engagement.

Future research should consider the influence of culture on anxiety treatment, investigate the impact of technology on students with disabilities, examine strategies to promote engagement in diverse educational contexts, utilize longitudinal design, and explore the role of mindfulness, e-learning, and social networks. It is also recommended that research on replication in different global regions be conducted and cultural factors be considered in the assessment.

These findings provide the foundation for future research on the connection between teacher attention, student anxiety, and classroom engagement. By gaining insight into patterns of teacher attention and the effect of different interventions, educators can effectively address the challenges of student anxiety in various educational environments. This, in turn, promotes student well-being and achievement.

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