

Turning Teacher Boredom Into Better Teaching: How Leader-Member Exchange, Absorptive Capacity and Teacher Creativity Support Innovation in Schools

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Abstract

In today's dynamic and increasingly uncertain educational environments, teachers are expected to constantly acquire new knowledge and demonstrate creativity to ensure quality teaching, that is, the integration of good and successful teaching. Job boredom, as an emotion, is regarded as a key driver of individuals' knowledge-seeking behavior and creativity. Dyadic leader-member exchange relationships (LMX) have been identified as a critical factor in the emotion regulation of teachers. Using data from 1,406 Nigerian teachers, this study investigates the impact of job boredom on teacher creativity and teaching practices, with a particular focus on the mediating and moderating roles of LMX and pedagogical knowledge absorptive capacity (ACAP) in this relationship. The findings indicate a correlation between teacher job boredom and increased activities aimed at recognizing, assimilating, transforming, and exploiting new pedagogical knowledge, as well as a greater variation in teaching practices. ACAP, in turn, emerged as the key driver of teacher creativity and quality teaching. Crucially, the study introduces a novel curvilinear understanding of LMX in educational contexts, demonstrating that high-quality leader-member exchange weakens the positive influence of boredom on these outcomes. While this suggests that high LMX can provide a stabilizing environment for good teaching, it also implies that too much relational support may dampen the creative potential of boredom. Consequently, school leaders should balance support with constructive challenges to ensure that boredom translates into productive pedagogical innovation rather than complacency, while policy frameworks should prioritize training that enhances teachers' absorptive capacity.

Keywords

absorptive capacity, creativity, job boredom, leader-member exchange (LMX), pedagogical knowledge, teaching

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Introduction

In today's dynamic and increasingly uncertain educational environments, teachers are expected to demonstrate creativity, continuously refine their skills by exploring new knowledge, and consistently enhance and adapt the quality of their teaching to meet ever-evolving contexts and demands (König et al., 2025). Whether teachers can meet these requirements and how they do so depend, in large part, on their emotions (J. Chen & Cheng, 2021; Frenzel et al., 2021; Pekrun, 2021). In this regard, it is supposed that teachers' emotions shape their work by influencing their choice of instructional strategies, considering the emotional impact on both students and themselves (Hargreaves, 2000; Sutton & Wheatley, 2003).

Despite the research showing that teacher boredom, an emotion that is becoming common in the workplace, can lead to important consequences for classroom instruction and student learning (Kruk et al., 2024), there have been limited studies on teacher job boredom, its antecedents, and its effects in schools (Tam et al., 2020). For instance, despite the enormous demands of their daily work, researchers have reported an increase in boredom among teachers in recent years, which may be linked to a rise in mental health issues (Weybright et al., 2020) and trigger absenteeism and poor concentration (van Hooff & van Hooff, 2014). On the other hand, some studies have shown that boredom in the workplace can actually act as a catalyst for explorative activities, that is, searching and absorbing new knowledge (Bench & Lench, 2019) and spark the emergence of creativity (Mann & Cadman, 2014). This also appears to apply to teachers (Elahi Shirvan et al., 2025) and teacher creativity and their teaching practices (Emo, 2015). However, the limited number of available studies constrains the ability to draw firm conclusions about whether job boredom yields positive or negative consequences, particularly in educational settings (see Dumančić, 2018; Emo, 2015).

With this in mind, educational research has shown growing interest in understanding the role of school leadership in explaining teacher knowledge seeking, creative ideas, and teaching practices. It has been suggested that high-quality relationships, that is, Leader-Member Exchange, between teachers and principals could create a positive school environment that encourages teachers to seek new knowledge (e.g. absorptive capacity), generate novel ideas (creativity), and improve their teaching practices (Tasić et al., 2020; Ugwuanyi et al., 2025; Witthöft et al., 2026). However, the majority of these studies examined the direct association between LMX and teacher behaviors (Martin et al., 2016; Mascareño et al., 2020). There is a growing body of scholarship in organizational research that considers LMX as a climate variable that moderates the influence of various elements on employee performance (Lindsey Hall et al., 2016). This line of research is lacking in educational settings.

The purpose of this study is to address the aforementioned research gap by examining how job boredom may be related to absorptive capacity, creativity, and teaching practices, while accounting for the potential moderating role of LMX. In pursuit of this purpose, we adopt L. S. Shulman's (1986), L. Shulman's (1987) perspective that teaching is fundamentally a knowledge-based activity and the premise that schools, above all, are social institutions where affective and relational contexts and conditions are imperative (Benoliel & Berkovich, 2021). In this regard, on the one hand, we introduce the concept of individual absorptive capacity (ACAP) into educational research, as it allows us to examine "an individual's activities to recognize, assimilate, transform, and exploit new external knowledge" (Lowik et al., 2017, p. 1323). On the other hand, we draw on the concept of leader-member exchange (LMX; Graen & Uhl-Bien, 1995), as numerous studies highlight the significance of high-quality relationships between leaders and their subordinates for followers' emotion regulation (Little et al., 2016) and work outcomes (Mumtaz & Rowley, 2020), particularly creativity and innovative work behavior (Madrid et al., 2019). As such, we aim to determine

whether teacher job boredom is associated with higher absorptive capacity (ACAP) and enhanced creativity among teachers, whether this is reflected in greater variation in teaching practices at the individual level, and what role LMX plays in this context.

Aligned with the above research purpose, this study addresses the following central research question: How is job boredom related to teachers' ACAP, creativity, and teaching practices, and to what extent are these relationships moderated by leader-member exchange (LMX)? For our study, we use data from 1,406 teachers nested within 146 schools in Nigeria and test a dozen hypotheses by estimating latent moderated-moderated structural equation models (Cheung & Lau, 2017).

Context and Background

Teachers play a critical role in cultivating creativity, innovation, and effective instructional approaches to improve educational quality. However, in many Nigerian schools, teachers are becoming increasingly dissatisfied with their jobs due to monotony, underutilization of skills, limited autonomy, and repetitious instructional routines. Ololube (2006) found that teachers are unsatisfied with educational policies, administrative systems, and material rewards. Furthermore, Popoola (2009) found that many teachers have considered leaving teaching, with the majority preferring alternative jobs due to poor working conditions. According to Iwu et al. (2018), the top reasons for job dissatisfaction include low income, limited growth possibilities, and constrained job responsibilities. Ofili et al. (2009) found that a significant portion of Nigerian school teachers expressed dissatisfaction and intentions to quit as a result of job boredom, which makes job boredom a relevant issue in Nigerian context. According to Busari (2018), academic boredom is associated with decreased motivation, stress, anxiety, and emotions. Overall, those papers using large sample sizes from multiple Nigerian states consistently show that job dissatisfaction leads to lower motivation, engagement, boredom, and limited instructional efficacy, all of which have a direct impact on educational quality. However, empirical research on how job boredom affects teacher creativity and instructional practices in the Nigerian educational setting is limited and theoretically underexplored.

In Nigerian schools, where constraints such as inadequate instructional resources, centralized curricula, severe workloads, and hierarchical leadership structures exist, a lack of supportive leadership and opportunities for professional learning may exacerbate the negative consequences of job boredom. Strong leader-teacher relationships, on the other hand, and a high pedagogical knowledge absorptive capacity may allow teachers to turn boredom into productive innovation and better teaching methods. However, empirical research that combines these variables into a coherent framework is lacking in the Nigerian context.

As a result, there is a need for empirical research on how job boredom affects Nigerian teachers' creativity and teaching, and if pedagogical knowledge absorptive capacity and Leader-Member Exchange act as buffering or enabling processes in this relationship. Addressing this gap would provide evidence-based insights for school leadership, teacher development, and policy actions aimed at turning job boredom from a liability into a potential source of pedagogical innovation in Nigerian education.

Theoretical Background

Teaching is essentially a knowledge-based activity (Hegarty, 2000). L. S. Shulman (1986, L. Shulman 1987) conceptualized teachers' professional knowledge as including pedagogical knowledge, content knowledge, and pedagogical content knowledge. Later, Mishra and Koehler (2006)

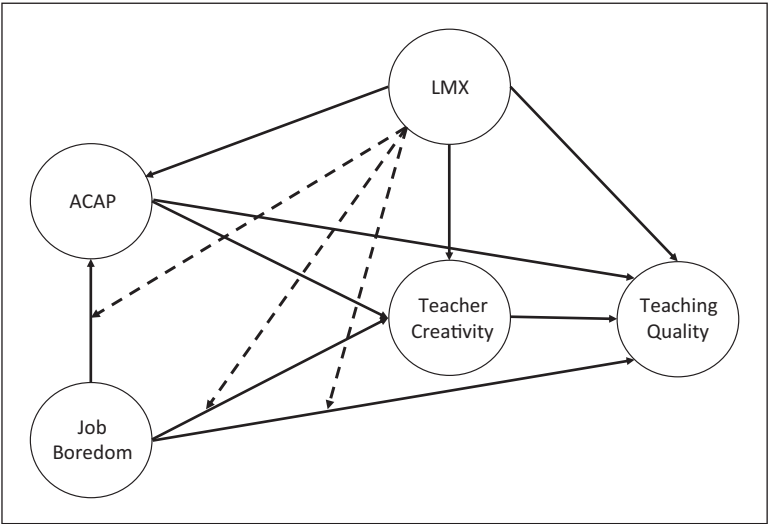


Figure 1. Conceptual model.

added technological knowledge to the TPACK framework. Such knowledge is tacit mainly and acquired through a continuous inflow of new experiences and professional learning (Mena et al., 2017; Figure 1).

In this context, boredom can stimulate individuals to seek new experiences (Reio, 2024), sometimes more strongly than curiosity (Wolff et al., 2024), and is associated with creativity (Hunter et al., 2016). Understanding how teachers acquire new knowledge also requires acknowledging the relational and affective context of schools (Benoliel & Berkovich, 2021). In this context, leader-member exchange (LMX) highlights the quality of dyadic principal-teacher relationships, which strongly influence work outcomes, including creativity (Little et al., 2016; Mumtaz & Rowley, 2020).

Absorptive capacity (ACAP) refers to individuals' ability to search for, assimilate, and exploit knowledge (Lowik et al., 2017; Zahra & George, 2002). Recent studies show its importance for applying new knowledge in practice (Xiong et al., 2025). Whether ACAP is relevant for teachers' creativity and teaching practices remains under explored.

Teaching Practices

Since the famous Coleman report (1966), the quality of classroom teaching has been central to educational research and policy, given its strong link to student achievement (Stronge et al., 2007). According to Fenstermacher and Richardson (2005), quality teaching is best understood through the necessary integration of two distinct dimensions: the task sense, which they define as good teaching, and the achievement sense, which they label successful teaching. Good teaching describes instructional activity that is pedagogically sound, rationally justified, and intrinsically learner-sensitive, meaning it focuses on the worthiness and appropriateness of the pedagogical act itself, regardless of whether learning occurs in every single instance. In contrast, successful teaching is strictly learning-dependent, defined by the actual realization of intended student learning outcomes. Teaching quality comprises both dimensions: Ultimately it is realized when the pedagogical process is both good and successful. Reforms succeed only if they address teaching and learning

activities (Blömeke et al., 2016). Suggested strategies include grouping students for collaborative learning, diversifying materials, asking higher-order questions, and providing constructive feedback (Stronge et al., 2007). Yet, teachers often resist leaving their comfort zones (Riley & Solic, 2017). Research in developing countries highlights school factors that can improve teaching quality (Bellibas et al., 2021).

Teacher Creativity

Creativity is typically defined as the production of novel and useful ideas (Zhou & George, 2003). Consequently, definitions of creativity usually involve two common essential features: novelty and usefulness (Harvey & Berry, 2023). The first suggests that creative people think outside the box (Beghetto, 2018) to develop original and better ways of doing things (Zhou & George, 2003). The second implies that creative ideas should differ from those that are crazy and bizarre, be relevant to the problem, or be acceptable within the standards (Harvey & Berry, 2023). Creative teachers combine theories and methods in innovative ways to meet the diverse needs of learners (Bramwell et al., 2011). They generate ideas to enhance instruction, take risks with new strategies, and seek original solutions to classroom problems (Zhou & George, 2003).

Individual Absorptive Capacity

While educational research has extensively examined constructs such as teacher professional learning or instructional capacity, the concept of ACAP offers a distinct theoretical contribution by focusing on the dynamic capability of knowledge processing rather than merely the engagement in learning activities or the static stock of knowledge (Lowik et al., 2017; Zahra & George, 2002).

Traditional concepts of professional learning often center on the structural features of development, such as the duration or frequency of participation in workshops and collaborative activities (Desimone, 2009). However, mere participation does not automatically equate to the successful assimilation or application of new knowledge, leading to a persistent “translation gap” between professional development and classroom practice (Opfer & Pedder, 2011).

ACAP addresses this gap by conceptualizing teacher learning not as a passive reception of information but as an active, multi-stage process comprising the recognition, assimilation, transformation, and exploitation of external knowledge (Witthöft et al., 2025b). Unlike instructional capacity, which often refers to the existing resources a teacher holds as an asset (Stosich, 2016), ACAP describes the mechanism of change by explaining how schools and teachers effectively integrate external pedagogical insights into their existing cognitive schemas to innovate their teaching practices (Fischer-Schöneborn et al., 2026).

Consequently, implementing innovation requires acquiring new knowledge. At the individual level, absorptive capacity (ACAP) refers to the ability to recognize, assimilate, transform, and apply external knowledge (Lowik et al., 2017; Zahra & George, 2002). Teachers with strong ACAP proactively seek pedagogical knowledge, adapt it to their specific context, and apply it effectively in their classrooms. ACAP is influenced by prior experience, interaction with the environment, and leadership support (Bakker, 2017), and it can enhance creativity and performance (Tian & Soo, 2018).

Research on ACAP in education remains scarce and mainly focuses on schools as organizations (Da’as & Qadach, 2020; Fischer-Schöneborn et al., 2026). Following Pietsch et al. (2026), our research examines ACAP at the individual level of teachers. This is due to the paucity of research examining how teachers acquire new knowledge after commencing their professional careers (König et al., 2025). In this regard, we specifically focus on pedagogical knowledge

ACAP. L. S. Shulman (1986) notes that pedagogical knowledge goes beyond teachers' content knowledge in a given subject matter to include knowledge of teaching the subject and of what facilitates learning. Therefore, ACAP for pedagogical knowledge is defined here as the teacher's ability to proactively recognize the relevance of new pedagogical knowledge, assimilate it effectively, and apply it in classrooms to innovate their teaching.

Job Boredom

Boredom is characterized by feelings of disengagement and dissatisfaction (Fahlman et al., 2013). It is associated with attention deficits, distorted time perception, and low arousal (Kruk et al., 2024). Fahlman et al. (2013) listed four main theories that explain why a bored person is less likely to achieve a task: psychodynamic, arousal, attention, and existential theories. Psychodynamic theory suggests that a bored person cannot determine what they desire because their desires are repressed. Arousal theory links it to less arousal due to a mismatch between environmental stimulation and a person's need for arousal. Attention theory views it as a problem of insufficient attention, while existential theory argues that it stems from a lack of purpose. In education, boredom increased during COVID-19 lockdowns (Audrin & Hascoët, 2021) and is linked to negative outcomes such as absenteeism and poor concentration (van Hooff & van Hooff, 2014).

Empirical research indicates that boredom can lead individuals to seek new experiences (Reio, 2024) and increase their information-seeking behavior (Wolff et al., 2024), a process associated with enhanced creativity (Hunter et al., 2016). Unlike frustration, boredom serves as an adaptive mechanism that encourages knowledge-seeking and exploration by signaling low-value situations and prompting cognitive reengagement. It is an adaptive signal that regulates exploration-exploitation trade-offs, with experimental evidence indicating that increased boredom correlates with greater exploration (Geana et al., 2016). Bench and Lench (2019) found that boredom induces a "seeking state" that drives the desire for fresh experiences or creativity, even if those experiences are undesirable. Besides, boredom can also stimulate exploration, information-seeking, and creativity (Hunter et al., 2016; Reio, 2024; Wolff et al., 2024). Aligned with this theoretical background, existing research shows that teachers sometimes view boredom as a catalyst for professional learning and innovation (Dumančić, 2018; Emo, 2015). Recently, Elahi Shirvan et al. (2025) found that, among teachers with high perceived control, earlier boredom experiences have a favorable effect on future creativity.

LMX

Leader-member exchange (LMX) theory emphasizes the dyadic relationship between leaders and followers (Graen & Uhl-Bien, 1995). High-quality LMX is characterized by trust, respect, and support, while low-quality relationships focus on transactional exchanges (Martin et al., 2016). According to LMX, leaders vary in their interactions with followers, resulting in variability in the quality of relationships between each leader and their followers within the organization (Martin et al., 2016), suggesting that each follower should be the unit of analysis (Graen & Uhl-Bien, 1995).

In schools, strong principal-teacher relationships foster creativity, motivation, empowerment, and job satisfaction (Mumtaz & Rowley, 2020). Teachers with high LMX are more likely to seek and implement innovative ideas (Mascareño et al., 2020). LMX has been linked to stronger creativity, citizenship behavior, and commitment (Mumtaz & Rowley, 2020), trust, motivation, empowerment, job satisfaction, and performance (Martin et al., 2016), and weaker turnover intention (Mumtaz & Rowley, 2020).

While studies often highlight the positive aspects of LMX (Martin et al., 2016; Mascareño et al., 2020; Mumtaz & Rowley, 2020), it can also have negative consequences and hence can reduce employee performance and creativity through several interrelated psychological and social mechanisms. For example, high-quality LMX may generate obligation pressure, intensify role expectations, expand responsibilities, and create pressure to reciprocate the leader's support. Over time, this transforms LMX from a resource into a job demand, increasing strain and cognitive overload that undermines performance (Hesselgreaves & Scholarios, 2014). Second, strong LMX ties can foster complacency and reduced voice, as employees may avoid challenging leaders or proposing unconventional ideas to protect a valued relationship (J. Hu et al., 2022). Additionally, high LMX can be interpreted as favoritism, legitimizing biased or even harmful leader behaviors and reducing empathic concern and helping among coworkers; such climates normalize silence, suppress dissent, and erode the relational conditions (J. Hu et al., 2022).

Hypotheses

Creativity is an essential teacher competence that can be utilized to address classroom problems (Torrance, 1970). Developing novel and useful ideas can drive teachers toward innovation (Da'as, 2025). Teachers who generate new ideas may develop a profound intrinsic motivation to implement these ideas in their teaching (Wibowo & Saptono, 2018). Consistent with these theoretical arguments, the researchers reported a strong positive relationship between teacher creativity and their pedagogical approaches and competencies (Suharyatia et al., 2019) as well as teaching effectiveness (Arifani et al., 2019). Hence, we hypothesize that:

H1: *Teacher creativity will be positively related to teaching quality*

ACAP requires individuals to evaluate, identify, assimilate, and apply external knowledge (Schweisfurth & Raasch, 2018). Knowledge obtained from external sources can stimulate novel ways of thinking (Chiang et al., 2015). Individuals with a higher ACAP can therefore be more creative and innovative by leveraging external knowledge and sharing it with the organization for other team members to use (Schweisfurth & Raasch, 2018). On the contrary, a low capacity to seek and exploit external knowledge could dim the chance of developing creative ideas (Ince et al., 2022). In addition, the exploitation of new knowledge from external sources tends to improve performance (Chiang et al., 2015). For example, Darling-Hammond et al. (2017) asserted that exchanging ideas with people beyond the school offers powerful insights and knowledge that can drive change in classrooms. Therefore, we hypothesize that:

H2: *ACAP will be positively related to teacher creativity*

H3: *ACAP will be positively related to teaching quality*

Job boredom has been associated with attention deficit, distorted time perception, emotions, and affect (Kruk et al., 2024) and, therefore, often has negative consequences, including depression complaints, distress, and counterproductive work behavior (van Hooft & van Hooft, 2014). Evidence also reported a potential negative impact on teaching quality (Dumančić, 2018). I. S. Chen and Choi (2025) found an intriguing indirect relationship: while job boredom directly reduces creativity, it can positively correlate with leisure crafting, which in turn predicts teachers' creativity and better teaching practices. However, the evidence is mixed. A systematic review by Zeiðig et al. (2024) found five studies reported a positive relationship between boredom and creativity, four

reported a negative relationship, two reported a conflicting relationship, and three reported an unimportant relationship. In a similar study, Haager et al. (2018) found that boredom reduced creative fluency, suggesting a negative association.

However, there could also be positive consequences. Boredom often results from mismatches between cognitive demands and available mental resources, which can drive individuals to seek more engaging and meaningful activities (Westgate & Wilson, 2018) and to explore novel ways of doing things (Geana et al., 2016). Here, awareness seems to be the key to positive outcomes. For example, in a qualitative study involving interviews with 30 teachers in the USA, many participants viewed boredom as a key factor driving their decision to engage in a professional learning activity to develop and implement creative ideas (Emo, 2015). This is because it prompts mental resource engagement to alleviate an uncomfortable state (Mugon et al., 2019) and, in turn, stimulates exploration, information-seeking, and creativity (Hunter et al., 2016; Reio, 2024; Wolff et al., 2024). Empirical evidence indicated that, for some, boredom acted as a catalyst, prompting immediate action to address it. Therefore, some teachers considered it an ongoing motivator to engage in innovative activities and to improve the quality of their teaching (Emo, 2015). In another study, teachers reported seeking strategies to make their teaching more engaging and interesting to avoid boredom (Dumančić, 2018). Therefore, we propose the following hypotheses:

H4: *Job boredom will be positively related to ACAP*

H5: *Job boredom will be positively related to teaching quality*

H6: *Job boredom will be positively related to creativity*

Defined as the quality of the dyadic relationship between the leader and the follower (Bauer & Erdogan, 1998). While there is a line of research that discusses the dark side of having a high LMX relationship, such as creating obligation pressure and psychological strain, suppressing employee voice and risk-taking, and activating social comparison and justice concerns that undermine psychological safety and collaboration (Hesselgreaves & Scholarios, 2014; Juliana et al., 2021), which are likely to harm creativity and innovative practices, the majority of researchers focused on its positive implications. For example, a high-quality relationship offers followers increased autonomy and decision-making opportunities, which are essential for developing creative ideas and innovation (Adams et al., 2025; Özdemir et al., 2024; Witthöft et al., 2026). This relationship also gives followers a stronger sense of advocacy and liking from the leader, promoting greater comfort and trust required to take risks and demonstrate creativity (Tierney et al., 1999). In addition, followers who enjoy a closer, higher-quality relationship with their leader are expected to be more motivated to learn new skills and knowledge (Bakker, 2017). In exchange for increased support from the leader, followers develop a desire to please the leader (Martin et al., 2016) by seeking, acquiring and implementing innovative ideas (Mascareño et al., 2020). Therefore, we expect the following:

H7: *LMX will be positively related to ACAP*

H8: *LMX will be positively related to creativity*

H9: *LMX will be positively related to teaching quality*

As shown in the previous section, under certain conditions or contexts, such as developing an awareness of their situation, the boredom that employees (i.e. teachers) feel can trigger the development of internal enthusiasm and motivation for better knowledge-seeking, creativity, and

performance (Dumančić, 2018; Emo, 2015) or negative outcomes (e.g. disengagement; van Hooff & van Hooff, 2014). A high-quality relationship could facilitate and strengthen this mechanism. Bored employees might want to perform better and come up with better ideas when they know that, through good relationships with their leader, they can enjoy autonomy and psychological safety and easily handle the risk of failure (Smothers, 2024). Therefore, psychological safety may be one factor that leads bored employees to become aware and take action (Emo, 2015). The supportive environment created through the high-quality relationship between the leader and employee, characterized by support and trust (Graen & Uhl-Bien, 1995), might turn boredom into an opportunity for creativity or performance improvement.

H10: *LMX will positively moderate the relationship between Job boredom and ACAP*

H11: *LMX will positively moderate the relationship between Job boredom and creativity*

H12: *LMX will positively moderate the relationship between Job boredom and ACAP*

Methods

The foundation of this investigation is a cross-sectional survey design. The sections that follow describe the study site, sample, data collection, measurements, and data analysis techniques.

Sample and Data Collection

This study was conducted in Nigeria. Nigeria is located in West Africa and has a diverse geography, characterized by humid and desert-like equatorial temperatures. The cross-sectional survey involved 1,406 Nigerian teachers, nested in 146 schools, in the spring of 2023. The participants were divided into the following states: 144 teachers from Benue State represented 9.6% of the participants; 146 teachers from Ebonyi State represented 9.8% of the participants; 132 teachers from Kogi State represented 8.8% of the participants; 146 teachers from Akwa-Ibom State represented 9.8% of the participants; 120 teachers from Enugu State represented 8% of the participants; 266 teachers in Anambra State, representing 17.8% of the participants; there were 288 teachers in Federal Capital Territory, representing 19.3% of the participants; 110 teachers in Delta State, representing 7.4% of the participants; and 54 teachers in Ogun State, representing 3.6% of the participants. The sample consisted of 49.4% men and 50.6% women.

Purposive sampling was used to select participants from schools in the Federal Capital Territory of Nigeria and the states of Enugu, Anambra, Ebonyi, Kogi, Benue, Delta, and Akwa-Ibom. Purposive sampling was used to ensure the researchers sampled only principals from schools without significant security issues, as Nigeria currently faces numerous security challenges that may compromise the nation's status as an independent republic. These comprise kidnapping, human trafficking, armed robberies, gun smuggling, urban violence, and disputes between religious and communal groups. Furthermore, it has been seen that the government, security, and intelligence services are caught off guard by the continuous attacks by terrorists, herders, and ethnic-religious disputes (Awotayo et al., 2023).

Measures

Teaching Practices (TEAC, $\omega=0.775$). To assess the instructional methods employed by teachers, five items from the International Association for the Evaluation of Educational Achievement's (IEA) Second International Science Study 1984 (SISS84) were used (Rosier & Couper, 1981). We

selected this instrument as SISS84 was the final international large-scale assessment study (ILSA) in which Nigeria participated (Howie, 2011). The selection of the SISS84 items was a deliberate methodological choice to ensure conceptual continuity within the Nigerian educational landscape. As detailed in a related study mapping four decades of pedagogical change in Nigeria (Ugwuanyi et al., 2026), these indicators provide a validated baseline for tracking the shift from teacher-led to student-centered practices.

While the original scale dates back to the 1980s, its construct validity remains robust in a contemporary context, as the items map onto the three-dimensional approach to teaching comprising instruction, participation, and investigation (Keeves, 1992). These dimensions correspond directly to enduring educational constructs of passive versus active learning environments (Young, 1995) and align with modern indicators of inquiry-based education used in current assessments such as TALIS and PISA (Furtak et al., 2012; OECD, 2019). In Fenstermacher and Richardson's (2005) quality of teaching framework, these dimensions relate to "good teaching," that is, teaching that focuses on whether instructional activities are pedagogically sound and learner-sensitive.

Regarding predictive validity, historical analysis revealed that, in SISS84, these items correlated with student achievement at about $r = .20$ and, together, explained about 7% of the variance in student achievement across schools (Wolf, 1992). This correlation addresses what Fenstermacher and Richardson (2005) term "successful teaching," which results in intended learning outcomes. By capturing both the pedagogical process and its link to student performance, this scale provides a comprehensive proxy for "quality teaching," defined as the integration of both good and successful practice. This demonstrates that these specific instructional practices serve as effective proxies for instructional quality.

The base question was: "How often do you use each of the following types of instructional methods for teaching?" All items were answered on a 4-point Likert-type scale (1 = never to 4 = frequently). Example items are: "Lecture to the whole class followed by questions from students." "The class is divided into small groups of students who work together on the same assignment or different assignments, including practical/laboratory work." Students follow individualized programs that may include printed materials and laboratory work.

Teacher Creativity (TCRE, $\omega = 0.919$). Teachers' creative behavior at work was measured with three items developed by George and Zhou (2001). All items were answered on a 4-point Likert-type scale (1 = strongly disagree to 4 = strongly agree). An example item is: "I exhibit creativity on the job when given the opportunity to."

Absorptive Capacity (ACAP, $\omega = 0.892$). Because ACAP is domain-specific (Cohen & Levinthal, 1990), we assessed teachers' pedagogical knowledge ACAP, as defined by L. S. Shulman (1986). Hence, we showed the following introduction:

In the following, we would like to learn how you deal with pedagogical knowledge. Pedagogical knowledge is knowledge about teaching and learning that is subject-independent, i.e. can be applied to different subjects and educational areas. How much do you agree with the following statements?

The measurement was conducted using an adapted unidimensional six-item scale developed by Schweisfurth and Raasch (2018). All items could be answered on a four-point Likert-type scale, coded from 1 (strongly disagree) to 4 (strongly agree). Example items are: "I am always searching for new knowledge about teaching and learning to raise student achievement"; "I translate new knowledge about teaching and learning into a language that my colleagues understand"; "I exploit new knowledge about teaching and learning to change instruction fundamentally."

Job Boredom (BORE, $\omega=0.778$). A 3-item short version of the Dutch Boredom Scale (Reijseger et al., 2013) was used to capture teachers' boredom at work. All items were answered on a 4-point Likert-type scale (1=strongly disagree to 4=strongly agree). One item assesses the affective aspects of job boredom, a second item assesses the cognitive aspects, and a third item assesses the behavioral aspects. Item wordings are as follows: "I feel bored at my job."; "At work, time goes by very slowly."; "At work, I spend my time aimlessly."

Leader-Member Exchange (LMX, $\omega=0.899$). We captured LMX with Graen and Uhl-Bien's (1995) seven-item scale. All items are coded on five-point Likert-type scales. An example item is "How well does your principal recognize your potential?," coded from 1 (Not at all) to 5 (Fully). Another example item is "I have enough confidence in my principal that I would defend and justify his or her decision if he or she were not present to do so.," also coded from 1 (Strongly Disagree) to 5 (Strongly Agree).

In adapting scales for use in Nigerian schools, we accounted for key cultural and contextual factors to strengthen their relevance and validity. Given the hierarchical, high power-distance nature of Nigerian school culture, items were reworded to avoid assumptions of egalitarian relationships, emphasizing fairness and supportive supervision rather than shared decision-making. Linguistic adjustments were made to ensure clarity by simplifying wording and avoiding abstract managerial terminology. Additionally, resource constraints common in many schools led us to contextualize items around realistic knowledge sources such as peer learning, workshops, NGO-supported training, and informal networks.

Data Analyses

We used Mplus 8.5 (Muthén & Muthén, 2017) to conduct the analyses, including confirmatory factor analyses (CFAs) and structural equation models (SEMs). We employed maximum likelihood estimation with robust (Huber-White) standard errors (MLR), and requested cluster-robust standard errors by specifying TYPE=COMPLEX.

To assess goodness-of-fit in the basic model, we used the standardized root mean square residual (SRMR) and the comparative fit index (CFI). The cut-offs for SRMR and CFI were 0.08 and 0.90, respectively, as suggested by L. Hu and Bentler (1999). However, we did not estimate the root mean square error of approximation (RMSEA) because it is sensitive to the model used and performs poorly with ordinal indicators (Shi & Maydeu-Olivares, 2020). We also estimated the robustness of the mediation effects using bootstrapped mediation analysis. This procedure provides 95% bias-corrected bootstrap confidence intervals with 1,000 bootstrap replications (Hayes, 2018; Preacher & Hayes, 2008). Indirect effects are considered significant if the 95% confidence intervals (CI) do not include zero (Hayes, 2018).

We applied a random-effects model to examine interaction effects (moderation). For standardized path coefficients, we standardized all manifest indicator variables, following the procedures recommended by Maslowsky et al. (2015). Since no fit indices are available for random effects models, we compared the log-likelihoods of the model with and without the latent interaction to examine whether adding the interaction significantly changed the analysis, using a log-likelihood ratio test and reporting the coefficient D (A. Klein & Moosbrugger, 2000). Moreover, we investigated whether the newly added parameter could explain more variance in the dependent variables between teachers (ΔR^2 ; Maslowsky et al., 2015). Following best-practice recommendations for interaction reporting, we also use a pick-a-point, simple-slope procedure (Finsaas & Goldstein, 2021).

Table 1. Descriptive Statistics of Variables Included in the Model.

Variable	<i>M</i>	<i>SD</i>	TEAC	TCRE	ACAP	BORE	LMX
TEAC	2.92	0.61	1				
TCRE	3.36	0.66	0.248	1			
ACAP	3.29	0.65	0.346	0.541	1		
BORE	2.45	0.83	0.155	−0.149	−0.078	1	
LMX	3.69	0.83	0.263	0.375	0.375	−0.091	1

Note. All correlations are significant at $p < .05$. TEAC=teaching practices; TCRE=teacher creativity; ACAP=absorptive capacity; BORE=job boredom; LMX=leader-member exchange.

Since the data utilized in this study originate from a single instrument, we initially examined the common variance by loading all items used in the analyses on a single unrotated factor (Harman, 1960). A value below 50% indicates a lower risk of common method bias in model estimates (Lance et al., 2010). The data show that the common variance is 27.5%. To handle the 5.8% of missing data, we employed a full information maximum likelihood (FIML) approach.

Results

The results are presented in the following order: descriptive statistics, structural equation model, mediation model, and moderation model.

Descriptives

We started the analysis with descriptive statistics, as shown in Table 1. Notably, a considerable proportion of teachers surveyed reported experiencing high levels of job boredom ($M=2.45$). Approximately one in every two teachers (50%) strongly agreed that time at work passes slowly, that they feel bored at work, and that they spend their working hours aimlessly. The mean quality of teaching practices is also relatively low ($M=2.92$). All other variables are relatively high, with values above 3.00. Correlations ranged from moderate to low, with the highest being between teaching practices and ACAP ($r=.541$) and the lowest between ACAP and boredom ($r=-.078$). Negative correlations were identified between boredom and the three variables: teacher creativity ($r=-.149$), LMX ($r=-.091$), and ACAP ($r=-.078$). In contrast, a positive correlation was observed between job boredom and teaching practices ($r=.155$); that is, the more bored a teacher is in their job, the more frequently they vary their instructional methods.

Our measurement models demonstrated good fit to the data, with CFI values of 0.979 and 0.985, and SRMR values of 0.024 and 0.022, for teaching practices, ACAP, and LMX, respectively. In this regard, it is important to note that preliminary analyses indicated a high correlation between two items of the teaching practices scale (“Question-and-answer methods for presenting information to the whole class.” and “Lecture to the whole class followed by questions from students.”). Consequently, we correlated their item residuals with each other. Further, we do not report fit indices for teacher creativity and job boredom as both analyses would demonstrate perfect fit to the data, due to just identified models, as both constructs are indicated by only three items each.

Structural Equation Model

The R^2 -values for ACAP, teacher creativity, and teaching practices are .541, .738, and .700, respectively. The results indicated that teacher creativity is significantly and positively related to teaching

Table 2. Standardized Direct Effects.

Parameter	β	p
CREA $\rightarrow$ TEACH	.248	<.010
BORE $\rightarrow$ ACAP	.157	<.050
BORE $\rightarrow$ TEACH	.308	<.001
BORE $\rightarrow$ CREA	.008	.822
LMX $\rightarrow$ CREA	.198	<.001
LMX $\rightarrow$ ACAP	.712	<.001
LMX $\rightarrow$ TEACH	.208	<.001
ACAP $\rightarrow$ CREA	.739	<.001
ACAP $\rightarrow$ TEACH	.298	<.001

Note: TEAC=teaching practices; TCRE=TEACHER CREATIVITY; ACAP=absorptive capacity; BORE=job boredom; LMX=leader-member exchange.

practices ($\beta = .248, p < .01$). Job boredom is significantly related to ACAP ($\beta = .157, p < .05$) and teaching practices ($\beta = .308, p < .001$) but not creativity ($\beta = .008, p = .822$). LMX is significantly and positively related to creativity ($\beta = .198, p < .001$), ACAP ($\beta = .712, p < .001$) and teaching practices ($\beta = .208, p < .001$). Similarly, the relationships between ACAP and creativity ($\beta = .739, p < .001$) and between ACAP and teaching practices ($\beta = .298, p < .001$) are significant and positive.

These results overall highlight several points: (1) the frequent use of varying teaching practices depends on all model variables. The strongest predictor is boredom, suggesting that teachers often switch between teaching methods when bored in class. (2) Teacher creativity, on the other hand, is mainly driven by a teacher's pedagogical knowledge, ACAP. If a teacher seeks new knowledge about teaching and learning, this leads to increased creativity in the job (though not necessarily to the same extent in instructional practices). (3) ACAP, in turn, is based on LMX. If a teacher has a good relationship with their principal, they will strive to find and implement more new and relevant pedagogical knowledge (Tables 2 and 3).

Mediation Model

The indirect association between ACAP and teaching practices through creativity is significant only on a one-tailed test ($\beta = .183$, 95% CI [0.043, 0.375], $p = .054$). As a result, while the total effect of ACAP on teaching practices is significant and positive ($\beta = .481$, 95% CI [0.361, 0.606], $p < .001$), the total indirect effect is not significant ($\beta = .183$, 95% CI [0.043, 0.375], $p = .054$). Similarly, although the total effect of job boredom on teaching practices is significant and positive ($\beta = .385$, 95% CI [0.229, 0.472], $p < .001$), the total indirect effect is not significant ($\beta = .183$, 95% CI [-0.059, 0.130], $p = .054$) because specific indirect effects between boredom and teaching practices through creativity ($\beta = .002$, 95% CI [-0.018, 0.016], $p = .869$) and ACAP ($\beta = .047$, 95% CI [-0.031, 0.101], $p = .356$) paths and both paths combined ($\beta = .029$, $p = .230$, 95% CI [-0.008, 0.073]) are not significant.

However, the total effect of LMX on teaching practices is significant ($\beta = .598$, 95% CI [0.325, 0.654], $p < .001$) as well as the total indirect effect ($\beta = .392$, 95% CI [0.153, 0.489], $p < .01$). Specific indirect effects in the relationship between LMX and teaching practices include ACAP ($\beta = .212$, 95% CI [0.123, 0.357], $p < .01$), creativity ($\beta = .049$, 95% CI [0.008, 0.095], $p = .078$) and both combined ($\beta = .130$, 95% CI [0.018, 0.278], $p = .084$). On the other hand, neither total ($\beta = .123$

Table 3. Standardized Indirect Effects with Confidence Intervals and Moderating Effect.

Parameter	Estimate	95% Confidence Intervals		<i>p</i>
		Lower	Upper	
Mediation effects				
ACAP→CREA→TEACH	0.183	0.043	0.375	.054
BOR→CREA→TEACH	0.002	−0.018	0.016	.869
BOR→ACAP→TEACH	0.047	−0.031	0.101	.356
BOR→ACAP→CREA	0.116	−0.077	0.197	.315
LMX→ACAP→TEACH	0.212	0.123	0.357	<.010
LMX→CREA→TEACH	0.049	0.008	0.095	.078
LMX→ACAP→CREA	0.526	0.239	0.612	<.010
Moderation effects				
LMX×BOR→ACAP	−0.316			<.001
LMX×BOR→CREA	−0.179			<.001
LMX×BOR→TEACH	−0.144			<.001

Note. TEAC = teaching practices; TCRE = teacher creativity; ACAP = absorptive capacity; BORE = job boredom; LMX = leader-member exchange.

95% CI [−0.223, 0.225], $p = .543$) nor total indirect effects ($\beta = .116$, $p = .315$ −0.077, 0.197) is significant in the relationship between job boredom and teacher creativity through ACAP ($\beta = .116$, 95% CI [−0.077, 0.197], $p = .315$). LMX is significantly related to creativity both through total effect ($\beta = .724$, 95% CI [0.343, 0.807], $p < .01$) and total indirect effect ($\beta = .526$, 95% CI [0.239, 0.612], $p < .01$), meaning that the specific indirect effect via ACAP is also significant ($\beta = .526$, 95% CI [0.239, 612], $p < .01$).

The results overall suggest that (1) ACAP has the largest total effect on teaching practices, meaning that teachers who have a stronger capacity for absorbing new knowledge are likely to change their teaching practices and apply a better one. (2) LMX has the second-largest effect on teaching practices. This suggests that a strong relationship between the school principal and the teacher can be another key factor in improving teaching practices. (3) Boredom has a positive total effect on teaching practices. The effect of boredom on teaching practices is only direct without any indirect effects. It means that bored teachers are likely to shift their teaching practices without learning something new or developing a creative idea.

Moderation Model

In a final step, we investigated the moderating effect of LMX on teachers' job boredom. Concerning ACAP ($\beta = -.316$, $p < .001$), creativity ($\beta = -.179$, $p < .001$), and teaching practices ($\beta = -.144$, $p < .001$), we found a negative and statistically significant interaction effect. The direct effect of boredom on teaching practices remains stable and significant, indicating that it is an additional, independent effect. The ΔR^2 Values for ACAP, teacher creativity, and teaching practices are 0.086, 0.081, and 0.098, respectively. This indicates that adding the job boredom-LMX interaction increases the explanatory power in each case by more than 10%. The coefficient D is 367 ($df = 3$, $p < .001$), demonstrating that adding the three latent interaction terms to the model yields a better fit to the data.

In Figure 2a to c, we graphically show how LMX moderates the relationship between teacher boredom and teacher creativity, ACAP and teaching practices, respectively—that is, when LMX is

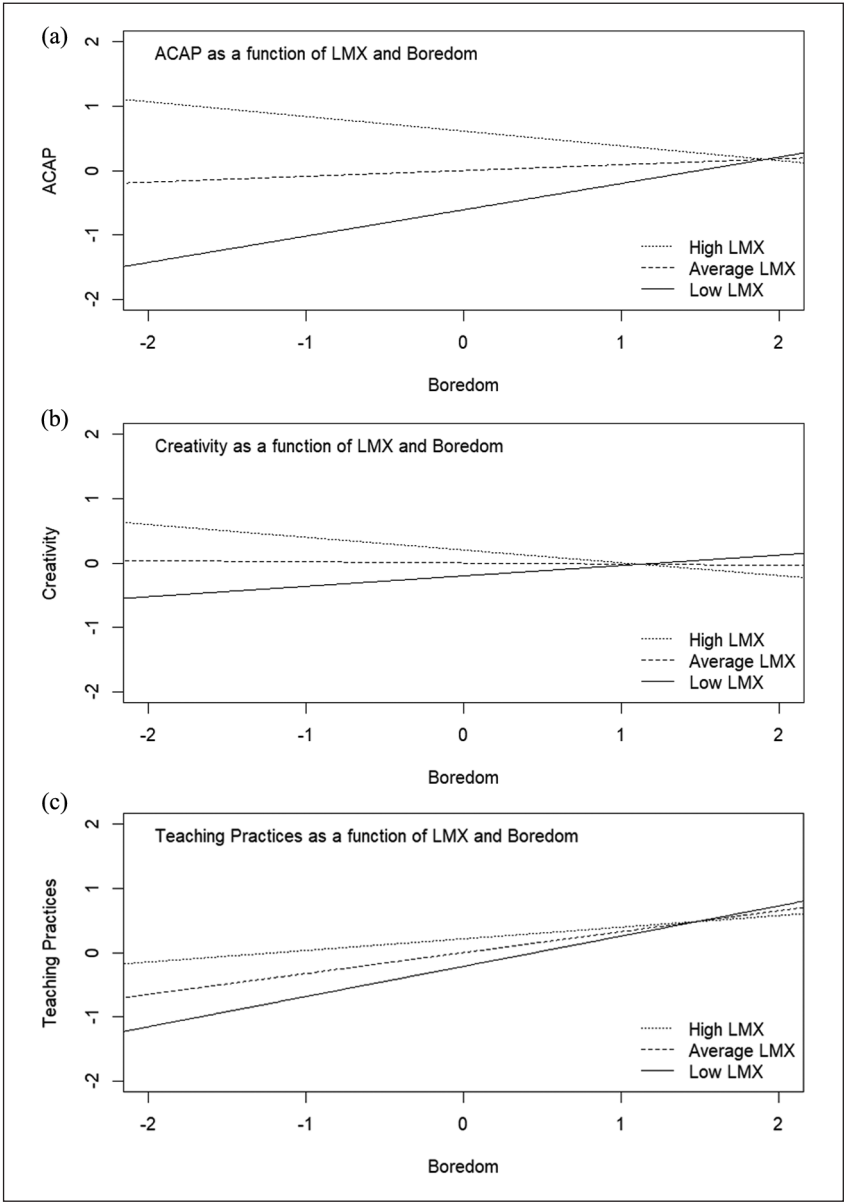


Figure 2. (a–c) Interaction effects of Boredom and LMX on ACAP, teaching quality, and creativity.

zero (average) or 1 SD below (low) or 1 SD above (high) this value. LMX negatively moderates the relationship between boredom and these variables. The results indicate that LMX mainly has a positive effect on teacher creativity, ACAP and teaching practices when the job boredom of teachers is low. Positive effects are identified, particularly when teachers experience minimal boredom and perceive high levels of LMX.

The results indicate that LMX acts as a significant moderator in the relationship between job boredom and teachers’ professional outcomes (teaching practices, ACAP, and creativity).

Specifically, the negative interaction term indicates that the association between boredom and these variables differs substantially across LMX levels.

For teachers with high LMX, boredom is weakly or negatively related to creativity, ACAP, and teaching practices, indicating that high-quality leader-member relationships dampen the motivational effects of boredom. In contrast, for teachers with low LMX, boredom shows a stronger and more positive association with these outcomes, suggesting that boredom is more likely to trigger such behaviors when relational resources are limited. Overall, these patterns indicate that boredom functions as a motivational driver primarily under conditions of low LMX, whereas high LMX buffers or neutralizes its effects.

This moderating effect is not merely trivial; statistically, the inclusion of the job boredom-LMX interaction increased the explanatory power (ΔR^2) of the model by approximately 10% across all variables, highlighting the crucial role of leadership quality in shaping how job boredom affects teacher behavior.

Discussion

Creativity and improved teaching practices have increasingly become sources of pressure for teachers as they strive to meet students' diverse and evolving needs. At the same time, growing evidence suggests that job boredom is an emerging concern in educational settings (Tam et al., 2020; Weybright et al., 2020). School leaders, who are responsible for the effective functioning and continuous improvement of school processes, may play a pivotal role in transforming boredom into more constructive outcomes. Against this background, this study examined how job boredom influences teachers' pedagogical knowledge ACAP and, in turn, their creativity and teaching practices, while also investigating the moderating role of LMX.

The findings indicate that teachers who experience higher levels of job boredom tend to alternate between teaching methods more frequently. This supports previous research indicating that teacher boredom changes teaching practices (Emo, 2015). For example, teachers who are bored at school tend to switch up their lesson plans. While this might contradict research indicating that boredom can have a detrimental effect on instructional quality (Dumančić, 2018), it supports those who claim positive outcomes of boredom. For instance, research demonstrated that boredom can promote better teaching practices (Craven & Frick, 2024). Similarly, Borgonovi et al. (2023) found that boredom is positively related to teachers' readiness to teach. Our positive finding does not necessarily mean that bored teachers will provide better teaching, but they might diversify their teaching methods as a way to deal with their boredom.

Moreover, we discovered that job boredom does not enhance creativity in the Nigerian school context. It is, however, linked to higher ACAP. This means that boredom encourages teachers to look for more interesting and fulfilling activities and knowledge (Westgate & Wilson, 2018) as well as to try new things (Geana et al., 2016). However, these teachers do not demonstrate any significant differences in workplace creativity compared to those who report lower levels of boredom. Although prior research suggests that boredom can activate mental resources and stimulate exploration and creativity (see Hunter et al., 2016; Mugon et al., 2019; Reio, 2024; Wolff et al., 2024), our findings indicate that this may not hold in all cases. In school contexts, boredom may be experienced as a disengaging state rather than a constructive signal, particularly in countries like Nigeria, where teachers face heavy workloads, rigid curricula, or limited autonomy, which can restrict their capacity to transform boredom into creative or knowledge-seeking behaviors.

We also found a positive association between LMX and three other variables in our model: ACAP, teacher creativity, and teaching practices, supporting the claims of the previous research (see Bakker, 2017; Martin et al., 2016; Mascareño et al., 2020). This means that a high-quality

relationship between a teacher and the principal will foster Nigerian teachers' search for and use of more current and relevant pedagogical knowledge and creative ideas, as well as the implementation of new teaching strategies. Consequently, what we discovered in the Nigerian context regarding the effect of LMX on teacher behavior concurs with the findings of studies from other contexts that showed a positive impact of LMX on teachers' creativity (Li & Pei, 2012), job crafting (Babadağ, 2020), work engagement (G. Klein & Zwillig, 2022), and innovative work behavior (Vermeulen et al., 2022). Consistent with the findings of Pietsch et al. (2026) in the Malaysian context, our results demonstrate that LMX significantly predicts pedagogical absorptive capacity (ACAP), which in turn serves as a mechanism linking leadership quality and teacher creativity in schools.

Interestingly, we discovered relevant interaction effects indicating that LMX moderates the impact of teachers' job boredom on their professional behaviors. Specifically, the results show that the negative association between job boredom and the variables ACAP, teacher creativity, and teaching practices is contingent on the quality of the leader-member exchange. This pattern validates the view that LMX functions as a crucial dyadic relational context that shapes how teachers' internal experiences and states, such as boredom, translate into actual professional behaviors and practices (Martin et al., 2016; Mascareño et al., 2020; Mumtaz & Rowley, 2020). However, our results go beyond that and indicate that LMX does not always strengthen positive outcomes as previously suggested (Hesselgreaves & Scholarios, 2014; J. Hu et al., 2022). Consistent with the "too much of a good thing" paradigm, very high-quality LMX may reduce challenge, constructive tensions, and autonomy, and weaken boredom's motivational role, leading to weak creativity, ACAP, and teaching practices (Carnevale et al., 2020; Wu et al., 2020; Zhang & Zhou, 2019). In contrast, when LMX is low, boredom is more likely to encourage teachers to seek stimulation through learning, innovation, and changes in practice. In sum, boredom appears to motivate adaptive behaviors mainly under low-LMX conditions, while extremely high LMX can unintentionally limit such responses in the Nigerian context. Research indicated that teachers with high LMX can enjoy increased autonomy and psychological safety (Smothers, 2024). It seems like this is creating a comfort zone among bored teachers and hence, despite being bored, they are less likely to take action while their colleagues who do not have a good relationship with their leaders have a higher inclination toward implementing innovative ideas and teaching strategies.

While the weakening effect of high LMX on the relationship between boredom and professional outcomes could be interpreted as a "dark side" of over-supportive leadership, an alternative functional explanation warrants consideration. In line with the quality teaching framework by Fenstermacher and Richardson (2005), high-quality LMX may establish a robust baseline of "good teaching," characterized by pedagogically sound and learner-sensitive practices. In such high-functioning relational contexts, teachers may feel less internal pressure to engage in experimentation triggered by boredom. Thus, rather than merely dampening creative potential, LMX might also provide a stabilizing environment that renders boredom-driven shifts in practice less necessary for maintaining instructional quality. This suggests that high LMX acts as a buffer that optimizes pedagogical consistency, potentially shielding the classroom from the volatility of teacher-centered affective states.

Our findings support what we already know in the global context and from other disciplines (Little et al., 2016; Madrid et al., 2019; Mumtaz & Rowley, 2020), but they add to the literature by offering new evidence from an understudied context of Africa (Nigeria). For example, our search also supports the claim that people with higher ACAP can consequently be more creative and innovative (Schweisfurth & Raasch, 2018). Furthermore, people tend to perform better when they use fresh information from external sources (Chiang et al., 2015). Darling-Hammond et al. (2017) also asserted that exchanging ideas with people beyond the school offers powerful insights

and knowledge that can drive change in classrooms. Creativity and individual ACAP are strongly correlated, and creativity and work performance are positively correlated (Ince et al., 2022). Thus, teachers' performance rises quickly as creativity rises at high absorptive capacity levels (Thanh & Tran, 2023). These findings are particularly important in the Nigerian context. Nigeria's multilingual landscape, shaped by colonial legacies and indigenous diversity, affects the quality and fairness of education, potentially influencing teachers' access to new pedagogical ideas. In addition, limited access to education and inadequate infrastructure in the Nigerian context are potential constraints on teachers' ACAP. Our research suggests that when teachers receive appropriate support, increased ACAP can transform teaching to better meet students' diverse needs.

Limitations

While addressing a substantial issue in educational research within an understudied context, the present study is subject to several limitations that require attention. First, the study is cross-sectional, limiting causal claims. Longitudinal or experimental designs are needed. Second, data are based on self-reports, which may involve bias. While teachers are reliable informants on instructional practices (Kunter & Baumert, 2006), future research should also incorporate student perspectives. Third, there is little prior work on ACAP, boredom, and teacher creativity in education, which restricts theoretical grounding. Given ACAP's domain specificity and path-dependent nature (Cohen & Levinthal, 1990), future studies should examine other domains, such as content or pedagogical content knowledge.

Conclusion

This study highlights the central role of LMX and pedagogical ACAP in shaping teacher creativity and teaching practices. In their seminal work, Cohen and Levinthal (1990) established a link between prior knowledge, ACAP, and both learning and innovation. The fundamental premise is that ACAP facilitates accelerated learning and a self-reinforcing spiral of knowledge acquisition and utilization (Zahra & George, 2002). Our study demonstrates, in the context of education, that these assumptions can be applied to teachers too.

This positions our research among the few studies that examine how teachers acquire and apply new knowledge in their professional practice (König et al., 2025). From our findings, we can also conclude that teacher creativity plays a significant role in promoting teaching practices. Further, the overall impact of boredom on teaching practices is very important, as it has a direct association without any indirect effects. In accordance with the tenets outlined by Lee et al. (2016, p. 844), our study, thus, demonstrates that "teaching is an emotional effort."

Our research makes several contributions to the existing knowledge base in both teacher education and school improvement. These findings highlight the importance of balancing strong relationships with intentional instructional challenges. While building high-quality relationships with teachers is still important, our findings suggest that principals should avoid creating overly comfortable environments that may reduce initiative or experimentation. This means that teachers with strong leader-member relationships still need intellectually stimulating tasks, opportunities for innovation, and some level of constructive pressure to grow.

Further, the reported findings have both practical and policy implications. Since we found that ACAP, creativity, and boredom are major determinants of teachers' teaching practices, the implication is that if Nigerian teachers are not properly trained to improve their ACAP and creativity, and to manage their boredom positively, they will not be able to carry out effective teaching practices. Moreover, the policy implication of our findings is that to ensure effective teaching practices in

Nigeria, education policymakers need to develop an adequate policy framework that will encourage in-service training of teachers on the best ways to improve their pedagogical knowledge ACAP. Moreover, a policy framework for the training of principals on building healthy LMX is needed to foster knowledge sharing, peer mentorship and networking between the principals and the teachers.

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Ethical Considerations

The Faculty of Education, University of Nigeria, Research Committee on Ethics granted ethical approval for the conduct of this research. We confirm that every aspect of this research was done in accordance with the University of Nigeria guidelines on research involving human participants. The ethical approval number for this research is REC/FOE/2024/00053, which was issued on 23rd August 2023. The scope of the approval covered research on school leadership of principals and teachers' teaching practices.

Consent for Publication

Before the data collection, the researchers issued informed consent forms to the teachers to fill and sign. Such exercise was done before the visits of the researchers to the various schools to ensure that the participants consented to the completion of the questionnaire items. All authors have reviewed and approved the final manuscript and consent to its publication in *Improving Schools*.

Author Contributions

Christian Ugwuanyi: Data Curation, Investigation, Project Administration, Writing – Original Draft Preparation, Writing – Review & Editing; Mehmet Şükrü Bellibaş: Conceptualization, Investigation, Validation, Writing – Original Draft Preparation, Writing – Review & Editing; Marcus Pietsch: Conceptualization, Formal Analysis, Funding Acquisition, Investigation, Methodology, Project Administration, Resources, Supervision, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing.

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Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Data Availability Statement

Data is available upon reasonable request.

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