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# THE EFFECT OF PEDAGOGICAL AND PROFESSIONAL COMPETENCE ON TEACHER PERFORMANCE THROUGH ECONOMIC LEARNING INNOVATION AS A MODERATING VARIABLE IN HIGH SCHOOL IN MAKASSAR CITY

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**Abstract**

The influence of pedagogical and professional competence on teacher performance through innovation in economics learning as a moderating variable in senior high schools in Makassar City. This study used a quantitative approach with Structural Equation Modeling (SEM) to test the causal relationship between variables. The results showed that professional competence had the greatest influence on learning innovation and teacher performance, followed by pedagogical competence. Learning innovation acted as a moderating variable that strengthened the influence of teacher competence on performance, although its contribution was relatively small. These results emphasize the importance of developing teacher competence in improving performance in senior high schools in Makassar City. There was a positive relationship between pedagogical and professional competence and teacher performance, and learning innovation as a moderating variable that influenced teacher performance. These findings emphasize the need for increased training and competency development for teachers to be able to innovate in learning. In addition, increasing learning innovation can be an effective strategy in improving student motivation and learning outcomes. This study provides important implications for educational policymakers to support the continuous strengthening of teacher competence. Thus, the development of competence and innovation in economics learning needs to be a top priority in efforts to improve the quality of education in senior high schools in Makassar City.

***Keywords: pedagogical competence, professional competence, learning innovation, teacher performance, SEM, Makassar High School.***

## INTRODUCTION

Education is a key pillar in the development of the Indonesian nation, and teachers play a central role as agents of change in the educational process, as stated in the fourth paragraph of the Preamble to the 1945 Constitution. In this era of educational modernization, improving teacher quality is imperative, particularly in terms of competency. As the vanguard of education, teachers are required to possess pedagogical, professional, personal, and social competencies. These competencies directly impact their performance in carrying out learning tasks. These findings suggest that these four competency components should be considered when organizing professional development activities for teacher educators (Nguyen 2023) . These competencies are interrelated and inseparable, as they serve as the primary foundation for teachers in creating effective and meaningful learning processes.

Teachers with pedagogical competence are able to design, implement, and evaluate learning appropriately, tailored to student needs. Meanwhile, professional competence requires teachers to have a thorough grasp of subject matter and continually develop themselves in line with advances in science and technology. Personality competencies make teachers role models with integrity, noble character, and the ability to maintain authority in the eyes of their students. Social competencies, on the other hand, enable teachers to build effective communication with students, parents, and the community, creating a supportive and harmonious learning environment that facilitates the achievement of educational goals. These competencies are crucial for fostering not only academic achievement but also student social-emotional development, which is increasingly recognized as vital for holistic growth (Molina-Moreno et al. 2024) . Results indicate that teacher competencies (pedagogical content knowledge, professionalism, self-confidence, and enthusiasm for teaching) are positively related to student interest; self-confidence is positively

related to student achievement (Fauth et al. 2019) . Pedagogical competencies refer to the ability to manage student learning, including teaching readiness, mastery of teaching knowledge and skills, understanding student needs, educational perspectives, curriculum development, designing and implementing engaging and interactive learning, assessing learning outcomes, and encouraging student development to reach their full potential. These competencies integrate subject matter expertise, curriculum knowledge, and reflective practice to ensure effective learning experiences (Sinring 2021) . Comprehensive development of pedagogical and professional competencies is an essential prerequisite for improving the quality of education and ensuring every student receives an optimal learning experience. Teacher performance is measured not only by attendance or involvement in school activities, but also by their ability to produce effective, innovative, and relevant learning that meets the needs of the times .

Furthermore, teacher performance is also reflected in their ability to integrate character values, 21st-century skills, and the use of technology in the learning process. High-performing teachers are able to create an interactive classroom atmosphere, foster student motivation, and encourage critical and creative thinking. Furthermore, teachers are required to engage in continuous self-reflection and self-evaluation to continuously improve the quality of learning. Teacher performance across Makassar City shows a fairly diverse range, with the majority demonstrating good professionalism in carrying out their duties, but several aspects still need improvement. Overall, teachers in Makassar possess adequate pedagogical and professional competencies, particularly those who are certified. Challenges remain in the practical application of these competencies, particularly related to a deeper understanding of the curriculum and the effective integration of various learning resources (Said, Arafah, and Arsyad 2020) .

However, various studies show that work motivation, discipline, well-being, and organizational support remain key determinants of performance variation among teachers. Organizational cultures that do not fully support collaboration, limited learning facilities, and high administrative burdens often become obstacles that reduce teacher effectiveness in the field. This can lead to a lack of innovation in classroom learning, a reluctance to accept feedback from colleagues, and an overall decrease in professional development opportunities (Effendy Pohan, Hadriana, and Sumarno 2023) . Furthermore, supervision by principals and supervisors also plays a crucial role in influencing teacher performance. Schools with visionary leadership and active mentoring tend to have better-performing teachers. This includes effective principal supervision, which significantly impacts teacher performance by ensuring alignment with organizational goals and preventing deviations (Wasito, Sahertian, and Maulina 2021) .

On the other hand, teacher well-being, both economically and psychologically, has also been shown to be closely related to work quality. Teachers who feel valued and prosperous tend to have higher morale and productivity. This positive correlation is evident in increased engagement, well-being in the workplace, and a greater intention to remain in the profession (Shi et al. 2022) . Although the Provincial Government and the Education Office have undertaken various efforts, such as training, workshops, and competency improvement programs, a sustainable approach is still needed to strengthen work ethic, learning innovation, and teacher well-being so that the quality of education in Makassar City continues to improve evenly across all school levels. performance is a key indicator of educational success in developing a superior and competitive generation. Improving teacher professionalism, including the ability to modify teaching modules, integrate thematic learning, and develop questions oriented toward higher-order thinking, is essential to optimizing teaching performance. Teachers play a crucial role in providing quality education (Aquino and Chavez 2022) .

Amidst the rapid development of technology and information, teachers are required to be able to innovate in the learning process. Learning innovation is a concrete form of educational development aimed at increasing student engagement, learning effectiveness, and achieving optimal learning outcomes. This requires continuous pedagogical transformation by integrating new methodologies, advanced tools, and restructured institutional frameworks to significantly improve the teaching and learning process (Parejo et al. 2022) . Particularly in high schools in Makassar City, current educational challenges are increasingly complex, both in terms of curriculum, student characteristics, and the availability of infrastructure. Competent teachers play an essential role in transforming learning, especially in today's digital era. Digital technology is currently one of the most widely used resources for developing tailored learning environments (Mercader and Gairín 2020) . To create a conducive learning environment, schools must take proactive steps to identify and address existing obstacles . In the era of Society 5.0, teachers in Makassar City's senior high schools (SMA) play a strategic role in designing learning strategies that meet students' needs and unlock their potential. This involves a shift toward a student-centered learning paradigm and the integration of digital literacy to prepare students for future societal and industrial demands (Skobelev and Borovik 2017) . Teachers are required to be more creative in utilizing existing learning resources, including digital technology, to ensure learning remains relevant and engaging.

The reliance on technology requires teachers to adapt to online learning models, utilizing mobile devices and tablets to enable students to learn anytime and anywhere. This allows teachers to create e-educational resources for action-oriented activities and work-based learning by combining digital educational materials and online interactive learning opportunities with conventional methods (Semenovskikh, Volkodav, and Shlyapina 2021) . Furthermore, collaboration between teachers, parents, and schools is also crucial for creating synergy in improving the quality of education. With the support of good school management and the commitment of all stakeholders, various challenges can be transformed into opportunities to improve the quality of learning and student achievement. Therefore, it is important to analyze the extent to which teacher competence influences their performance, with learning innovation as an intermediary variable reflecting efforts to modernize education. Furthermore, creating a safe and comfortable school environment is essential for the success of the learning process and the holistic development of students. Teachers with more than 10 years of experience demonstrate higher levels of creative thinking (Alkhaza'leh et al. 2023) .

This research is expected to provide an empirical overview of the importance of strengthening teacher competencies to support performance improvement through innovative learning strategies. Post-COVID-19, the ongoing educational transformation has increasingly emphasized the importance of teacher adaptability to various forms of learning innovation, including the use of digital technology, project-based approaches, and collaborative and participatory learning models. The world of education is undergoing significant transformations that demand high adaptability from teachers to various learning innovations. Teachers have different approaches to learning when responding to educational changes (Aldahdouh et al. 2023) . Teachers are not only required to master teaching materials but also to be able to integrate creative learning methods that are appropriate to the characteristics of the current generation of students. This situation encourages teachers to not only master digital technology but also implement more collaborative, participatory, and project-based learning approaches. In this context, learning innovation is no longer an option but a strategic necessity to improve the quality of learning processes and outcomes. This study covers internal and external factors, namely innovation, learning within schools, learning from the external environment, and networks that can influence school performance (Inthavong et al. 2023) .

Therefore, understanding the relationship between teacher pedagogical competence and their performance, the relationship between teacher professional competence and their performance, the relationship between teacher pedagogical competence and innovation in economic learning, the relationship between teacher professional competence and the relationship between teacher professional competence and their performance and the mediating role of innovation in economic learning, is very important as a basis for making relevant educational policies in the high school environment in Makassar City. Based on data on the number of high school teachers in Makassar City, which reached 2,274 people from 125 schools in Table 1, teacher performance is highly dependent on the level of pedagogical and professional competence they possess. Teachers with high pedagogical competence are able to manage learning effectively, understand student characteristics, and create an active and meaningful learning atmosphere. Meanwhile, professional competence supports in-depth mastery of subject matter and the application of learning strategies relevant to the needs of the times. Both competencies will be optimally supported by learning innovation, where teachers are not only transmitters of knowledge, but also as creative facilitators in utilizing modern learning technology, methods, and media. Thus, learning innovation is an important factor in improving the performance of high school teachers in Makassar City, so that they are able to face the dynamics of educational change and realize effective, interesting learning that is oriented towards student learning outcomes .

Table 1. Number of Teachers in High Schools in Makassar City

| Subdistrict | Number of Public High Schools | Number of High School Teachers (State) | Number of High Schools (Private) | Number of High School Teachers (Private) | Number of High Schools (Public + Private) | Number of High School Teachers (Public + Private) |
|---|---|---|---|---|---|---|
| Mariso | 1 | 55 | 4 | 80 | 5 | 144 |
| Mamajang | 2 | 107 | 8 | 98 | 10 | 229 |
| Tamalate | 3 | 127 | 5 | 80 | 8 | 242 |
| Rappocini | 1 | 46 | 13 | 95 | 14 | 168 |
| Makassar | - | - | 12 | 98 | 12 | 98 |
| Edge of View | 1 | 45 | 7 | 163 | 8 | 229 |
| Wajo | - | - | 4 | 50 | 4 | 50 |
| Bontoala | 1 | 63 | 7 | 53 | 8 | 121 |
| Land's End | 1 | 44 | 4 | 36 | 5 | 102 |
| Sangkarrang Islands | - | - | - | - | - | - |
| Tallo | 1 | 51 | 4 | 50 | 5 | 107 |
| Panakkukang | 1 | 59 | 13 | 116 | 14 | 195 |
| Manggala | 4 | 185 | 9 | 105 | 13 | 340 |
| Biring Kanaya | 5 | 212 | 5 | 78 | 10 | 339 |
| Tamalanrea | 3 | 116 | 6 | 62 | 9 | 251 |
| Total | 24 | 1,110 | 101 | 1,164 | 125 | 2,274 |

**Source: Ministry** of Education, Culture, Research, and Technology, Basic Education Data System, odd semester data

The number of high school teachers in Makassar City can also be viewed from a field of study perspective, one of which is Economics teachers. The availability of adequate Economics teachers in Makassar City presents significant potential for improving the quality of education, especially when combined with strong pedagogical and professional competencies. This requires increased professional and pedagogical knowledge, as both are crucial in influencing students' academic aspirations and economic competencies (Hamadou 2025) . Teachers who possess these competencies are able to manage learning effectively and present economics material contextually, innovatively, and in accordance with students' needs. Based on data from the Economics Subject Teachers' Conference (MGMP), the number of Economics teachers in high schools across Makassar City is recorded at 147. This number indicates that the availability of Economics teachers is relatively sufficient to support the implementation of learning in schools. With teachers spread across various high schools, the Economics learning process is expected to occur evenly and in accordance with curriculum standards. This also emphasizes the important role of the MGMP in coordinating, improving competency, and maintaining the quality of Economics learning in Makassar City.

The implementation of Teacher Working Group (MGMP) activities has had a positive impact on the pedagogical competence of Economics teachers in geographically dispersed high schools in Makassar, thus supporting more equitable learning and curriculum alignment. However, challenges remain in ensuring optimal and equitable reach of such professional development initiatives across all regions, particularly in remote areas where online learning and accessibility remain significant barriers (Budiwati 2019) . Therefore, analyzing the number of Economics teachers in Makassar City can provide insight into schools' readiness to equip students with 21st-century competencies. This study focuses on the influence of pedagogical competence and professional competence on the performance of high school teachers in Makassar City, using Economics learning innovation as a moderating variable. Pedagogical competence encompasses teachers' abilities to design, implement, and evaluate learning processes tailored to student needs. Meanwhile, professional competence relates to mastery of teaching materials and teacher self-development in the subject matter being taught. The presence of Economics learning innovation is expected to strengthen the relationship between teacher competence and performance, thereby improving the quality of education in Makassar City.

**The Influence of Pedagogical Competence and Professional Competence on Teacher Performance Through Economics Learning Innovation as a Moderating Variable**

Based on Article 1 paragraph 1, Law No. 14 of 2005 concerning Teachers and Lecturers, A teacher is a professional educator with the primary task of educating, teaching, guiding, directing, training, assessing, and evaluating students. From a deep professional perspective, a teacher's pedagogical competence is a key element that distinguishes this profession, as it encompasses managing the learning process, from understanding student characteristics to designing and implementing effective teaching approaches. This requires a strong understanding of subject matter, pedagogical content knowledge, and curriculum nuances to professionally navigate the complexities of modern education (Sinring 2021) . The competencies that teachers must possess, as stipulated in Article 10, paragraph 91 of Law of the Republic of Indonesia Number 14 of 2005 concerning Teachers and Lecturers, are pedagogical competence, personality competence, social competence, and professional competence. These four competencies must be acquired by a teacher through one year of professional education. In Government Regulation No. 19 of 2005 concerning National Education Standards, it is explained that Pedagogical Competence is the ability to manage student learning which includes understanding students, designing and implementing learning, evaluating learning outcomes, and developing students to actualize their various potentials.

The competency level of teachers in high schools throughout Makassar City is generally considered good, particularly in pedagogical and professional aspects. Teachers demonstrate a deep understanding of the curriculum, teaching methods, and student needs in the classroom (Hattie 2003) . This deep understanding enables them to effectively organize and design their teaching to suit the students' specific contexts and individual circumstances. Since the implementation of the Independent Learning Curriculum, curriculum development in educational institutions has focused on achieving competencies and strengthening student character through flexible, contextual learning that is centered on student needs and potential. This approach emphasizes mastery of practical skills and the application of knowledge in real-world situations, ensuring education aligns with job market demands (Syomwene 2023) . This is demonstrated through their readiness to design lesson plans (teaching modules), effective classroom management, and the use of a variety of approaches tailored to student characteristics.

The implementation of the Independent Learning Curriculum also indicates that teachers have the ability to deliver material contextually, communicatively, and meaningfully. Related to this curriculum, skills-based methods, such as simulations and role-playing in social work or project-based learning in STEM (Science, Technology, Engineering, Mathematics), are effective for developing practical, field-specific, and soft skills. However, integrating text-based reflection and analysis can enhance the development of general skills, such as critical thinking and problem-solving (Lee et al. 2019) . On the other hand, teachers' professional competence in Makassar has also improved through various training and self-development programs, such as scientific writing training, the creation of teaching modules, and collaboration between teachers in learning communities. Many teachers are proactive in creating innovative learning materials and participating in ongoing competency development programs. This proactive engagement often includes utilizing digital resources, participating in Massive Open Online Courses (MOOCs), and contributing to educational blogs to improve their digital skills and the application of technology in their pedagogical practices (Rafique 2022) . This aligns with the demands of the Independent Learning Curriculum, which emphasizes the development of student character and competency through an integrative thematic approach and the importance of improving one's quality as an educator, both in mastering teaching materials and teaching skills relevant to current demands. In the dynamic changing times, improving teacher quality is imperative, particularly in

terms of competency. Continuous professional development programs are also crucial to introduce educators to the importance of professionalism and ethical behavior in the teaching profession (Rudhumbu and Maphosa 2015) . This paradigm shift, which emphasizes essential material, provides sufficient time for students to delve into each subject, particularly in the aspects of literacy and numeracy, while simultaneously fostering character development that aligns with the profile of Pancasila students (Damayanti and Muhroji 2022) . The implementation of learning innovation through training has not had an impact on teacher competence for the following reasons: (1) training is not based on real problems in the classroom, and the same training materials are given to all educators; and (2) the results of the training only become knowledge, without being applied in the learning process.

Therefore, teachers are no longer merely transmitters of material, but also facilitators, innovators, and motivators in the learning process. Learning innovations implemented by teachers can include the application of project-based learning methods (PBL), problem-based learning (PBL), and the use of interactive digital media such as animated videos, educational games, or online learning platforms. Teachers must be able to create engaging learning experiences that can arouse student enthusiasm for the learning process, as learning media is a crucial part of implementing learning evaluation activities. This includes not only selecting appropriate media but also integrating them into pedagogical strategies to facilitate optimal knowledge mastery and skill development (Suroto and Nandiyanto 2021) .Learning innovations primarily aim to provide a more engaging, contextual, and relevant learning process for students. It is hoped that students will not only acquire theoretical knowledge but also be able to relate it to everyday experiences, thereby enhancing their motivation and learning outcomes. This aligns with Woolfolk's (2013:34) view, which emphasizes that effective teachers are those with a strong commitment to their students. This commitment is reflected in teachers' commitment to creatively designing, implementing, and evaluating learning that is oriented toward student needs.

The use of platforms like Google Classroom is highly relevant, especially in the context of post-pandemic online learning, facilitating paperless assignment distribution and efficient interaction between teachers and students. This web-based platform, which stands out for its integration with various classroom management functions, significantly enhances the learning experience by strengthening communication and organization among participants (Maryanti, Kurniawan, and Sarbini 2021) . This not only facilitates access to information but also creates a flexible and inclusive learning ecosystem. Research shows that the quality of an education system is intrinsically linked to the quality of its educators, with high-quality teachers directly correlating with increased student success rates (Engida, Iyasu, and Fentie 2024) . Therefore, teacher performance is strongly influenced by professional competencies (subject knowledge, continuous learning) and pedagogical competencies (teaching methods, classroom management) (IBRAYEVA and ADILZHANOVA 2021) . These competencies directly influence the achievement of learning objectives and the quality of classroom learning experiences. Therefore, teacher performance is not only measured by how well they deliver the material, but also by their contribution to the academic development, attitudes, and skills of students.

Teacher performance reflects the extent to which teachers carry out their duties and responsibilities in learning activities, guidance, and other additional tasks. This includes active learning that consistently results in higher levels of student engagement, increased knowledge retention, and better academic outcomes compared to traditional lecture methods (Arthurs and Kreager 2017) . Good performance is demonstrated not only through teaching skills but also in classroom management, learning assessment, and interpersonal relationships with students, parents, and colleagues. Strong competencies are an important foundation for all these activities to be carried out optimally. Teacher performance is judged not only by the final result, but also by the process. Teachers who demonstrate creativity and innovation in designing learning activities will receive greater appreciation from various parties, including principals, supervisors, and parents. This reinforces the evidence that learning innovation is a crucial factor in achieving professional performance. Qualified and professional teachers are believed to be capable of producing a generation of qualified, dignified, and capable of facing global competition.

Teachers must be able to continually improve their knowledge, keeping pace with current developments. Teachers must anticipate the various changes brought about by advances in science and technology. Therefore, teachers are not only sources of information but can also act as motivators, inspirators, motivators, facilitators, catalysts, evaluators, and so on (Rachmah and Gunawan 2020) . They are expected to serve as role models, providing guidance and support beyond simply transferring knowledge. This confirms that innovation plays a crucial role in connecting potential with actual performance. The use of information and communication technology (ICT) in learning and teaching, particularly in the context of distance education, is crucial. Arthurs (2017) argues that environmental changes (social, educational, and technological) make it necessary to adapt systems and practices that are no longer appropriate. The need to adapt, however, can be viewed as technology-driven and primarily focuses on

the obligation for academic staff to develop their skills in using ICT (Arthurs and Kreager 2017) . Innovative teachers often demonstrate significant improvements in their performance, even though their competencies are still under development. Improving teacher quality is crucial as societal expectations for individual competency continue to rise (Deng et al. 2022) . Teachers play a central role in ensuring educational effectiveness, especially in the face of the demands of evolving global social and economic change (Leibur, Saks, and Chounta 2021) . Innovation opens the way to increasing competence and performance at the same time. High-performing teachers are more likely to implement innovative teaching methods, as they possess the professional readiness and adaptive capacity needed to respond to the challenges of modern learning (Xia and O'Shea 2024) . Furthermore, instructional innovation has been shown to improve teacher performance assessments—particularly in the wake of the COVID-19 pandemic—showing that teachers who implement innovative strategies perform better according to student evaluations (Lin, Huang, and Lin 2022) . In the digital era, the use of innovation and technology in learning also significantly improves teacher performance by making teaching methods more interactive and efficient (Betty Marlina Sihombing and Dharma 2024) . Therefore, strong performance not only supports but also encourages teachers to innovate in their teaching, creating a more dynamic and effective learning environment.

## Method

This research uses a quantitative approach because this method systematically investigates phenomena by quantifying data and using statistical analysis to describe the characteristics or properties of objects or events, with the ultimate goal of explaining, predicting, and controlling them (Mohajan HK 2020) . Modeling Equality Structural (SEM) with technique Partial Least Squares (PLS) as analysis data And operated through SmartPLS version 3. Thus, this approach is considered appropriate for measuring the influence of pedagogical and professional competence on teacher performance with learning innovation as a moderating variable. The type of research used is explanatory research, because its main objective is to explain the causal relationship between independent variables, mediating variables, and dependent variables. As stated by Saunders, Lewis, & Thornhill (2019), explanatory research aims to test hypotheses and identify factors that influence a phenomenon. This study not only describes the phenomenon but also empirically tests the influence of teacher competence on their performance through the role of learning innovation. This approach is in line with quantitative methodology, because it focuses on numerical data to establish causal relationships between variables (Risal et al. 2023) .

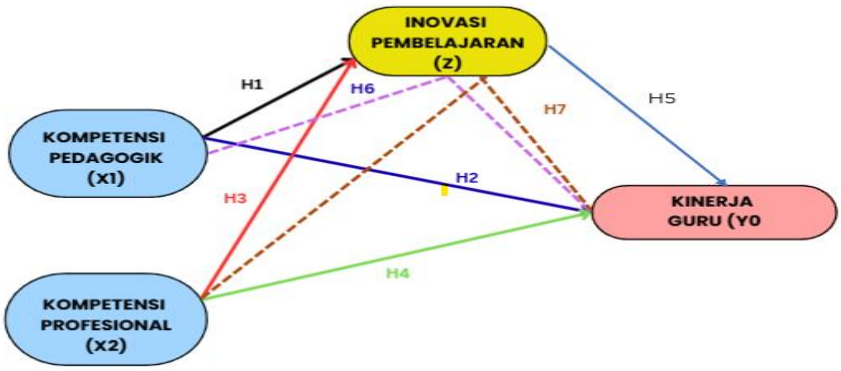
## Population and Sample

The population in this study was all high school teachers in Makassar City. There are 24 public high schools and 101 private high schools, with a total of 2,274 teachers in the 2025/2026 academic year.

Referring to the calculations above, this study involved a population of 2,274 teachers, with a minimum sample size of 95,787 teachers rounded up to 96 teachers.

## Variables and Research Design

This study uses three main variables: independent variables, dependent variables, and moderating variables. The independent variables in this study consist of pedagogical competence (X1) and professional competence (X2), which are indicators of teachers' ability to implement the learning process effectively in accordance with educational standards. The dependent variable is teacher performance (Y), which reflects the quality of teacher performance, from planning, implementation, to evaluation of learning. Meanwhile, learning innovation (Z) acts as a moderating variable that is thought to strengthen or weaken the relationship between teacher competence and performance. This model emphasizes that pedagogical and professional competencies directly influence teacher performance, while also indirectly influencing performance through learning innovations. This research design aims to provide a comprehensive understanding of the role of teacher competencies in improving performance and the extent to which learning innovations can strengthen the contribution of these competencies in the educational context of high schools in Makassar City.




Research Design Image

**Measurements and Data Collection Procedures**

Pedagogical competence (X1) is measured through teachers' ability to understand students, design learning, implement learning, utilize technology, and develop the curriculum. Professional competence (X2) is operationalized through mastery of teaching materials, understanding of scientific structures and concepts, and the application of competency standards and self-development. Teacher performance (Y) is assessed through the planning, implementation, and evaluation of learning, while learning innovation (Z) is measured through the use of new learning methods, strategies, and media that support learning effectiveness, with a scale of 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree, then as served on Table 3.1 in lower This.

Research Questionnaire Instrument Table

| Variables | Indicator | Statement Items | Scale |
|---|---|---|---|
| **Pedagogical Competence (X1)** | Understanding student characteristics | 1. I understand the differences in learning abilities of each student.<br>2. I adjust learning according to student needs.<br>3. I recognize students' learning styles (visual, auditory, kinesthetic). | Likert 1–5 |
| | Learning planning | 4. I am able to design lesson plans according to the curriculum.<br>5. I set learning objectives clearly.<br>6. I choose learning methods that are relevant to the material. | Likert 1–5 |
| | Implementation of learning | 7. I controlled the class well during the learning process.<br>8. I use a variety of methods in learning. | Likert 1–5 |

| | | | |
|---|---|---|---|
| | | 9. I motivate students to be active in learning. | |
| | Utilization of technology | 10.I use digital learning media. 11. I integrate technology into the learning process. 12. I seek out online learning resources to enrich the material. | Likert 1–5 |
| | Curriculum development | 13. I adapt the material to scientific developments. 14. I develop teaching materials according to student needs. 15. I update the learning tools regularly. | Likert 1–5 |
| **Professional Competence (X2)** | Mastery of teaching materials | 1. I have mastered the material according to the field of study that I teach. 2. I understand the relationship between the material between topics. 3. I am able to answer students' questions regarding the material. | Likert 1–5 |
| | Understanding of scientific structures and concepts | 4. I understand the basic concepts of science in my field. 5. I keep up with the latest developments in my field of study. 6. I relate concepts to real-life applications. | Likert 1–5 |
| | Competency standards | 7. I understand the competency standards and basic competencies. 8. I adjust learning to national education standards. 9. I ensure that learning outcomes are in accordance with the indicators. | Likert 1–5 |
| | Self-development | 10. I attended seminars/training to improve my skills. 11. I am active in teacher forums or communities. 12. I do reflection to improve the quality of teaching. | Likert 1–5 |

| | | | |
|---|---|---|---|
| **Learning Innovation (Z)** | Learning methods | 1. I try new learning methods to increase student interest.<br>2. I apply an active learning model.<br>3. I modify the strategy according to the needs of the class. | Likert 1–5 |
| | Media/technology | 4. I use learning applications in class.<br>5. I use multimedia to explain the material.<br>6.I integrate e-learning in learning. | Likert 1–5 |
| | Learning strategies | 7. I develop strategies to actively engage students.<br>8. I use a collaborative approach in class.<br>9. I give students the opportunity to discover their own concepts. | Likert 1–5 |
| | Learning environment | 10. I create a pleasant learning atmosphere.<br>11. I provide space for creativity for students.<br>12. I foster a culture of discussion in the classroom. | Likert 1–5 |
| **Teacher Performance (Y)** | Learning planning | 1. I compile the lesson plan according to applicable standards.<br>2.I prepare materials and media before teaching.<br>3. I prepare assessment instruments according to learning objectives. | Likert 1–5 |
| | Implementation of learning | 4. I convey the material clearly.<br>5. I use a variety of methods.<br>6. I manage the class effectively. | Likert 1–5 |
| | Learning evaluation | 7. I carry out assessments objectively.<br>8.I provide feedback to students.<br>9. I analyze learning outcomes for improvement. | Likert 1–5 |
| | Mastery of teaching materials | 10. I have mastered the learning material well.<br>11. I can explain the material using various approaches.<br>12. I connect the material to real life. | Likert 1–5 |
| | Professional development | 13. I actively improve my skills through training.<br>14.I innovate in teaching.<br>15. I participate in curriculum development. | Likert 1–5 |

Source: Researcher Analysis

Data collected through Work The same with the Makassar City Economic MGMP participate after getting agreement from Service Education And Chairman of the Makassar City Economic MGMP. Teacher finish pedagogical competence questionnaire , professional competence , teacher performance And innovation in economic learning in lower supervision researchers, to be continued with test HOTS. The data collection technique used was observation, which involves directly observing the research object. In this study, the subjects were high school economics teachers in Makassar City.

### Testing Validity And Reliability

The data analysis technique used in this study was Structural Equation Modeling (SEM) because it is capable of analyzing complex causal relationships between latent variables, both direct and indirect. SEM integrates factor analysis and regression analysis, allowing for testing both the measurement model and the structural model in a single unit. According to Hair et al. (2019), SEM is a statistical approach that is highly suitable for research in the social and educational fields because it can handle variables measured with multiple indicators (Owan et al. 2022) .

### Analysis Data

SEM is an appropriate analysis technique because it is able to test complex causal relationships between latent variables while evaluating the quality of the instrument through convergent validity (outer loading ≥ 0.7 and AVE ≥ 0.5), discriminant validity (the square root of AVE is greater than the correlation between constructs), and adequate reliability. The SEM analysis process includes testing the measurement model with CFA, ensuring that indicators meet the requirements for higher cross-loading on their own constructs, and testing the instrument's reliability through techniques such as Cronbach's Alpha to ensure data consistency. Furthermore, at the structural model stage, SEM assesses the strength of the relationship between latent variables using R-square values (0.75 strong; 0.50 moderate; 0.25 weak) and F-square (0.35 large; 0.15 moderate; 0.02 small), thus providing more comprehensive and scientifically accountable analysis results.

## RESULTS AND DISCUSSION

### Analysis Data Quality (Measurement Model)

The test results to measure the performance of high school economics teachers in Makassar City with all relationship paths between variables have positive coefficients, which indicates that each latent variable has a unidirectional influence on the objective variable summarized in Figure 1.

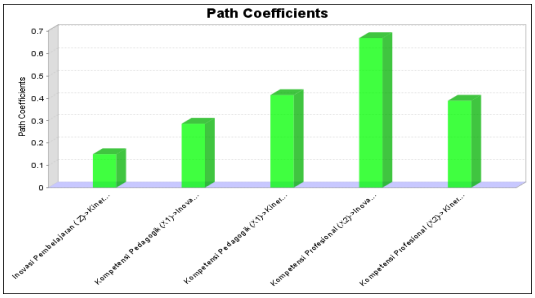



Figure 1. Path Coefficients in the Structural Model

Of the 100 respondents, it appears that professional competence provides the most dominant contribution with an estimated influence of around 40–45%, thus reflecting the consistency of respondents' perceptions regarding the importance of professional abilities in improving teacher innovation and performance. Pedagogical competence shows a fairly strong influence with a contribution of around 25–30%, which illustrates that most respondents consider the ability to manage learning to contribute to teacher innovation and performance. Meanwhile, learning innovation has the lowest influence with a contribution of around 15–20%, but still reflects that the majority of the 100 respondents see a positive effect on improving teacher performance . This positive association suggests that increasing teachers' professional competence can encourage increased innovation, which in turn strengthens their overall performance (IKHLAS BEHAVIOR AS THE INFLUENCE MODERATOR OF COMPETENCE AND 2018) .

Based on the path coefficient graph, it can be seen that all relationship paths between variables have positive coefficients, indicating that each latent variable has a unidirectional influence on the objective variable. Professional competence shows the strongest influence on both learning innovation and teacher performance, as indicated by its highest coefficient value compared to other variables. Meanwhile, learning innovation shows the lowest influence, but remains practically significant because it makes a positive contribution to improving teacher performance.

Table 2 Path Coefficients

| | **Learning Innovation (Z)** | **Teacher Performance (Y)_** | **Pedagogical Competence (X1)** | **Professional Competence (X2)** |
|---|---|---|---|---|
| **Learning Innovation (Z)** | | 0.15 | 0.887 | 0.927 |
| **Teacher Performance (Y)_** | 0.878 | | | |
| **Pedagogical Competence (X1)** | 0.29 | 0.41 | | |
| **Professional Competence (X2)** | 0.67 | 0.39 | | |

Source: Processed Data

Table 2 shows the relationship between research variables, including learning innovation (Z), teacher performance (Y), pedagogical competence (X1), and professional competence (X2). The largest coefficient value is seen in the relationship between professional competence and pedagogical competence on learning innovation, indicating the strong role of these two competencies in driving innovation. Furthermore, teacher performance also appears to be influenced by learning innovation and teacher competence, albeit with a lower coefficient value.

**Structural Model Analysis (inner Model)**

Table 3 Inner Residual Correlation Model

| | **Learning Innovation (Z)** | **Teacher Performance (Y)_** |
|---|---|---|
| **Learning Innovation (Z)** | 1.00 | 0.00 |
| **Teacher Performance (Y)_** | 0.00 | 1.00 |

Table 3 shows **the correlation values** between the variables Learning Innovation (Z) and Teacher Performance (Y) . A diagonal value of **1.00** indicates a perfect correlation because it represents the relationship between the variables. Meanwhile, a value of **0.00** for the relationship between Z and Y indicates no linear correlation between learning innovation and teacher performance based on the data in the table.

Table 4 Inner Model Residual Descriptives

| | Mean | Median | Min | Max | Standard Deviation | Excess Kurtosis | Skewness | Number Observation Used |
|---|---|---|---|---|---|---|---|---|
| **Learning Innovation (Z)** | 0.00 | 0.10 | -1.14 | 0.81 | 0.36 | 1.28 | -0.88 | 99.00 |
| **Teacher Performance (Y)_** | 0.00 | -0.02 | -1.53 | 1.14 | 0.38 | 3.10 | -0.22 | 99.00 |

Table 4 shows that the average values for Learning Innovation (Z) and Teacher Performance (Y) are both at 0, with a nearly identical distribution of data, as their standard deviations differ only slightly. A negative skewness value indicates that the data tends to be more on the left side or have low values, while a positive excess kurtosis indicates that the data pattern is more conical than a normal distribution. Furthermore, the minimum and maximum values for both variables indicate that the data has quite wide variation among the 99 respondents studied.

Table 5 R Square

| | **R Square** | **R Square Adjusted** |
|---|---|---|
| **Learning Innovation (Z)** | 0.87 | 0.87 |
| **Teacher Performance (Y)_** | 0.85 | 0.85 |

Table 5 shows that the R Square value for Learning Innovation (Z) is 0.87, meaning that 87% of changes in learning innovation can be explained by the variables influencing it in the model. Meanwhile, the R Square value for Teacher Performance (Y) is 0.85, indicating that 85% of the variation in teacher performance can be explained by other variables involved. The Adjusted R Square value, which is the same as the R Square, indicates that the model used is stable and does not experience a reduction in quality even though it is adjusted for the number of predictor variables.

Table 6 F Square

| | Learning Innovation (Z) | Teacher Performance (Y)_ | Pedagogical Competence (X1) | Professional Competence (X2) |
|---|---|---|---|---|
| Learning Innovation (Z) | | **0.02** | 3,676 | 6,117 |
| Teacher Performance (Y)_ | **3,367** | | | |
| Pedagogical Competence (X1) | 0.13 | **0.21** | | |
| Professional Competence (X2) | **0.71** | 0.12 | | |

Table 6 shows the relationship between variables based on the resulting coefficient values. Learning Innovation (Z) appears to be strongly influenced by Pedagogical Competence (X1) with a value of 3.676 and Professional Competence (X2) with a value of 6.117, indicating that both teacher competencies play a major role in encouraging the creation of learning innovation. Teacher Performance (Y) is also influenced by Learning Innovation (Z) with a value of 3.367, so that the better the innovation carried out, the higher the teacher performance. Meanwhile, the relationship between other variables such as pedagogical and professional competencies on teacher performance or innovation appears to vary with smaller coefficient values.

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