Journal of Social Work and Science Education
Volume 7 (3) 2026, 2010-2026
E-ISSN 2723-6919, P-ISSN 2746-0827

Teachers' Professional Competence, School Climate, and Student Achievement: A Quantitative Study of Indonesian Public Senior High Schools

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Article History: Received on 16 March 2026, Revised on 19 May 2026, Published on 21 May 2026

Abstract: This study examines the effect of teacher professional competence and school climate on student achievement in public senior high schools. A quantitative, cross-sectional survey design was employed with a sample of 152 respondents (100 students and 52 teachers) selected through proportionate stratified random sampling from three public senior high schools in Sungai Lilin District, South Sumatra, Indonesia. Data were collected using validated questionnaires (90 items, 5-point Likert scale) and analyzed using simple and multiple linear regression. Findings indicate that: (1) teacher professional competence has a significant positive effect on student achievement ($\beta = 0.569$, $p < 0.001$); (2) school climate also significantly affects student achievement ($\beta = 0.219$, $p < 0.001$); and (3) jointly, both variables explain 56.4% of the variance in student achievement ($F = 34.015$, $p < 0.001$, $R^2 = 0.564$). These results underscore the importance of investing in teacher professional development and fostering a positive school climate to enhance academic outcomes. However, the cross-sectional design precludes causal inference, and generalizability is limited to similar Indonesian rural-adjacent contexts. Future research should employ longitudinal designs and include objective achievement measures beyond self-reported perceptions.

Keywords: School Climate, Students' Achievement, Teacher's Competence

A. Introduction

Education is one of the main pillars in developing quality human resources (Khalid et al., 2023). Through education, students' potential is optimally developed to enable them to face global challenges, advances in science and technology, and the demands of social life. Schools, as formal educational institutions, play a strategic role in realizing national education goals, particularly at the senior high school level, which is a crucial phase in shaping students' academic competence and character. Students' achievement is a key indicator of the success of the educational process in schools (Arnaiz-Sánchez et al., 2020). Students' achievement not only reflects individual academic ability but also demonstrates the effectiveness of the overall educational system. Good academic achievement is expected to provide students with the

necessary capital to continue their education to a higher level or enter the workforce. However, in practice, students' achievement is influenced by various factors, both internal and external to the student's learning environment (Chamidy et al., 2023; Fadilah et al., 2021).

One external factor that significantly influences students' achievement is teacher professional competence (Nisah et al., 2023). Teachers are the primary actors in the classroom learning process. Law Number 14 of 2005 concerning teachers and lecturers stipulates that teacher must possess four core competencies: pedagogical, personality, social, and professional competence. Teacher professional competence relates to in-depth mastery of subject matter, the ability to develop teaching materials, the use of learning technology, and the ability to relate the material to students' real-life contexts. Teacher professional competence is the teacher's ability to master the scientific substance of the subject being taught, thereby enabling them to guide students toward achieving established competency standards (Rahmah & Kadi, 2022; Zhumash et al., 2021). Teachers with strong professional competence are able to deliver material systematically, clearly, and engagingly and adapt learning strategies to student characteristics. Therefore, teacher professional competence is a key determinant in improving students' achievement (López-Martín et al., 2023).

Based on observations at a public high school in Sungai Lilin District, several challenges related to teacher's competence and the school climate influence students' achievement. Despite various efforts, such as regular training and workshops, teacher's competence at this school still needs improvement. Based on the results of the Teacher Competency Test, many teachers at this school's average UKG scores are still far below the established standard. This impacts the quality of learning received by students. Based on students' achievement data in 2024, 24 students successfully passed the SNBT and 25 students successfully passed the SNBP out of approximately 300 third-grade students, or 16% of those accepted at PTNs. Furthermore, the school climate at a public high school in Sungai Lilin District also suffers from shortcomings. Despite the existence of guidance and counseling programs, disharmony remains in the relationship between teachers and students, affecting the learning environment (Xing et al., 2021). Some students complain of a lack of emotional support and motivation from the school, which impacts their low academic achievement.

In addition to teacher professional competence, school climate is also a crucial factor influencing students' achievement (Zynuddin et al., 2023). School climate reflects the psychological, social, and academic atmosphere experienced by all members of the school community, including students, teachers, and educational staff. A conducive school climate is characterized by harmonious interpersonal relationships, a sense of security, fair discipline, and support for the learning process. According to Sanchez et al. (2022), school climate is the collective perception of the school community regarding the internal school environment, which influences their behavior and performance. A positive school climate can increase student motivation to learn, foster

a sense of comfort, and encourage active student involvement in academic and non-academic activities (Norozi, 2025). Conversely, a less conducive school climate can reduce enthusiasm for learning, cause stress, and negatively impact students' achievement.

In the context of high schools in Sungai Lilin District, school climates also vary from school to school. Some schools have created orderly, safe learning environments that support the development of student potential. However, others still face challenges such as lack of student discipline, suboptimal communication between teachers and students, and limited learning facilities and infrastructure. This variation in school climate is suspected to contribute to differences in students' achievement between schools. The academic achievement of high school students in Sungai Lilin District can generally be seen from academic evaluation results such as report card grades, school assessment results, and student graduation and continuation rates. Furthermore, the low number of students accepted into state universities through the achievement pathway remains low. Although students are generally able to complete their high school education, academic achievement between schools still shows differences. This indicates the existence of supporting and inhibiting factors that require scientific study.

Theoretically, the relationship between teacher professional competence, school climate, and students' achievement can be explained through learning theory and educational management (Amsalu & Belay, 2024; Dutta & Sahney, 2022). Brink et al. (2021) states that academic achievement is influenced by teacher factors and the school environment as the primary external factors. Professional teachers and a conducive school environment will create an effective learning process, thereby encouraging increased students' achievement. Previous studies have also shown that teacher professional competence has a significant influence on students' achievement (Podungge et al., 2020; Yang & Kaiser, 2022). Teachers who master the material and are able to manage learning effectively tend to produce students with better achievement. Similarly, a positive school climate contributes to increased student motivation and engagement in learning, which ultimately impacts academic achievement.

However, research specifically examining the influence of teacher professional competence and school climate on students' achievement in high schools in Sungai Lilin District is still limited. Each region has distinct social, cultural, and educational characteristics, so research findings from other regions may not be fully relevant to Sungai Lilin District. The problem of teachers' suboptimal planning, implementation, and evaluation of learning is a classic challenge that has become increasingly complex in the modern high school era (Fahad Mon et al., 2023). This is due to weak planning, where many teachers are trapped in copy and paste administrative routines without considering classroom dynamics. Furthermore, administration is central because learning materials are often created solely to meet supervision requirements rather

than to serve as a relevant roadmap. This leads to a lack of analysis of student characteristics, where teachers do not conduct diagnostic assessments from the outset, so lesson plans do not accommodate differences in student interests and learning styles through differentiated learning. In addition, there is a lack of readiness for innovation since planning rarely includes meaningful technology integration or project-based learning methods, as they are considered too time-consuming.

Another problem is the monotonous implementation at this stage, centered on the failure to create an interactive and student-centered learning environment. This is due to the dominance of the lecture method: learning remains teacher-centered. Teachers focus more on completing the material (curriculum) than on ensuring students' in-depth understanding. Another issue is low digital literacy, where technology use is limited to transferring text into PowerPoint, rather than utilizing AI tools, interactive simulations, or collaborative platforms. Teachers are rigid about classroom dynamics, making it difficult to adapt when discussions veer toward more critical topics or when students show boredom, resulting in a lackluster classroom atmosphere. Shallow evaluation is often viewed solely as a means of assigning grades (numbers), rather than for continuous improvement. This is due to a focus on low cognitive skills, namely the evaluation questions still focus on memorization (LOTS) and rarely address critical thinking or problem-solving (HOTS) (Prakash & Litoriya, 2022).

Process evaluation is neglected, where teachers tend to only assess the final outcome (summative) and neglect observations during the learning process (formative). Also due to a lack of feedback, students only receive numerical grades without detailed explanations of what needs to be corrected, resulting in the same mistakes being repeated. The collaboration between teachers, schools, and parents is often referred to as the "Golden Triangle of Education." However, at the high school level, this relationship is often strained due to the assumption that students are mature enough to be independent (MacDonald & Hill, 2022). The main problem often stems from how information flows (or is blocked) between third parties, such as reactive rather than proactive communication. Schools or teachers typically only contact parents when a student is experiencing problems (truancy, a drop in grades, or a disciplinary infraction). There is rarely communication to celebrate small achievements or discuss students' potential on a regular basis. Furthermore, there is the digital literacy gap as the use of WhatsApp groups or school apps is often ineffective. Some parents are overwhelmed with information (info overload) or simply don't understand how to operate grade-tracking platforms.

There is a "shifting of responsibility" regarding who is ultimately responsible for student motivation. Many parents feel that the task of educating falls entirely on the school after they have paid tuition (Assefa et al., 2022). Conversely, schools perceive motivation as a character trait that must be developed at home. Teachers may emphasize the process and character, while parents focus solely on the end result (grades) for admission to state universities. This difference in orientation can leave

students feeling stressed and demotivated. External factors are often overlooked but have a significant impact on the quality of collaboration. Many parents of high school students are active workers who find it difficult to attend school meetings during work hours, so their involvement is limited to administrative matters. There is a stigma surrounding "school calls," where parents often feel anxious or defensive when invited to school, as these meetings are synonymous with judgment on their child's upbringing.

Schools often fail to create innovative collaborative platforms. For example, school meetings typically focus solely on explaining school programs and finances, with no room for in-depth discussions about strategies for psychologically motivating students (Bandur et al., 2022). Furthermore, there is a lack of a community of practice (parenting sharing). There is rarely a forum for parents to share best practices in addressing the challenges of high school adolescents (such as burnout or social pressure). School climate is the lifeblood of an educational institution. At the high school level, where students are transitioning from adolescence to adulthood, an unconducive climate can significantly hinder their cognitive and emotional development. Schools often get caught up in pursuing academic prestige without regard for the mental well-being of the school community. Unhealthy Competition: An excessive focus on rankings and university graduation creates intense competition among students, which triggers anxiety (burnout) rather than collaboration. Furthermore, Stigmatization of Ability, the hidden labeling of certain classes (e.g., superior classes vs. regular classes) makes students in non-superior classes feel inferior and lose motivation.

An unhealthy social climate is usually characterized by a lack of empathy within the school environment (Martinsone & Žydžiūnaite, 2023). Bullying in high school is often psychological or through social media (cyberbullying). Teachers often fail to recognize this because it is subtle or occurs in the digital space. Students are reluctant to open up to guidance counselors due to the stigma that entering the BK room means being a bad kid. Discipline is often enforced through punishment, rather than awareness. Minor rule violations (such as long hair or uniform attributes) are often handled with physical punishment or public reprimands, rather than through restitutionary dialogue. Rules that are selectively or inconsistently applied by certain teachers/staff create a sense of injustice in the eyes of students.

School climate is also influenced by the comfort of the physical environment, such as a rigid environment where monotonous classroom layouts and a lack of green open spaces make students feel confined (as if in a prison) (Wen et al., 2024). Furthermore, unmaintained facilities, such as dirty toilets, stuffy libraries, or incomplete laboratories, psychologically send the message that the school is not serious about meeting students' needs. The problem of low students' achievement at SMAN in Sungai Lilin District, Musi Banyuasin, has unique dimensions due to its geographic location on a crossroads and the economic characteristics of its community

(plantations and trade). Academic achievement is often hampered by differences in the quality of student input and attitudes toward higher education. Heterogeneous Student Input: The basic abilities of junior high school graduates around Sungai Lilin vary widely. Teachers often struggle to implement high standards because they have to "remediate" basic material that should already be mastered.

There is low motivation to continue studying. In areas with a strong plantation sector, some students feel that working in the informal sector or plantations offers more short-term financial benefits than pursuing academic success for college (Cui et al., 2022). Despite being in a relatively developed area, access to quality learning resources remains an issue. Suboptimal utilization of laboratories such as science or computer lab may be available, but they are often used only for exams, rather than simple practical work or research that can boost achievement. A digital literacy gap exists, with students using digital devices more for entertainment (social media/games) than for accessing independent learning platforms like Mass Open Online Courses (MOOCs). The school and home environments impact student focus. The busy nature of the Trans-Sumatra route presents numerous distractions for students (hangouts, crowded centers). If unsupervised, students can reduce study time at home. Many parents in Sungai Lilin are financially able to send their children to school but do not provide sufficient learning support or motivation to achieve high achievement because they are busy working in the fields or markets.

The urgency of comprehensive evaluation of extracurricular activities highlights an educational paradox. Schools are busy organizing various activities, yet often blind to the tangible results of those activities. Without measurable evaluation, extracurricular activities risk becoming mere "schedule fillers" or mere administrative obligations, rather than instruments for character building. Many schools are trapped in the routine of organizing extracurricular activities from Scouts to sports to the arts under the assumption that "as long as the activity is running, the goal is achieved." However, without clear evaluation tools, schools never know whether these activities are truly improving the school climate or simply wasting students' energy. This is evident in the symptoms of student absences that are merely formalities, persistently high levels of bullying within clubs, or the lack of correlation between organizational activity and improved classroom discipline. The significant potential of extracurricular activities to build leadership and empathy evaporates due to the lack of constructive feedback (Nufa & Istichomahwati, 2025).

A positive school climate is one where students feel safe, valued, and challenged (Shean & Mander, 2020). When extracurricular activities are not evaluated, "holes" in student interactions go undetected. For example, a basketball club might win a trophy, but if toxic seniority within it persists, undetected by the coach (due to a lack of evaluation), then the activity will actually damage the school climate, not improve it. Furthermore, the school misses an opportunity to align the principal's vision regarding discipline with extracurricular activities. The principal's leadership is tested

in his or her ability to conduct reviews of the program's effectiveness. Thoroughly evaluated extracurricular activities will provide valuable data for the school to implement appropriate interventions. With rigorous evaluation, extracurricular activities are no longer simply a place to "play" but rather become effective behavioral laboratories for instilling the values of discipline and responsibility. Students will feel that every minute they spend at school has a clear purpose for their future development.

The low graduation rate of students through the national selection based on achievement pathway, formerly known as SNMPTN, at high schools in the Sungai Lilin area is a crucial issue. This pathway relies heavily on the "school index" and consistent report card grades, not just luck. The low graduation rate of students through the national selection based on achievement, formerly known as SNMPTN, pathway at high schools in the Sungai Lilin area is a crucial issue. This pathway relies heavily on "school index" and consistent grades, not just luck. The main problem is often not low student grades, but rather inaccurate selection of "battlefields." Many students with high grades tend to choose the same majors and state universities (e.g., medicine or law at Sriwijaya University), leading to internal competition within the school. Students and guidance counselors have not fully analyzed alumni track records. The achievement pathway primarily assesses how many alumni of a school have successfully enrolled in their chosen state universities.

The current achievement pathway not only looks at grades on report cards but also at supporting achievements. Many students hold certificates, but only at the district or school level. To enter a top-tier state university, officially recognized achievements at least at the provincial or national level (such as the National Examination for National Students, the National Examination for National Students, or the National Science Olympiad) are required. Furthermore, there is a lack of special talent development. There is no system that directs talented students from grade 10 to focus on participating in competitions that score high in the national examination for national students' assessment. Based on this description, this research is crucial to obtain an empirical picture of the condition of teacher professional competence, school climate, and students' achievement, particularly at the high school level. This study aims to analyze the direct influence of these two factors on students' achievement in public senior high schools in Sungai Lilin District. Therefore, this study is entitled "The Influence of Teacher Professional Competence and School Climate on Students' achievement in Public Senior High Schools in Sungai Lilin District." It is hoped that the results of this study will provide a clearer understanding of the important roles of teacher's competence and school climate in improving students' achievement and provide useful recommendations for the development of education policy in Indonesia.

B. Methods

The research was conducted from January to April 2026 at public senior high schools in Sungai Lilin District, namely SMA Negeri 1, SMA Negeri 2, and SMA Negeri 3. This study used a descriptive method with a quantitative approach. In the context of this study, the descriptive approach was used to describe and analyze the influence of teacher professional competence and school climate on students' achievement at public senior high schools in Sungai Lilin District. This research is a non-experimental study because the researchers did not manipulate or treat the subjects in a special way. Instead, it focused on measuring variables that already exist and develop naturally within the school environment. The study focused on collecting data on actual conditions in the field related to teacher professional competence, school climate, and students' achievement and how these three factors interact with each other.

The collected data was analyzed quantitatively, using statistical methods to examine the relationships and influences between variables. This quantitative analysis aimed to determine the extent of the influence of teacher professional competence and school climate on students' achievement and to identify other factors that may play a role in this process. The results of this analysis provide a clear and objective picture of the influence of these two variables on students' achievement, which can be used as a consideration in improving and developing the quality of education at public senior high schools in Sungai Lilin District. The population of this study was public senior high schools (SMA) in the Sungai Lilin District, Musi Banyuasin Regency, South Sumatra Province. The sample was drawn from the teacher and student population at public senior high schools in Sungai Lilin District during the 2025/2026 academic year. The sampling technique used was proportionate stratified random sampling. The sampling process was carried out in two stages: first, determining strata or class groups, and second, selecting students from each class proportionally and randomly using a lottery method.

Based on the research data, the student population at public senior high schools in Sungai Lilin District was 1,709. Due to time, funding, and personnel limitations, the researcher used the Slovin formula to determine the appropriate sample size, with a margin of error (sampling error) of 10% (d = 0.1). Therefore, the required sample size was approximately 94 students, rounded up to 100. The researchers then divided the sample based on the number of students in each school to ensure proportionality. Based on the data, the teacher population at State Senior High Schools 1, 2, and 3 in the Sungai Lilin District is 105. Due to time, funding, and personnel limitations, the researcher used the Slovin formula to determine the appropriate sample size, with a margin of error (sampling error) of 10% (d = 0.1). Therefore, the required sample size was approximately 51.2 teachers, rounded up to 52. The researcher then divided this sample based on the number of teachers in each school to ensure proportionality. In this study, three data collection techniques were used: questionnaires, documentation, and observation.

We used the most relevant theories as indicators in developing the research instrument framework. The teacher professional competency variable refers to relevant theories regarding learning management and teacher professional development. The school climate variable refers to theories about social and psychological conditions in the school environment that influence the learning process. The students' achievement variable uses theories related to factors influencing student academic success. Validity and reliability tests were conducted to ensure that the instrument accurately measures the intended variables and produces consistent results. Validity testing ensures that the questionnaire's narratives accurately measure aspects of teacher competency, school climate, and students' achievement, consistent with the concepts established in the theoretical study. Reliability testing, on the other hand, measures the extent to which the instrument yields consistent results when used repeatedly.

To test the validity and reliability of the instrument, researchers piloted the instrument on 30 respondents selected from a portion of the research sample at a public high school in Sungai Lilin District. The pilot test results were used to evaluate and refine the instrument before its full use in data collection from the entire research sample. Construct validity testing utilizes expert opinion. After the instrument is constructed to address the aspects to be measured based on a specific theory, it is consulted with a designated validator to systematically examine and evaluate whether the instrument items represent what is intended to be measured. Instrument testing in this study was conducted on students who were not part of the research sample. Validity testing used corrected item-total correlation in SPSS. A questionnaire item is considered valid if the calculated r-value, which is the corrected item-total correlation, is greater than the table r-value. The critical correlation value is 5%.

The validity of this instrument was tested using Pearson Product Moment correlation using SPSS. Each item statement was considered valid if the significance value (p-value) was < 0.05 and the correlation coefficient between the item and the measured variable showed a significant positive value. Thus, instrument validity ensures that each question in the questionnaire is relevant and aligns with the research objectives of measuring teacher professional competence, school climate, and students' achievement. Reliability testing was conducted using Cronbach's alpha, calculated using SPSS. A research instrument is considered reliable if the Cronbach's alpha value is ≥ 0.70, indicating good internal consistency. Reliability testing is essential to ensure that the questionnaire provides consistent and reliable results in measuring the variables studied.

By conducting validity and reliability tests, researchers ensured that the instrument used in this study could accurately and consistently measure teacher professional competence, school climate, and students' achievement. The data analysis technique used in this study was quantitative analysis. Prior to analysis, the data were tested for normality and linearity. To determine the effect of teacher professional competence

(X_1) and school climate (X_2) on students' achievement (Y), multiple linear regression analysis was used using the SPSS program.

C. Results and Discussion

Analysis of the Influence of Teacher Professional Competence on Students' Achievement at Public Senior High Schools in Sungai Lilin District

Based on the test results, it can be seen that the variable of teacher professional competence has a partial and significant effect on students' achievement, thus concluding that the first hypothesis is accepted. The theoretical framework suggests that teacher professional competence influences students' achievement at a public high school in Sungai Lilin District. Therefore, if teacher professional competence is good, students' achievement is expected to improve (Zeng, 2023). The results of testing Hypothesis 1 using SPSS version 27 indicate that teacher professional competence partially has a positive and significant effect on students' achievement, with a calculated t-value of 8.258 > t-table 2.006. Therefore, $H_0 1$ is rejected and $H_a 1$ is accepted. The significance level is 0.000, which is less than 0.05. The magnitude of the effect of teacher professional competence on students' achievement is 0.569. This means that teacher professional competence contributes 56.9% to students' achievement, with the remaining 43.1% being influenced by factors outside of teacher professional competence. This means that the theoretical framework demonstrates a significant influence.

The data description of teacher professional competence yielded an average score of 4.57, which falls within the excellent category. The dominant indicator for teacher professional competence was the question "I feel that the teacher handles student learning fairly and objectively," with an average score of 4.77. The lowest score was "I provide clear directions when explaining instructions for assignments or class activities," with a score of 4.29. Overall, the teacher professional competence indicator was categorized as excellent. Respondents' perceptions of teacher professional competence were categorized as excellent. Respondents' perceptions of students' achievement were categorized as good. This indicates that teacher professional competence and students' achievement are well-established and should be maintained or improved in the future. The indicator with the lowest score was "I provide clear directions when explaining instructions for assignments or class activities." This indicates that teachers should provide clearer directions and instructions to students to improve classroom activities.

This research aligns with Galih's (2020) study, "The Influence of Teacher Professional Competence and Learning Facilities on the Learning Achievement of Grade XI Students at MA YP KH Syamsudin Durisawo," which showed that teacher professional competence and learning facilities significantly influence students' achievement. Kusuma's (2019) study, "The Influence of Professional Competence and

Performance of Islamic Education (PAI) Teachers on Student Learning Outcomes at MAN 1 Model Lubuk Linggau," demonstrated a significant influence between professional competence and performance of islamic education teachers on student learning outcomes. This study found that teacher professional competence and performance play a crucial role in improving student learning outcomes, which was analyzed using a quantitative approach. Febriana (2021) suggests that competence is often understood as adequate skills to perform a task or job, as well as the skills required to carry out that job. In the educational context, this means that teachers must possess the skills to design, implement, and evaluate learning that not only delivers teaching materials but also supports students' holistic development. Therefore, teacher competencies also include the ability to make appropriate decisions in various educational situations, as well as the ability to adapt to changes occurring in the world of education. The results of field observations also show that teachers have carried out their duties and responsibilities as educators, and most of the teachers have received teacher certification so that the competencies expected by the school have been met.

Analysis of the Influence of School Climate on Students' Achievement at Public Senior High Schools in Sungai Lilin District

Based on the test results, it can be seen that the school climate variable has a partial and significant effect on students' achievement, thus concluding that the second hypothesis is accepted. The theoretical framework suggests that school climate influences students' achievement at Sungai Lilin District Public Senior High School. Therefore, a positive school climate is expected to improve students' achievement. The results of testing Hypothesis 2 using SPSS version 27 indicate that school climate partially has a positive and significant effect on students' achievement, with a calculated t-value of 3.912 > t-table value of 2.006. Therefore, HO_2 is rejected and HA_2 is accepted. The significance level is 0.000, which is less than 0.05. The effect of school climate on students' achievement is 0.219. This means that the school climate variable contributes 21.9% to students' achievement, with the remaining 78.1% being influenced by factors outside the school climate variable. This indicates that the theoretical framework has a significant influence.

The indicators in the questionnaire above yield an average score of 4.56, which falls into the excellent category. The dominant indicator for the school climate variable was the question "teachers' pay attention to students' emotional well-being during class activities," with an average score of 4.80. The indicator with the lowest score was "teachers encourage students to learn from their mistakes through feedback," with a score of 4.27. Overall, the school climate indicators were in the good category. Respondents' perceptions of school climate were in the very good category. Respondents' perceptions of students' achievement were in the good category. This indicates that the school climate and students' achievement are already functioning well and should be maintained or improved in the future. The indicator with the lowest score was "teachers encourage students to learn from their mistakes through

feedback." This indicates the need to find other ways to encourage students to learn from their mistakes.

This research aligns with the research by Sihombing et al. (2021) entitled "The Influence of Teacher Personality Competence and School Climate on Students' Achievement at SMK Negeri 22 Jakarta," which aimed to examine the influence of teacher personality competence and school climate on students' achievement at SMK Negeri 22, Jakarta. This study found that both factors significantly influence students' achievement, with teacher personality, competency, and school climate interacting to create a learning environment that supports student success. Firdayanti's (2021) research, entitled "The Influence of Principal Leadership and School Climate on Students' Achievement at Madrasah Aliyah Negeri (MAN) Palopo," aimed to examine the influence of principal leadership and school climate on students' achievement at MAN Palopo. This study found that principal leadership and school climate significantly influence students' achievement, with their mutual influence supporting the creation of a conducive environment for students to achieve academic success.

A positive school climate plays a crucial role in advancing the learning process, improving teaching quality, and creating a healthy and supportive school for student development (Grazia & Molinari, 2021; Obeidat et al., 2024). Consistent with this view, Hoque et al. (2023) suggested that a positive school climate can reduce barriers to the teaching and learning process, increase student interest and motivation, and optimize students' achievement and teacher job satisfaction. Observations conducted at the sample schools, namely SMA Negeri 1, SMA Negeri 2, and SMA Negeri 3 in Sungai Lilin District, revealed that most of the school climates were positive, as evidenced by the well-functioning teaching and learning systems, students coming to school enthusiastic and motivated to achieve a good education, and teachers' satisfaction with their work. This is expected to improve students' achievement.

Analysis of the Influence of Teacher Professional Competence and School Climate on Students' Achievement in Public Senior High Schools in Sungai Lilin District

Based on the test results, it can be seen that the variables of teacher professional competence and school climate simultaneously and significantly influence students' achievement, thus concluding that the third hypothesis is accepted. The theoretical framework suggests that school climate influences students' achievement at a public high school in Sungai Lilin District. Therefore, a positive school climate is expected to improve students' achievement. The results of testing Hypothesis 3 using SPSS version 27 indicate that teacher professional competence and school climate simultaneously have a positive and significant influence on students' achievement. The calculated F-value is 34.015 > F-table 3.18, thus rejecting H_{03} and accepting H_{a3}, with a significance value of 0.000 < 0.05. The effect of teacher professional competence and school climate on students' achievement is 0.564, which can be interpreted as

meaning that teacher professional competence and school climate contribute 56.4% to students' achievement, while the remaining 43.6% is influenced by factors other than teacher professional competence and school climate. This indicates that the theoretical framework demonstrates a significant influence.

The data description yielded an average score of 3.81, which falls into the good category. The dominant indicator for students' achievement was the statement "I feel motivated to learn more about this subject," with an average score of 4.79. The indicator with the lowest score was "I feel that my achievements in competitions are recognized by my teachers and friends at school," with a score of 1.82. Overall, students' achievement indicators were in the good category. The indicator with the lowest score was "I feel that my achievements in competitions are recognized by my teachers and friends at school." This indicates that the school still lacks appreciation for students' achievement. Therefore, schools should pay special attention to high-achieving students to foster a spirit of achievement in school.

From the perspective of Maamin et al. (2020), learning achievement refers to the level of achievement achieved by students in understanding the subject matter taught. This is often measured through exams or tests that provide an indication of the extent to which students have mastered a particular topic. Winget & Persky (2022) states that learning achievement is a student's mastery of the knowledge and skills established in the curriculum, which is then measured through various forms of evaluation. Furthermore, achievement encompasses not only cognitive aspects but also affective and psychomotor aspects, reflecting students' social, emotional, and practical skills in interacting with their environment.

D. Conclusions

This study examined the effects of teacher professional competence and school climate on student achievement in three public senior high schools in Sungai Lilin District, Indonesia. Using multiple linear regression on survey data from 152 respondents, we found that both variables significantly predict student achievement, both individually and jointly. Teacher professional competence ($\beta = 0.569$) had a stronger effect than school climate ($\beta = 0.219$), together explaining 56.4% of the variance in student achievement. Practical implications: Investment in teacher professional development – particularly in lesson planning, formative assessment, and differentiated instruction – may yield the greatest returns for student outcomes. However, school climate should not be neglected; the lowest-scoring item ("teachers encourage students to learn from their mistakes through feedback") suggests a need for formative feedback training. Schools should also establish systematic recognition programs for student achievements, as the item "achievements in competitions are recognized" scored very low ($M = 1.82$). Limitations: As noted, the cross-sectional, self-report design limits causal claims and raises common method variance concerns. Future research should employ (a) longitudinal designs to establish temporal precedence, (b) objective

achievement measures (e.g., national exam scores), (c) multilevel modeling to separate teacher-level and student-level variance, and (d) qualitative methods to explore why teacher competence dominates in this context. Conclusion: In the context of rural-adjacent Indonesian senior high schools, teacher professional competence is the stronger predictor of student achievement, though school climate remains a significant contributing factor. Policy interventions should prioritize both, with emphasis on teacher quality.

E. Acknowledgement

Thanks to all friends from Universitas PGRI Palembang who help us in this paper.

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