

Article **Open Access**

The 7th Vocational Education International Conference (VEIC 2025)

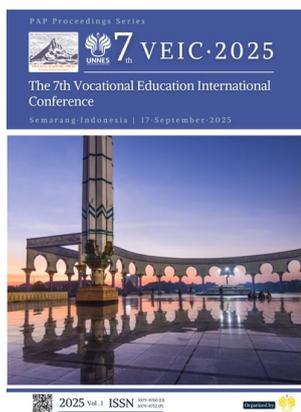
The Effect of Learning Facilities on Home Economics Education Students' Motivation: A Quantitative Study Based on Self-Determination Theory

Ming-Chang Wu ¹, Nabila Luthfionaura ^{1,*} and Dhidik Prastiyanto ²

¹ Graduate School of Technological and Vocational Education, National Yunlin University of Science and Technology, Douliu, Taiwan, China

² Faculty of Engineering, Universitas Negeri Semarang, Kampus Sekaran Gunungpati, Semarang, Indonesia

* Correspondence: Nabila Luthfionaura, Graduate School of Technological and Vocational Education, National Yunlin University of Science and Technology, Douliu, Taiwan, China



Abstract: Adequate learning facilities are crucial in practical-based academic programs to support skill development and foster students' intrinsic motivation. This research examines the impact of learning facilities on students' motivation in the Home Economics Education program at Universitas Negeri Semarang, using Self-Determination Theory (SDT) as the theoretical framework. The study aims to evaluate students' perceptions of the adequacy and relevance of learning facilities and to investigate their relationship with student motivation. A quantitative survey was conducted with 51 undergraduate students using structured questionnaires with a Likert scale to measure perceptions of learning facilities and motivation. Data were analyzed using descriptive statistics, Pearson product-moment correlation, and simple linear regression. The findings reveal a strong positive correlation ($r = 0.876$, $p < 0.01$) and a high coefficient of determination ($R^2 = 0.768$) between learning facilities and student motivation. Well-equipped and accessible facilities, such as kitchens, sewing labs, and business management rooms, satisfy students' psychological needs for autonomy, competence, and relatedness, thereby enhancing intrinsic motivation. These results highlight the importance of improving learning facilities to optimize student engagement and learning outcomes in practical-based programs, providing insights for educators and policymakers to enhance the learning environment effectively.

Received: 17 September 2025

Revised: 19 November 2025

Accepted: 20 December 2025

Published: 21 December 2025



Copyright: © 2025 by the authors.

Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Keywords: learning facilities; self-determination theory; student motivation

1. Introduction

Global economic and social systems increasingly emphasize the importance of practical and entrepreneurial skill, Home Economics Education has emerged as a vital field for preparing students to navigate domestic, vocational, and professional challenges. This discipline equips learners with competencies in areas such as culinary arts, fashion design, family resource management, and entrepreneurship skills that are increasingly relevant in today's dynamic labor market. Given this broad scope, it is essential to ensure that educational environments in this field effectively support students in acquiring and applying these competencies. Furthermore, the growing integration of vocational skills

into general education curricula globally signals the urgency of equipping Home Economics students with industry-standard competencies.

In the context of higher education, particularly in Home Economics Education, learning facilities play a crucial role in shaping students' experiences, skills, and motivation. Facilities such as kitchens, sewing laboratories, batik laboratories, and specialized classrooms for business management and teaching practice provide essential hands-on learning opportunities that are vital for developing practical competencies aligned with industry standards [1]. The effectiveness of these facilities depends not only on their availability but also on their quality, accessibility, and alignment with the students' academic and professional needs [2]. A well-supported physical learning environment has been shown to enhance academic outcomes by increasing student engagement and enabling the application of skills in real-world contexts [3]. Thus, learning facilities must be evaluated not just in terms of infrastructure, but also their educational impact and alignment with students' practical needs. Investments in physical learning environments are increasingly seen as a strategic component of quality assurance in higher education institutions.

Motivation is a key psychological factor influencing student engagement, persistence, and academic achievement. Self-Determination Theory (SDT), as developed by Ryan and Deci, provides a widely accepted framework for understanding motivation in educational contexts [4]. According to SDT, motivation is driven by the fulfillment of three basic psychological needs: autonomy (the sense of volition and control), competence (the ability to perform tasks successfully), and relatedness (a sense of connection with others). When these needs are met, students are more likely to experience intrinsic motivation, which fosters deeper learning, greater resilience, and long-term success [5]. This theoretical framework offers a useful lens for evaluating the impact of learning environments on student motivation in applied disciplines such as Home Economics. As such, understanding how educational contexts meet or hinder these needs is crucial for improving instructional practices and learning outcomes.

For Home Economics Education students, the quality and adequacy of learning facilities can significantly influence the fulfillment of these psychological needs. Modern and well-maintained facilities allow students to develop essential skills, thereby enhancing their sense of competence [6]. Moreover, access to relevant learning tools and environments enables students to exercise autonomy through self-directed exploration and practice [7]. A positive and resource-rich educational setting also promotes relatedness by supporting collaborative learning and strong student-teacher relationships [8]. Therefore, the design and provision of physical learning spaces can directly support students' psychological well-being and academic motivation. Facilities that foster active learning and student agency contribute to the development of self-regulated, lifelong learners.

However, survey findings from the current study context indicate that students' motivation levels remain moderate, despite the Family Welfare Education curriculum being designed to promote applicative and contextual learning. A considerable number of students demonstrate neither high nor consistent motivation, resulting in a learning atmosphere that lacks competitiveness and a strong drive for excellence. This moderate level of motivation may hinder students' full engagement in learning activities and limit their readiness to meet professional challenges after graduation. According to Self-Determination Theory, when students' psychological needs particularly the need for competence (e.g., operating industrial sewing machines or designing realistic culinary business plans) and autonomy (e.g., choosing learning media that suit their learning styles or selecting internship placements aligned with their interests) are only partially satisfied, intrinsic motivation tends to decline [9]. This suggests that improvements in the learning environment, especially physical facilities, are necessary to enhance motivation and learning outcomes. Without addressing these motivational gaps, the curriculum's goals may not be fully realized in practice.

Although the relationship between learning environments and academic performance has been well documented, limited empirical research has focused on how the adequacy and relevance of physical learning facilities specifically influence student motivation in the context of Home Economics Education. This study aims to address this gap by investigating students' perceptions of the learning facilities provided in their program and examining whether these perceptions are significantly related to their motivation to learn. By focusing on students' lived experiences within these facilities, this research offers a context-specific understanding of how learning environments affect motivation. This approach allows for a more targeted strategy in enhancing educational infrastructure to meet motivational and professional needs [10].

To address these issues, this study is guided by the following research questions:

- 1) How do students in the Home Economics Education program perceive the adequacy and relevance of learning facilities?
- 2) Is there a significant relationship between the quality of learning facilities and students' learning motivation?

The objective of this study is to evaluate the perceptions of Home Economics Education students regarding the adequacy and relevance of learning facilities and to examine the relationship between these facilities and student motivation. Using Self-Determination Theory as the theoretical framework, this research seeks to contribute to a better understanding of how the quality of physical learning environments influences students' motivation and engagement factors that are critical for student development and career readiness.

2. Materials and Methods

2.1. Materials

2.1.1. Learning Facilities

Learning facilities, as integral components of the educational environment, have long been acknowledged for their significant impact on student engagement, motivation, and overall learning outcomes [11]. According to Dewey, the school is a social institution, and the classroom environment should encourage active student engagement with both the material and their peers. Dewey emphasizes that a well-designed learning environment is essential for fostering exploration, interaction, and the development of critical thinking skills. This view suggests that learning spaces should not only be physical areas for instruction but dynamic environments that stimulate active engagement and cognitive development. In this regard, learning facilities are not passive settings, but active agents in shaping the quality and direction of student learning experiences. Consequently, the physical environment becomes a critical factor that can either enhance or hinder the learning process depending on its design, functionality, and accessibility.

Vygotsky, in his social development theory, underscores the importance of social interaction in the learning process. He argues that cognitive development is closely tied to social contexts, and that learning facilities should foster collaboration and communication among students. Vygotsky's perspective highlights that learning environments should provide ample opportunities for students to work together, as these interactions promote the development of higher cognitive functions. In practice, this means that classrooms, laboratories, and other educational settings must be purposefully designed to facilitate group work, project-based tasks, and peer learning dynamics. These social learning opportunities are especially critical in skill-based disciplines such as Home Economics, where collaboration mirrors real-world work environments. Moreover, creating spaces that encourage dialogue and cooperative problem-solving can help build essential soft skills like communication, leadership, and teamwork, which are increasingly valued in both academic and professional settings [12].

Building upon these theories, Hung proposed that learning facilities should be designed to promote active, collaborative, and problem-based learning. He emphasized

that integrating technology into the learning environment is essential for fostering student engagement, creativity, and deeper understanding [13]. According to Hung, the physical layout of classrooms, along with accessible resources and technological tools, should function cohesively to stimulate exploration, support collaboration, and encourage intrinsic motivation. This holistic perspective on learning environments reflects the broader shift toward learner-centered pedagogy and experiential education, highlighting that facility design must align with contemporary instructional strategies. Therefore, educational institutions must continuously assess and improve their learning facilities to meet evolving pedagogical and industry demands, particularly in vocational education settings such as Home Economics. By doing so, they ensure that students become active creators of knowledge who can apply their skills creatively and effectively in real-life contexts.

2.1.2. Student's Motivation

The concept of motivation plays a critical role in determining how effectively students engage with their learning environments. Self-Determination Theory (SDT), developed by Ryan & Deci, provides a robust framework for understanding motivation in educational contexts. According to SDT, motivation is shaped by the fulfillment of three basic psychological needs: autonomy, competence, and relatedness. Autonomy refers to the sense of freedom in making choices and decisions about one's learning; competence involves feeling capable and effective in achieving learning goals; and relatedness refers to the sense of connection and belonging within a social context, such as the classroom or peer group. These needs are considered universal and essential for psychological growth, integrity, and well-being. Understanding how these needs operate in educational settings helps educators and administrators create more supportive environments that nurture intrinsic motivation rather than relying solely on extrinsic incentives.

When these three needs are satisfied, students are more likely to experience intrinsic motivation, engaging in an activity for its inherent satisfaction rather than for external rewards or pressures [14]. In educational settings, meeting these psychological needs can foster greater student engagement, persistence, and enjoyment in learning activities, which are critical for academic success. The relevance of SDT in this study lies in its application to understanding how learning facilities, when properly designed and equipped, can support students' autonomy, competence, and relatedness. For example, a well-equipped laboratory or classroom can provide students with opportunities to develop competencies in practical skills, while collaborative spaces can enhance social interactions, fulfilling students' need for relatedness. Likewise, facilities that allow for flexible learning pathways such as open-access workshops or modular learning centers can help students feel more autonomous and self-directed in their educational journeys. By aligning facility design with psychological needs, educators can create environments where motivation naturally flourishes, leading to improved academic outcomes and personal development.

Moreover, recent studies have highlighted the role of intrinsic motivation in practical learning environments, particularly in fields such as Home Economics Education, where hands-on experiences are essential. According to research by Franco et al, students who experience autonomy and competence in practical settings, such as workshops or laboratories, are more likely to be motivated to engage deeply with their studies and to persist in the face of challenges. In this context, the provision and quality of learning facilities do not merely support academic instruction; they are central to the psychological and emotional engagement of students [15]. Therefore, assessing how well these facilities meet students' psychological needs becomes crucial for enhancing motivation and learning effectiveness. This understanding underscores the need for educational stakeholders to prioritize facility improvements as a strategic investment in student success, rather than viewing infrastructure as merely an administrative concern.

2.1.3. Synthesis

The theories of Dewey, Vygotsky, and Hung, combined with the principles of Self-Determination Theory, collectively highlight the critical role of the physical and social learning environment in shaping educational experiences. While Dewey and Vygotsky emphasize the importance of interaction and contextual engagement in learning spaces, Hung underscores the need for technology-rich, problem-based environments. These perspectives converge on the idea that effective learning environments must go beyond traditional classrooms to actively support student engagement, exploration, and collaboration. This suggests that the design and quality of learning facilities are not peripheral concerns but are central to meaningful education. Such a comprehensive understanding reinforces the importance of ongoing evaluation and innovation in educational facility planning to ensure that environments are responsive to the changing needs of students and educators alike.

Furthermore, Self-Determination Theory provides a valuable lens through which the influence of learning facilities can be interpreted not merely as structural or logistical elements, but as conditions that fulfill psychological needs and foster intrinsic motivation. In Home Economics Education, where practical skill development is at the core of the curriculum, facilities such as kitchens, sewing labs, and business simulation rooms are not optional supplements but foundational tools for developing competence and autonomy. The alignment between the physical environment and students' motivational needs is thus a key determinant of their engagement and performance. Recognizing this relationship encourages educators to advocate for facility enhancements that are pedagogically informed and student-centered, ensuring that physical resources meaningfully contribute to the educational mission.

Despite the well-established significance of both learning facilities and motivation in educational research, limited empirical studies have directly examined how the adequacy and relevance of learning facilities impact students' motivation, especially in applied disciplines like Home Economics Education. There remains a need to explore how these environments are perceived by students and how they influence the motivational processes outlined by SDT. By synthesizing these theoretical and empirical insights, the present study seeks to bridge this gap, offering a focused investigation into the relationship between learning facilities and student motivation. This synthesis justifies the study's approach and affirms its potential contribution to both educational theory and practice. Ultimately, understanding these dynamics can guide policy makers, educators, and administrators in creating more effective, motivating, and student-friendly learning environments.

2.2. Methods

This study employed a quantitative survey design to investigate the effect of learning facilities on students' motivation in the Home Economics Education program at Universitas Negeri Semarang, Indonesia. A quantitative approach is suitable for testing hypotheses and examining relationships between variables using numerical data and statistical procedures [16].

The participants in this study were 51 undergraduate students selected through purposive sampling from the Home Economics Education program. This non-probability sampling technique was employed to ensure that respondents had relevant experience with the university's practical learning facilities, such as kitchen laboratories, sewing rooms, batik labs, and microteaching rooms. These students were considered appropriate participants due to their direct interaction with the learning environment relevant to the study objectives.

Data were collected through an online structured questionnaire distributed via Google Forms. The instrument consisted of two parts: six items measuring perceptions of learning facilities (independent variable) and nine items measuring student motivation

(dependent variable), based on the Self-Determination Theory. Motivation items were developed to reflect the three psychological needs outlined in SDT: autonomy, competence, and relatedness, which are critical for fostering intrinsic motivation [17]. The questionnaire items were adapted and contextualized to reflect the practical and skill-based nature of the Home Economics Education program, ensuring construct relevance and content validity. All items were rated using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Prior to analysis, the questionnaire underwent validity and reliability testing. The validity test confirmed that all items were statistically valid based on item-total correlation. Reliability testing using Cronbach's Alpha revealed a value of 0.905 for the learning facilities variable and 0.925 for the motivation variable, indicating excellent internal consistency, which aligns with thresholds established by Tindall & Curtis in their multivariate analysis standards.

The data in this study were analyzed using several statistical techniques. First, descriptive statistics were used to summarize students' responses regarding their perceptions of learning facilities and their motivation levels. This helped provide an overview of trends and patterns in the data. Next, the Pearson Product-Moment Correlation test was applied to examine the strength and direction of the relationship between the adequacy of learning facilities and students' motivation. To further investigate this relationship, a simple linear regression analysis was conducted to determine whether the quality of learning facilities significantly predicts students' motivation. Lastly, the coefficient of determination (R^2) was calculated to measure the proportion of variance in students' motivation that could be explained by the quality of learning facilities.

The hypotheses tested in this study is:

H_0 : There is no significant effect of learning facilities on students' motivation.

H_a : Learning facilities have a significant effect on students' motivation.

This methodological approach provided a structured and empirical way to examine how learning environments contribute to the motivation of students in practical-based academic programs, using the Self-Determination Theory as a guiding framework. The findings from this research are expected to inform policy and pedagogical improvements related to educational infrastructure in vocational education settings.

3. Result

3.1. Descriptive Statistics Variable Independent Analysis

The study involved 51 undergraduate students from the Home Economics Education program at Universitas Negeri Semarang. The frequency distribution for the independent variable learning facilities (X) was analyzed to understand how students perceived the adequacy and relevance of the physical learning environment provided by their institution. These data are illustrated in Figure 1. Student Perceptions of Learning Facilities, which provides a visual summary of the students' responses.

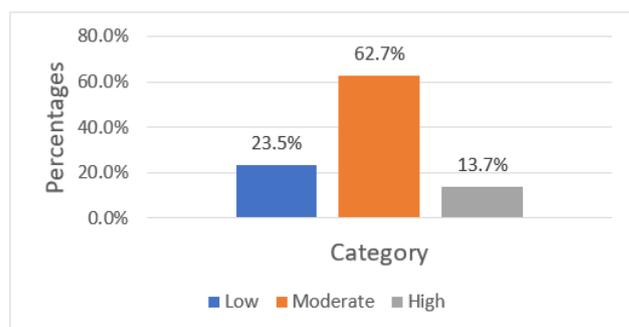


Figure 1. This is a Figure Student Perceptions of Learning Facilities.

The results revealed that 12 students (23.5%) rated the learning facilities as low, indicating a perception that the current infrastructure such as kitchen laboratories, sewing rooms, batik labs, and microteaching rooms was insufficient in meeting their academic and practical learning needs. This may reflect concerns over outdated equipment, limited accessibility, overcrowding, or misalignment with current industry standards. Students in this category may feel constrained in their ability to fully engage in hands-on learning experiences, which are vital in vocational and skill-based education such as Home Economics.

Meanwhile, 32 students (62.7%), which represents the majority of respondents, perceived the facilities as moderate. This suggests that while the facilities may be functional and available, they might not be optimal in supporting advanced or highly contextual learning. Students with this perception may experience occasional limitations in their learning environment, such as limited time usage, restricted access to certain tools, or insufficient support for innovation and creativity. Nevertheless, they may still be able to meet basic learning objectives, albeit with reduced enthusiasm or efficiency.

Only 7 students (13.7%) rated the learning facilities as high, indicating a positive perception that the available infrastructure effectively supports their academic and practical development. These students likely experience well-maintained, accessible, and up-to-date learning spaces that align with industry practices and promote autonomy, competence, and collaboration factors essential to building strong motivation according to Self-Determination Theory.

Overall, the data from Figure 1 show that most students view the learning facilities as adequate but not exceptional, with a notable proportion expressing dissatisfaction. This distribution highlights the need for ongoing evaluation and potential improvement of educational infrastructure to better support students' practical skill acquisition and motivation. The results also serve as an early indicator that learning facilities may be a contributing factor to the moderate levels of student motivation identified in previous analysis. Enhancing the quality and accessibility of these facilities could be a strategic step toward creating a more engaging and supportive learning environment.

3.2. Descriptive Statistics Variable Dependent Analysis

Regarding the dependent variable student motivation (Y) the responses of 51 undergraduate students from the Home Economics Education program at Universitas Negeri Semarang were analyzed. The results of this analysis are visually represented in Figure 2. Student Motivation Levels, which illustrates the distribution of students' self-reported levels of motivation in relation to their academic experience.

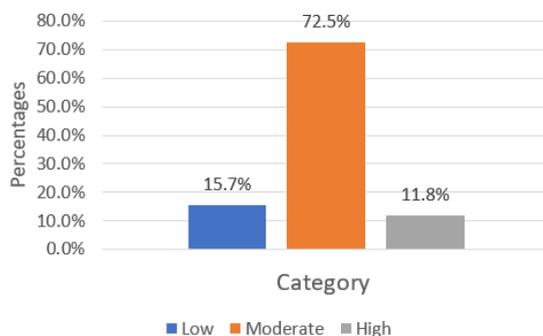


Figure 2. This is a Figure Student Motivation Levels.

The findings revealed that 8 students (15.7%) reported low levels of motivation, indicating a lack of strong internal drive to engage in learning activities. These students may feel disconnected from their learning process, potentially due to unmet psychological needs such as autonomy, competence, or relatedness, as outlined in Self-Determination

Theory by Ryan and Deci [18]. A lack of stimulating learning environments, limited opportunities for self-directed learning, or minimal peer collaboration may contribute to this low motivation. Such students are at risk of disengaging from their academic responsibilities, which could negatively affect their performance and persistence in the program.

A majority of students, 37 (72.5%), reported moderate levels of motivation. This suggests that while these students may be generally committed to their studies, their motivation is not particularly strong or consistent. They may fluctuate between periods of engagement and disinterest, which can affect their learning outcomes. This moderate motivation could be reflective of an educational environment that provides basic support but lacks the capacity to fully inspire or empower students. It may also indicate that students' psychological needs are only partially fulfilled, leading to a reliance on extrinsic motivation (e.g., grades or graduation requirements) rather than intrinsic interest or satisfaction.

Only 6 students (11.8%) expressed high levels of motivation, indicating that a small proportion of the sample felt genuinely enthusiastic, self-driven, and emotionally invested in their academic journey. These students are likely to thrive in the learning environment and demonstrate resilience, creativity, and active participation. Their responses suggest that, at least for some students, the learning context is sufficiently fulfilling in terms of autonomy, competence, and relatedness.

Taken together, the results from Figure 2 highlight a key concern: the overwhelming majority of students do not report high motivation levels, which could hinder their ability to fully benefit from the Home Economics Education program. When considered alongside the earlier finding that most students perceive learning facilities as only moderately adequate (as shown in Figure 1), these data suggest a potential connection between the quality of the learning environment and the strength of student motivation. This reinforces the importance of enhancing both physical resources and pedagogical strategies to create an academic setting that better supports students' psychological needs and encourages deeper, sustained engagement.

3.3. Correlation Test Pearson Product Moment Analysis

As shown in Table 1, the correlation coefficient between learning facilities and students' motivation is $r = 0.876$, with a significance level of $p = 0.000$. This indicates a "very strong" and statistically "significant positive" correlation between the two variables. In other words, as the quality or adequacy of learning facilities increases, students' motivation tends to increase as well.

Table 1. This is a Table Pearson Correlation between Learning Facilities and Student Motivation.

Variables	Pearson Correlation (r)	P (sig)
Learning Facilities (X) & Students' Motivation (Y)	0.876	0.000

According to Chen et al, interpretation of correlation strength, a coefficient above 0.70 is considered strong. Therefore, this result supports the hypothesis that learning facilities play an important role in influencing students' motivation in the Home Economics Education context [19].

This finding highlights the importance of educational institutions ensuring that practical and theoretical learning spaces are adequately equipped, as students respond positively both emotionally and cognitively to supportive environments that meet their educational needs.

3.4. Simple Linear Regression Test Analysis

The results of the simple linear regression analysis, as shown in Table 2, indicate that learning facilities have "a significant and positive effect" on students' motivation. The

unstandardized regression coefficient (B) for learning facilities is 1.235, meaning that for every one-point increase in the perceived quality of learning facilities, student motivation increases by approximately 1.235 points. This relationship is statistically significant, as indicated by the p-value of 0.000 ($p < 0.01$), confirming that the effect is unlikely due to chance.

Table 2. Simple Linear Regression Analysis: Effect of Learning Facilities on Students' Motivation.

Model	B (Unstandardized Coeff.)	Std. Error	Beta (Standardized Coeff.)	t-value	Sig. (p)
Constant	6.100	1.980	–	3.081	0.003
Learning Facilities	1.235	0.097	0.876	12.733	0.000

Importantly, the fixed baseline value (intercept) of student motivation is 6.100 when the perceived quality of learning facilities is zero. This suggests that even in the absence of adequate learning facilities, students maintain a baseline level of motivation. However, each 1-point increase in the quality of learning facilities leads to a 1.235-point increase in student motivation ($p < 0.01$), emphasizing the meaningful role of the learning environment in enhancing students' motivation.

Furthermore, the standardized coefficient (Beta = 0.876) reflects a very strong positive relationship, underscoring that improved learning environments such as well-equipped labs and practical workspaces significantly boost students' intrinsic drive to engage and succeed in their studies. These findings are particularly relevant in hands-on, skill-based fields like Home Economics Education.

3.5. Coefficient of Determination Test

From the table, the R Square value is 0.768. This value is used to calculate the coefficient of determination in this study using the formula:

$$R^2 = r^2 \times 100\%$$

$$R^2 = 0,768 \times 100\% = 76,8\%$$

Based on Table 3. Coefficient of Determination (R^2), the R Square (R^2) value obtained is 0.768, which indicates that 76.8% of the variance in students' motivation can be explained by the learning facilities variable. This finding suggests that learning facilities contribute significantly to shaping students' motivation within the Home Economics Education program at Universitas Negeri Semarang. The remaining 23.2% of the variance is likely influenced by other factors not explored in this study, such as instructional strategies, personal learning goals, socio-emotional support, or external learning resources.

Table 3. Coefficient of Determination (R^2).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.876	0.768	0.763	3.266

According to standard interpretation criteria, an R^2 value of 76.8% falls into the "very strong" explanatory power category. This implies that the regression model is highly effective in predicting students' motivation based on the quality of learning facilities. These results further reinforce the hypothesis that well-designed and adequately equipped learning environments are closely associated with increased levels of student motivation, particularly in practical and skills-based disciplines such as Home Economics.

4. Discussion

4.1. Learning Facilities Has a Strong Positive Effect on Students' Motivation

The findings of this study show a strong positive correlation between the quality of learning facilities and student motivation in the Home Economics Education program, with a Pearson correlation coefficient of 0.876. This is further supported by a simple linear regression analysis, which confirms that better learning facilities significantly predict higher levels of student motivation. These results highlight the critical role that supportive and well-equipped learning environments play in enhancing students' academic engagement and performance.

This relationship is consistent with Self-Determination Theory (SDT) by Ryan and Deci, which suggests that motivation increases when students' psychological needs competence, autonomy, and relatedness are met. Learning facilities support competence by providing appropriate tools for skill development and mastery, while flexible and accessible environments promote autonomy and peer collaboration, thus strengthening intrinsic motivation [20].

Supporting evidence from previous studies affirms these conclusions [21]. Chen et al. [19] and Muenks et al found that high-quality and collaborative learning spaces foster student engagement and intrinsic motivation [22]. More recent research by Lee and Boo and Lam et al demonstrated that technology-integrated and flexible learning environments improve motivation by offering interactive, student-centered learning experiences [23]. These findings collectively reinforce the importance of investing in quality learning facilities to enhance motivation, particularly in applied disciplines like Home Economics Education.

4.2. Improved Learning Facilities Enhance Students' Motivation in Home Economics Education

Within the specific context of Home Economics Education, practical learning facilities such as kitchen and sewing laboratories, play a pivotal role in shaping students' motivation. These environments provide hands-on experiences that connect theoretical knowledge with real-world application, which in turn deepens student engagement and enhances learning satisfaction. The findings of this study suggest that among all types of learning facilities, those used in practical classes are the most influential in boosting student motivation. This is particularly evident in the data collected, which showed that students felt more motivated when practicing in fully functional and well-equipped laboratories.

However, several students reported that some equipment in the kitchen labs was damaged and in need of replacement, and not all sewing machines were operable in the sewing labs. These limitations reduced students' enthusiasm and confidence during practice sessions, indicating that incomplete or malfunctioning tools can hinder motivation. On the other hand, when facilities are complete and operational particularly in practical areas students exhibit higher levels of interest, confidence, and willingness to engage, underscoring the critical importance of well-maintained practice environments.

This is supported by Hung constructivist theory, which emphasizes that authentic, problem-based environments are essential for effective learning and motivation. Empirical research further validates this. For instance, Li et al found that vocational students exposed to well-maintained, industry-standard facilities demonstrated greater motivation and readiness for employment. Likewise, Lam et al noted that practical learning spaces have a more immediate and noticeable impact on student motivation than standard classrooms [24].

These findings underscore the need for educational institutions to prioritize investment in the practical infrastructure of Home Economics programs, as these facilities most directly impact the students' learning experience, self-efficacy, and long-term interest in the field [25].

4.3. The Availability of Learning Facilities Positively Affects Students' Motivation Based on Self-Determination Theory

The results of this study indicate that the availability and quality of learning facilities significantly contribute to increased student motivation, particularly by fulfilling key psychological needs as outlined in Self-Determination Theory (SDT). Functional facilities help students feel more competent in performing academic tasks, while accessible and adaptable spaces allow them to exercise autonomy. In collaborative environments such as kitchens or sewing labs, students also build relatedness, fostering a sense of connection and belonging all of which are central to intrinsic motivation.

SDT, developed by Ryan and Deci, asserts that motivation thrives when learners experience competence, autonomy, and relatedness within their learning context. Tindall & Curtis further emphasized that environments supporting these needs not only promote deeper engagement but also enhance students' long-term commitment to learning. In Home Economics Education, where active, hands-on learning is vital, the role of facilities in supporting SDT principles becomes even more prominent.

This theoretical framework is reinforced by recent empirical findings. Bureau et al. reported that classroom environments tailored to support psychological needs significantly boost intrinsic motivation and academic outcomes. Similarly Tsai and Chang found that students in supportive learning environments displayed higher self-regulated learning and intrinsic interest. In vocational contexts Laer and Elen. showed that autonomy-supportive spaces combined with skill-relevant tools significantly enhanced motivation among students in applied education programs [26]. These findings collectively affirm that learning facilities, when aligned with SDT principles, are instrumental in motivating students toward academic and professional growth [27].

4.4. A Strong Correlation Exists Between Learning Facilities and Students' Motivation

The quantitative findings of this study revealed a statistically significant and strong positive correlation between the quality of learning facilities and students' motivation ($r = 0.876$, $p < 0.01$). Moreover, the simple linear regression analysis yielded an R^2 value of 0.768, indicating that 76.8% of the variation in students' motivation can be explained by the condition of learning facilities. This result demonstrates that facility quality is not a peripheral element, but a central determinant of student engagement and drive within the Home Economics Education context.

This result is consistent with prior studies highlighting the influence of physical and resource-enriched learning environments. For instance, Chen et al. found a positive relationship between modern, interactive learning spaces and student motivation and persistence in higher education. In a similar vein, Bureau et al. emphasized that the physical learning environment can significantly enhance students' emotional connection to their learning, which in turn boosts motivation. Moreover, studies like that of Maxwell. further validated that facility improvements significantly impact motivational constructs such as engagement, task value, and goal orientation.

These findings emphasize the importance for educational institutions to invest in well-maintained, well-equipped learning environments. Without sufficient learning infrastructure, students may struggle to maintain motivation, thereby affecting their academic performance and long-term educational aspirations. Schools and universities, particularly those offering practical programs like Home Economics, should prioritize infrastructure development as a strategic lever for enhancing student success.

4.5. Learning Facilities Fulfill Basic Psychological Needs That Drive Student Motivation

This study reinforces the premise that high-quality learning facilities play a direct role in fulfilling students' basic psychological needs competence, autonomy, and relatedness as proposed in Self-Determination Theory. Competence is supported through access to relevant equipment and tools that allow students to master practical skills.

Autonomy is promoted when students can engage with learning activities at their own pace using appropriate resources. Relatedness is fostered in collaborative spaces where students interact and build peer support networks.

These observations are supported by educational theorists such as Vygotsky, who argued that constructivist learning environments should be designed to support problem-solving and collaborative activities. In line with this, Bureau et al found that learning environments which nurture autonomy and competence significantly enhance students' motivation and learning outcomes. Similarly, Luo et al. emphasized that fulfilling psychological needs through environmental design contributes to deeper engagement, greater well-being, and long-term academic persistence.

Given this, educational institutions should view learning facilities as more than logistical assets; they are psychological enablers that impact how students experience learning. Prioritizing the design and improvement of learning environments that align with SDT principles can lead to substantial motivational gains. Particularly in fields such as Home Economics Education where hands-on, collaborative, and self-directed learning is fundamental investment in such environments is critical for cultivating motivated, competent, and connected learners.

5. Conclusions

Students in the Home Economics Education program generally perceive the available learning facilities as adequate and relevant to support their learning process. Facilities such as kitchen and sewing laboratories are considered highly beneficial in developing the practical skills that are central to the program. However, some students also expressed the need for improvements in both the quantity and quality of these facilities to ensure that learning activities align with current technological advancements and industry standards.

Regarding the relationship between the quality of learning facilities and students' learning motivation, the findings show a strong and significant correlation. This emphasizes that adequate facilities not only support the technical aspects of learning but also positively influence students' internal motivation to actively engage in the educational process. In other words, well-equipped facilities are an important factor in creating a conducive learning environment and enhancing student engagement. However, learning motivation is also influenced by other factors such as instructor support, teaching methods, and students' personal interests. Therefore, improvements in learning facilities should be accompanied by a holistic approach to enhance the overall quality of education.

Supplementary Materials: The authors are unable or have chosen not to specify which data has been used.

Author Contributions: Wu Ming-Chang: conceptualization, and methodology; Nabila Luthfionaura: investigation, resources, data curation review, formal analysis, and editing; Dhidik Prastiyanto: supervision, validation, and review.

Funding: None

Institutional Review Board Statement: Not applicable

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study

Data Availability Statement: The authors are unable or have chosen not to specify which data has been used.

Acknowledgments: We would like to thank the students in this study. This study would not have been possible without their participation and feedback. Finally, we would like to thank the unknown reviewers for their insightful comments and valuable improvements to our study.

Conflicts of Interest: No potential conflict of interest was reported by the author(s).

References

1. Y. Qin and F. Huang, "Study of vocational training programs themed on " women ' s empowerment " in Japan," *VTE Vocat. Technol. Educ.*, vol. 1, no. 32, pp. 1–10, 2024, doi: <https://doi.org/10.54844/vte.2024.0763>.
2. A. Ramli and R. M. Zain, "The Impact of Facilities on Student's Academic Achievement," *Sci. Int.(Lahore)*, vol. 30, no. 30, pp. 299–311, 2018.
3. L. Darling-Hammond and C. M. Cook-Harvey, "Educating the Whole Child : Improving School Climate to Support Student Success," *Learn. Policy Institute.*, 2018.
4. R. M. Ryan and E. L. Deci, "Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being," vol. 55, no. 1, pp. 68–78, 2000.
5. C. S. Dweck, G. M. Walton, and G. L. Cohen, "Academic Tenacity: Mindsets and Skills that Promote Long-Term Learning.," *Bill Melinda Gates Found.*, pp. 1–43, 2014.
6. R. Khalid and N. Farid, "Analysis of Academic Facilities and Their Influence on the Academic Performance of Students," *J. Asian Dev. Stud.*, vol. 14, no. 3, pp. 313–322, 2025, doi: <https://doi.org/10.62345/jads.2025.14.3.27>.
7. J. Reeve, *UNDERSTANDING MOTIVATION AND EMOTION*, 8th ed. Chennai, India: John Wiley & Sons, Inc., Hoboken, NJ, 2024.
8. X. Li, Z. Gao, and H. Liao, "The Effect of Critical Thinking on Translation Technology Competence Among College Students : The Chain Mediating Role of Academic Self- Efficacy and Cultural Intelligence," *Psychol. Res. Behav. Manag.*, vol. 1578, no. 16, pp. 1233–1256, 2023, doi: [10.2147/PRBM.S408477](https://doi.org/10.2147/PRBM.S408477).
9. R. M. Ryan and E. L. Deci, "Intrinsic and extrinsic motivation from a self-determination theory perspective : Definitions , theory , practices , and future directions," *Contemp. Educ. Psychol.*, vol. 61, no. 101860, pp. 1–11, 2020, doi: [10.1016/j.cedpsych.2020.101860](https://doi.org/10.1016/j.cedpsych.2020.101860).
10. L. E. Maxwell, "School building condition , social climate , student attendance and academic achievement : A mediation model," *J. Environ. Psychol.*, vol. 46, pp. 206–216, 2016, doi: <http://dx.doi.org/10.1016/j.jenvp.2016.04.009>.
11. J. Dewey, *Democracy and Education: With a Critical Introduction by Patricia H. Hinchey*, Reprint ed. Gorham, Maine, USA: Myers Education Press, 2018. [Online]. <https://digital.casalini.it/9781975500214>, Available on 12 December 2025
12. L. S. Vygotsky, *Mind in Society The Development*, 1st ed. Cambridge, Massachusetts, & London, England: Harvard University Press, 1978.
13. W. Hung, "All PBL Starts Here: The Problem," *Interdiscip. J. Probl. Learn.*, vol. 10, no. 2, 2016, doi: <https://doi.org/10.7771/1541-5015.1604>.
14. Richard, Ryan, and E. L. Deci, "Self-Determination Theory," *Encycl. Qual. life well-being Res. Cham Springer Int. Publ.*, pp. 6229–6235, 2022, doi: https://doi.org/10.1007/978-3-319-69909-7_2630-2.
15. E. Franco, A. González-Peño, P. Trucharte, and V. Martínez-Majolero, "Challenge-based learning approach to teach sports: Exploring perceptions of teaching styles and motivational experiences among student teachers," *J. Hosp. Leis. Sport Tour. Educ.*, vol. 32, no. January, 2023, doi: [10.1016/j.jhlste.2023.100432](https://doi.org/10.1016/j.jhlste.2023.100432).
16. W. John and J. D. Creswell, *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*, vol. 53, no. 9, 2018.
17. A. M. Morrison, J. H. Cheah, and R. Kumar, "A destination performance measurement framework: exploring the relationships among performance criteria and revisit intentions," *Curr. Issues Tour.*, vol. 28, no. 5, pp. 773–791, 2024, doi: [10.1080/13683500.2024.2309149](https://doi.org/10.1080/13683500.2024.2309149).
18. I. K. Tindall and G. J. Curtis, "Validation of the Measurement of Need Frustration," *Front. Psychol.*, vol. 10, no. 1742, pp. 1–8, 2019, doi: [10.3389/fpsyg.2019.01742](https://doi.org/10.3389/fpsyg.2019.01742).
19. P. D. Chen, A. D. Lambert, and K. R. Guidry, "Engaging online learners : The impact of Web-based learning technology on college student engagement," *Comput. Educ.*, vol. 54, no. 4, pp. 1222–1232, 2020, doi: [10.1016/j.compedu.2009.11.008](https://doi.org/10.1016/j.compedu.2009.11.008).
20. D. A. Cook and A. R. Artino, "Motivation to Learn: an Overview of Contemporary Theories," *Med. Educ.*, vol. 50, no. 10, pp. 997–1014, 2016, doi: [10.1111/medu.13074](https://doi.org/10.1111/medu.13074).
21. K. Muenks, A. Wigfield, J. S. Yang, and C. R. O. Neal, "How True Is Grit? Assessing Its Relations to High School and College Students' Personality Characteristics, Self-Regulation, Engagement, and Achievement," *J. Educ. Psychol.*, vol. 109, no. 5, pp. 1–74, 2017, doi: <https://dx.doi.org/10.1037/edu0000153>.
22. H. Lee and E. Boo, "The effects of teachers' instructional styles on students' interest in learning school subjects and academic achievement: Differences according to students' gender and prior interest," *Learn. Individ. Differ.*, vol. 99, no. September, p. 102200, 2022, doi: [10.1016/j.lindif.2022.102200](https://doi.org/10.1016/j.lindif.2022.102200).
23. M. M.-L. Lam, E. P. H. Li, W.-S. Liu, and E. Y.-N. Lam, "Introducing participatory action research to vocational fashion education : theories , practices , and implications," *J. Vocat. Educ. Train.*, vol. 74, no. 3, pp. 415–433, 2022, doi: [10.1080/13636820.2020.1765844](https://doi.org/10.1080/13636820.2020.1765844).
24. J. S. Bureau, J. L. Howard, J. X. Y. Chong, and F. Guay, "Pathways to Student Motivation: A Meta-Analysis of Antecedents of Autonomous and Controlled Motivations," *Rev. Educ. Res.*, vol. 92, no. 1, pp. 46–72, 2022, doi: <https://doi.org/10.3102/00346543211042426>.

25. L. Tsai and C. Chang, "Relationships between high school students' learning interest, learning motivation, and ocean literacy: a longitudinal study," *Environ. Educ. Res.*, vol. 31, no. 6, pp. 1154–1165, 2025, doi: 10.1080/13504622.2024.2428923.
26. S. Van Laer and J. Elen, "In search of attributes that support self-regulation in blended learning environments," *Educ. Inf. Technol.*, vol. 22, no. 4, pp. 1395–1454, 2017, doi: 10.1007/s10639-016-9505-x.
27. Q. Luo, L. Chen, D. Yu, and K. Zhang, "The Mediating Role of Learning Engagement Between Self-Efficacy and Academic Achievement Among Chinese College Students," *Psychol. Res. Behav. Manag.*, vol. 16, pp. 1533–1543, 2023, doi: 10.2147/PRBM.S401145.

Disclaimer/Publisher's Note: The views, opinions, and data expressed in all publications are solely those of the individual author(s) and contributor(s) and do not necessarily reflect the views of PAP and/or the editor(s). PAP and/or the editor(s) disclaim any responsibility for any injury to individuals or damage to property arising from the ideas, methods, instructions, or products mentioned in the content.