

Development of Context-based Learning Activities to Promote the Learning Achievement of Vocational Students

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Abstract

Background and Aims: In the 21st century, vocational education plays a crucial role in producing skilled manpower to meet the demands of the rapidly changing labor market. The development of learners' competencies, practical skills, and problem-solving abilities is therefore essential to prepare them for real-world employment situations. The purposes of this study were (1) to develop context-based learning activities to promote learning achievement. (2) To compare the learning achievement using context-based learning activities between the pre-test and the post-test. And (3) To study students' satisfaction with context-based learning activities to promote learning achievement.

Methodology: The sample was composed of 30 nursing students of Ganzhou Vocational School of Applied Technique. The whole random sampling was used to select 30 students in the first semester of 2025. Research tools are used in lesson plans, learning achievement tests, and satisfaction questionnaires. In data analysis included mean, standard deviation, and hypothesis testing using the t-test.

Results: The research results found that 1) the development of context-based learning activities to promote academic achievement received an average suitability score of 4.29 from the assessment of experts, indicating a high level of suitability; 2) students who studied using context-based learning activities had significantly higher academic achievement after studying than before studying at the .01 level; and 3) students who studied using context-based learning activities had a high level of overall satisfaction

Conclusion: The findings of this study indicate that the context-based learning activities developed were highly appropriate and effective in enhancing students' learning achievement. The post-test scores of the nursing students were significantly higher than their pre-test scores at the .01 level, demonstrating that context-based learning can meaningfully improve students' understanding and academic performance. Furthermore, the students reported a high level of satisfaction with the learning activities, suggesting that integrating real-life contexts into instruction not only supports academic achievement but also increases learners' engagement and positive attitudes toward learning. Therefore, context-based



learning is a valuable instructional approach for promoting both cognitive and affective learning outcomes in vocational education settings.

Keywords: Context-based Learning Activities; Learning Achievement; Student Satisfaction

Introduction

Over the past two decades, China has implemented significant reforms and expansion within its education system, with a particular focus on vocational education. This development is closely aligned with the government's broader strategies for industrial upgrading, economic transformation, and sustainable employment growth. According to the Ministry of Education of the People's Republic of China (MOE, 2023), there were 7,085 secondary vocational schools nationwide, with an enrollment of 4.54 million students by the end of 2023. This rapid expansion underscores the crucial role vocational education plays in cultivating technically skilled workers for China's evolving economy (MOE, 2023).

Vocational education in China has evolved from a supplementary form of training into a strategic pillar of the national education system. It provides multiple pathways for students to pursue either further education or direct employment, thereby enhancing social mobility and economic inclusiveness. The Statistical Bulletin on China's Education Development in 2023 emphasized that vocational education now accounts for nearly half of all students in the post-compulsory education stage, reflecting its growing social recognition and national importance (MOE, 2024).

Parallel to this growth, the government has invested substantially in infrastructure and human resources to strengthen vocational institutions, teacher training, and curriculum design (State Council, 2019). Teacher quality is widely regarded as a decisive factor in the success of vocational education. In recent years, the Ministry of Education has continued to improve both the quality and quantity of vocational teaching staff. As reported in 2023, the number of full-time teachers in secondary vocational schools reached 734,800—an increase of 16,500 from the previous year—with a qualification rate of 95.69% and a “double-qualified” teacher proportion of 56.71% (MOE, 2024). The term “double-qualified” refers to teachers who hold both pedagogical credentials and professional industry qualifications, which enhances the practical orientation of classroom instruction (Wang & Guo, 2023). This policy reform aims to bridge the gap between school-based instruction and workplace requirements.

At the policy level, the National Vocational Education Reform Implementation Plan released by the State Council (2019) officially positioned vocational education as “equally important as general education.” This marked a fundamental shift in China's educational philosophy and policy priorities. The plan emphasizes integration between education and industry, encourages school–enterprise partnerships, and promotes innovation in teaching

methods. Subsequent provincial policies have echoed this direction, with many regions establishing local “dual education” systems aligned with local industrial clusters (China Daily, 2024).

These structural and policy reforms are closely linked to the nation’s changing economic landscape. China’s transition from a manufacturing-based to an innovation-driven economy has increased demand for workers who possess not only technical skills but also problem-solving ability, creativity, and adaptability. The rise of the digital economy, artificial intelligence, and intelligent manufacturing requires workers capable of applying mathematical and analytical reasoning in practical contexts (China Briefing, 2023). In response, vocational institutions have begun revising their curricula to integrate information technology, big data analysis, and applied mathematics into training programs (Wang, 2024).

However, despite these advances, many researchers have observed persistent challenges in the teaching of mathematics within vocational education. Mathematics is often perceived by students as abstract, irrelevant, and disconnected from real life, leading to low motivation and poor learning outcomes (Li, J., & Zhang, X., 2021). Traditional lecture-based methods emphasize procedural knowledge and rote memorization but fail to help students understand how mathematical concepts are used in professional practice. As a result, many students struggle to transfer classroom knowledge into their future workplace contexts.

To address these problems, educators have sought alternative pedagogical approaches that can connect theory with practice. One promising direction is context-based learning, also known as situational or contextual teaching, which emphasizes learning through real or simulated scenarios. This method is rooted in constructivist learning theory, which suggests that knowledge is actively constructed by learners as they interact with their environment (Dewey, 1938). Dewey proposed that education must be grounded in experience, highlighting that students learn best when they encounter meaningful, context-rich problems. Similarly, Lave, J., & Wenger, E. (1991). Situated Learning Theory argues that learning occurs through participation in authentic social and professional practices, where knowledge is both produced and applied. In vocational education, contextual or situation-based learning has proven particularly effective because it mirrors the real-world tasks students will face in their future careers. Studies in engineering and technical education, such as those conducted by Mavrikios et al (2018), have shown that the “teaching factory” model—where students engage in simulated industrial production environments—enhances both technical competence and problem-solving skills. In the field of mathematics education, embedding lessons in authentic vocational contexts has been found to improve students’ conceptual understanding, engagement, and achievement (Sumandya, 2022; Mahmuti et al, 2025).

Context-Based Learning is a teaching method that begins by relating content to real-world situations or contexts to stimulate curiosity and allow students to explore the meaning

of academic knowledge in real-world situations. This approach has been widely developed and criticized in the fields of science and chemistry, and has been used in many countries to bridge the gap between abstract knowledge and practical application (Gilbert, 2006; Bennett & Lubben, 2006). In the Chinese context, the government and educational authorities have been committed to improving the quality of education and scientific knowledge among the public over the past two decades, emphasizing the development of practical skills and meaningful learning. This is in line to become a "CBL-based learning system." "A strong science and technology nation" (Wang, 2022). The application of CBL concepts in educational institutions in China has begun to appear, both in theoretical research and policy/curriculum experiments at the primary, secondary, and tertiary levels, focusing on teacher training and learning unit design, and assessing learning outcomes with a focus on practical application (Zhao, 2019; Wang, 2022). Gilbert (2006) defined "context" as the framework or environment in which learners can connect content to real-world experiences, which helps to deepen their understanding of the meaning of the content. Bennett and Lubben (2006) applied this concept to their Salters Approach chemistry curriculum, starting with real-life situations to encourage learners to question, think critically, and construct new knowledge by themselves. This concept has been extended to many disciplines, including "mathematics," a subject that requires connecting abstract concepts to real-world situations. Hu's (2024) research found that Chinese mathematics teachers have begun to employ "context creation" in their teaching, such as using situations from the economy, everyday life, or technology to stimulate students' deeper understanding of mathematical concepts.

The global significance of contextualized teaching has also been recognized by international organizations. UNESCO's Reimagining TVET for a Changing World (UNESCO., 2022) highlights the importance of integrating theory with practice, emphasizing pedagogical strategies that develop 21st-century competencies such as critical thinking, collaboration, and digital literacy. These goals align with China's education modernization plan, which encourages innovation in teaching and the integration of context-based approaches into vocational curricula (UNESCO, 2022). Therefore, developing and implementing context-based learning activities in vocational mathematics is not only a response to educational reform but also a practical strategy for improving teaching effectiveness. Context-based instruction bridges the gap between abstract mathematical knowledge and concrete professional applications. It helps students develop cognitive flexibility, problem-solving abilities, and intrinsic motivation—all of which are crucial for success in modern technical workplaces (Wang, Y. 2024).

The researcher applied the teaching and learning activities according to the concepts of Gilbert (2006), Bennett & Lubben (2006), and Yan, W. (2011) to manage mathematics learning for vocational students. There are 6 important steps: 1) creating a situation, 2)

introducing the situation, 3) asking questions, 4) organizing discussions and exchanges, 5) summarizing and orientation, and 6) evaluating and giving suggestions so that students can practice learning systematically, with clear steps, and can truly create their own learning. Therefore, studying contextualized learning in Chinese mathematics is crucial for understanding the approaches, methods, and obstacles that arise, leading to the development of teaching models that effectively promote mathematics competence in 21st-century learners. The development of vocational education in China has been greatly supported by national policies, economic needs, and theoretical advances in teaching. However, there remains an urgent need to reform mathematics teaching in vocational schools to make it more relevant and engaging. Contextualized learning, based on recognized educational theories and supported by international research, is a scientifically validated approach for such reform. This study aimed to design, implement, and evaluate contextualized learning activities in mathematics for vocational students to enhance academic achievement and student satisfaction at Ganzhou Applied Technology Vocational School.

Objectives

1. To develop context-based learning activities to promote learning achievement
2. To compare the learning achievement using context-based learning activities between the pre-test and the post-test.
3. To study students' satisfaction with context-based learning activities to enhance learning achievement

Research Hypotheses

Students who used context-based learning activities had higher achievement in mathematics before and after learning.

Literature Review

The researcher has conducted a study and research of documents, textbooks, books, and related research as follows.

Gilbert (2006) and Bennett & Lubben (2006) stated that over the past two decades, the Chinese education system has placed great importance on improving the quality of students' learning, particularly in terms of in-depth understanding and practical application. Context-Based Learning (CBL) has been recognized as a concept that connects content to students' real-world situations, promotes meaningful learning, and fosters intrinsic motivation. Context-based learning is a teaching method that begins by connecting content to real-world situations or contexts to stimulate curiosity and allow students to explore the meaning of

academic knowledge in real-world situations. This approach has been widely developed and critiqued in the fields of science and chemistry, and has been used in many countries to bridge the gap between abstract knowledge and practical application. Gilbert (2006) defined "context" as a framework or environment in which learners can connect content to real-world experiences, thus deepening their understanding of the meaning of the content. Bennett and Lubben (2006) applied this concept to their Salters Approach chemistry curriculum, beginning with real-world situations to encourage learners to question, analyze, and construct new knowledge on their own. This concept has been extended to many disciplines, including mathematics, a subject that requires connecting abstract concepts to real-world situations.

Bennett & Lubben (2006) summarized context-based instruction into five steps:

- 1) Selecting Contexts: Begin with a situation, story, or problem from real life or the outside world, such as industry, the environment, or technology, as the starting point for learning.
- 2) Linking to Chemistry Concepts: Context is used to introduce students to the chemistry concepts and science skills they should learn, and make the content meaningful.
- 3) Exploration & Discussion: Students have opportunities to collaborate, discuss, and solve problems within a given context, supported by the teacher's questioning and guidance.
- 4) Connecting & Reflecting: After exploring, knowledge is summarized and discussed, discussing how the context and chemistry concepts contribute to understanding and how students can transfer this knowledge.
- 5) Assessment & Follow-up: Assessments are conducted on understanding, concepts, and attitudes, and learning outcomes are monitored for curriculum development.

Gilbert (2006) summarized context-based instruction into five steps:

- 1) Begin with a meaningful context: Select a situation/environment relevant to the learner.
- 2) Connect with subject matter: Enable learners to see the content as relevant to that context.
- 3) Provide opportunities for learners to participate/participate in the context (explore, discuss, and construct meaning).
- 4) Promote knowledge transfer: Enable learners to apply their knowledge to other contexts.
- 5) Reflect/summarize: Enable learners to review/connect knowledge to context.

Gilbert cautions that despite numerous approaches, research evaluating each contextual model in detail is limited. Therefore, model selection and evaluation remain challenging. He emphasizes that "context" is not simply a backdrop for content, but must be integral to learning, meaning that learners are actively engaged in the context.

Yan, W. (2011) summarized the steps of context-based teaching in middle school mathematics by emphasizing the following practical steps for teachers:

- 1) Create/describe a situation with emotion and a visual dimension.
- 2) Stimulate leading questions.
- 3) Have students experiment/solve problems from the context through group work.
- 4) The teacher synthesizes and connects mathematical concepts back to the context.
- 5) Assess both understanding and problem-solving skills.

He emphasized training teachers to design meaningful situations and stimulate students' logical thinking.

Comenius (2014) Context-based learning activities trace their origins to the Socratic method of ancient Rome, a pedagogical approach centered around creating problematic situations for students through questioning. This method aimed to inspire active thinking by guiding respondents into contradictions during a series of follow-up questions (Plato, 2017). Plato, a student of Socrates, further developed and promoted this educational strategy, which employs dialogue to stimulate student thinking. Beyond problem-based situations, visual situations represent another significant milestone in the development of context-based teaching. Comenius mentioned in "The Great Didactic" that "all knowledge begins with the senses".

Zeng, C (2015), in her paper "The Application of Experiential Teaching in Career Planning and Employment Guidance Courses," aimed to improve the effectiveness of career planning and employment guidance courses by adopting experiential teaching methods. The study focused on college students enrolled in these courses and utilized tools such as scenario simulations, case studies, role-playing, and group discussions as part of the experiential teaching process. The results demonstrated that experiential teaching significantly enhanced students' participation, career awareness, and decision-making abilities. It effectively bridged the gap between theory and practice, helping students explore self-awareness, improve employability skills, and make more informed career choices. Additionally, the approach stimulated classroom engagement and fostered an active learning atmosphere, which contributed to the overall improvement of teaching outcomes in career planning and employment guidance courses.

Suhaebar & Isrokatun (2019). The research was conducted on "Context-based learning for Self-Regulated Learning on Mathematical Learning", aimed to improve self-regulated learning (SRL) among elementary school students by applying context-based learning (SBL). The research focused on 36 fifth-grade elementary school students and utilized tools such as the self-regulated learning questionnaire, observation sheets of student activity, and field notes. The results showed that context-based learning significantly enhanced students' self-regulated learning. Students exhibited increased initiative, motivation, and independence in

their learning process. The method effectively engaged students through active, constructivist, and student-centered learning approaches.

Sutarto, Utari, Kartasasmita, and Julika (2019). The research was conducted on "The Application of Context-based learning Strategy to Improve Literacy Skills, Mathematical Problem-Solving Ability and Mathematical Self-Efficacy at Senior High School Students", aimed to examine the effects of context-based learning (SBL) strategies on students' literacy skills, mathematical problem-solving abilities, and self-efficacy. The research focused on 47 students from Class X at SMA Pasundan 7 Bandung. The research tools included a literacy skills test, a mathematical problem-solving ability test, a self-efficacy scale, observations, and student interviews. The results demonstrated that context-based learning strategies significantly improved students' mathematical problem-solving abilities compared to expository learning. While literacy skills increased, the improvement was not significantly greater than in the control group. Additionally, there was no correlation found between literacy skills, mathematical problem-solving, and self-efficacy. However, students taught using SBL strategies showed a positive attitude toward self-efficacy in learning mathematics.

Hu (2024). The research was conducted on the construction of mathematics contexts in lower secondary schools under the context of the new curriculum reform. This study aimed to examine the current status and development of lower secondary school teachers' mathematics learning in the new curriculum. The results revealed a lack of in-depth research on mathematics content and students' real-world experiences. The initial learning business design focused on deep learning rather than the application of principles. He suggested developing a teacher training curriculum that emphasized diverse activities in learning materials that reflect real life. To enhance the system's visualization, it emphasized knowledge-based learning rather than quantitative target groups to promote deep learning and analytical thinking for learning.

Methodology

This research used an experimental design in the form of experimental research (Experimental Research), One Group Pretest-Posttest Design, and One Group Posttest Only Design (Paisan Worakam, 2021)

random	group	Pre-test	Treatment	Post-test
-	E	O ₁	X	O ₂

When

E means Experimental group

O₁ means Measuring variables before experimenting

X means giving an experiment

O₂ means measuring variables after the experiment

1. Theoretical research stage:

This paper reviews the context-based teaching methods at home and abroad by means of a literature review, summarizes the domestic and international literature on context-based learning activities and their application in education, and lays an important theoretical foundation for the design of the teaching practice action research program.

2. status quo investigation stage:

In this stage, this study will use literature review and questionnaire survey methods. By consulting relevant literature, two sets of questionnaires were made for students, and random sampling was used to fill in the questionnaires, aiming to investigate and analyze the status quo of life and class skill learning in secondary vocational education, and context-based learning level, to provide data support for the design of teaching practice action research programs.

3. teaching practice stage:

In the teaching practice stage, this research will adopt pre- and post-test experimental methods and use context-based learning activities according to the designed teaching plan to develop research results. This will involve implementing specific teaching activities consistent with the research objectives to promote students' improvement in mathematics and prepare them for the college entrance examination.

4. Summary and Reflection Phase:

After completing all teaching practice activities, this study will use a questionnaire to analyze whether students can improve their interest in mathematics and mathematics performance through contextual learning activities, and their satisfaction with this activity. This includes collecting and analyzing the results of teaching practice, and reflecting and evaluating the effectiveness of this activity.

Results

1. Results of the development of Context-based learning activities to enhance learning achievement

To develop context-aware learning activities to enhance academic achievement, researchers studied the mathematics curriculum framework on lines and circles and analyzed the relationship between content and learning objectives. Using context-aware learning activities as a basis for enhancing academic achievement, researchers applied the teaching methods based on the concepts of Gilbert, J. K. (2006), Bennett & Lubben (2006) and Yan, W. (2011) to design six learning activities: 1) situation creation, 2) situation presentation, 3) questioning, 4) discussion and exchange, 5) summarizing and orientation, and 6) evaluation and feedback. These activities were adapted to suit the nature of mathematics for vocational students. All lesson plans were submitted to experts for evaluation. Three experts, each with

expertise in curriculum and instruction, educational measurement and evaluation, and statistics and research, conducted the evaluation. The evaluation criteria were compared with the criteria for educational measurement and evaluation. The lesson plan evaluation score was 4.29, which was considered highly appropriate. The researchers adjusted the lesson plan based on the experts' suggestions to improve its quality and suitability for student teaching activities.

2. The results of comparing the learning achievement using context-based learning activities to enhance learning achievement between the pre-test and the post-test.

Learning achievement was analyzed through pre-test assessments, formative exercise evaluations across lesson plans, and post-test measurements. Data from 30 students, with detailed outcomes presented in Table 1

Table 1 Results of t-test statistics and the statistical significance level of learning achievement scores between before and after studying

Item	Full score	$\bar{X}$	S.D.	D	t	p
Pre-test	60	30.00	2.31	16.08	28.108	0.000**
Post-test	60	46.00	2.27			

$p < 0.001$

Students who studied using Context-based learning activities to enhance learning achievement had significantly higher mathematics scores after studying at the .01 level.

Table 1 shows that paired t-tests revealed statistically significant differences across all experimental data pairs. In particular, there was a statistically significant difference at the .01 level between the post-test mean score of 46.00 and the pre-test mean score of 30.00 ($t = 28.108$, $p = 0.000$). This means that the post-test mean score was significantly higher than the pre-test mean. All paired comparisons consistently showed significant differences.

3. The results of the analysis of student satisfaction with Context-aware learning activities to enhance learning achievement, with detailed outcomes presented in Table 2

Table 2 Mean, standard deviation, and student satisfaction levels with Context-based learning activities to enhance learning achievement

List of questions	$\bar{X}$	S.D.	Description
1. I like the relevance of the learning materials to the course objectives	4.20	0.71	High
2. I like learning activities that can increase my interest in the Career Guidance Course	4.47	0.57	High
3. I like learning activities that improve my understanding of career guidance courses	4.47	0.63	High
4. I like that learning activities can increase teacher-student interaction	4.60	0.56	Very high

List of questions	$\bar{X}$	S.D.	Description
5. I think the instructor effectively guided and facilitated	4.50	0.57	High
6. I like that learning activities can improve your learning efficiency	4.43	0.50	High
7. I find the classroom environment conducive to learning	4.23	0.73	High
8. I think the technology and resources provided supported your learning	4.43	0.68	High
9. I like that learning activities are more effective than traditional didactic learning	4.40	0.56	High
10. I like learning activities that could improve my grades in career guidance courses	4.50	0.51	High
Total	4.43	0.56	High

From the table above, it is found that students who study using Context-based Learning Activities overall satisfaction was at a high level ($\bar{X}=4.43$, $SD=0.56$). Analysis results sorted by every item from highest to lowest as follows: Students like learning activities can increase teacher-student interaction ($\bar{X}=4.60$, $SD=0.56$). Students who like learning activities could improve their grades in career guidance courses ($\bar{X}=4.50$, $SD=0.51$). And students like learning activities that improve their understanding of career guidance courses ($\bar{X}=4.47$, $SD=0.63$).

Conclusion

The study yields three principal findings:

1. The findings suggest that context-based instructional activities are highly effective tools for improving learning quality. The three findings, taken together systematically, demonstrate that the tools are not only appropriately designed from an expert perspective but can also produce tangible results in terms of student achievement and acceptance.

2. The statistical analysis results showed that the learning achievement after the experiment was significantly higher, indicating that this method is effective in linking theoretical knowledge with application in various contexts. The fact that learners can demonstrate understanding through higher scores indicates that the learning process is deeper than just memorization, creating understanding that can be applied in real life.

3. Positive feedback from students indicated that the activity created a learning environment that promoted engagement and motivation, particularly in that students valued the interaction with instructors and the connection of content to academic and career goals, factors that contributed to the sustainable effectiveness of learning.

Discussion

1. The development of Context-based learning activities to enhance learning achievement received an average suitability score of 4.29 from expert evaluations, reflecting a high level of suitability. This is because the researcher studied the concepts and key principles of contextualized learning to design appropriate mathematics lesson plans that can be implemented effectively and practically. These findings align with several related concepts and research, both theoretical and applied, in educational contexts. Contextualized learning promotes intrinsic motivation and fosters meaningful learning, as Gilbert (2006) and Bennett & Lubben (2006) stated. Beginning learning with authentic situations allows students to question, analyze, and construct knowledge on their own. This result is consistent with the high suitability scores from expert evaluations in this study and aligns with Jiang (2012) and Zhang (2019), who emphasize that contextualized teaching involves designing learning activities appropriate to the content and student characteristics, helping students gain a deeper understanding of the content. Creating situations and activities that connect students to real life is, therefore, an important strategy for promoting understanding and intrinsic motivation, consistent with research. In studies of higher education and vocational education by Zhu & Ma (2019) and Li & Zhang (2010), the results showed that creating learning situations that simulate real-world situations can improve logical thinking skills and the ability to apply computer knowledge. This supports the findings that contextual learning activities can promote student academic achievement. Also, in the research of Sutarto et al (2019), the results indicated that context-based learning develops mathematical problem-solving skills and mathematics self-confidence in high school students. The emphasis on authentic situations and practical activities helps students gain a deeper understanding of mathematical concepts, which aligns with your research's focus on solving mathematical problems in real-life contexts.

2. Students who learned using Context-based learning activities to enhance learning achievement had significantly higher post-test achievement than their pre-test achievement at the .01 level. This study reflects the effectiveness of context-aware learning in promoting knowledge understanding and application. This is because researchers studied the concepts and principles of context-aware teaching, its advantages, limitations, and teaching focuses from related documents and research. They applied the teaching procedures based on the ideas of Gilbert (2006), Bennett & Lubben (2006), and Yan, W. (2011) to design learning activities with 6 steps: 1) creating a situation; 2) presenting the situation; 3) asking questions; 4) organizing discussion and exchange of opinions; 5) summarizing and laying out guidelines; and 6) evaluating and providing feedback. These activities were adapted to the nature of vocational mathematics. Therefore, students practiced systematic learning with clear steps and were able to truly construct their own learning. Therefore, studying context-aware

learning in Chinese mathematics is of great importance for understanding the approaches, methods, and obstacles that arise, leading to the development of a teaching model that effectively promotes mathematics competence of learners in the 21st century. In line with the concept of Gilbert (2006) and Bennett & Lubben (2006) that contextual learning emphasizes connecting content with real-world situations to create meaningful learning and stimulate learners' interest. Therefore, contextual learning is more than just transferring knowledge, but also involves organizing activities that allow learners to explore, learn, and construct knowledge by themselves. It is also in line with the concept of Wang, Y. (2024), who stated that contextualized teaching helps bridge the gap between abstract mathematical knowledge and concrete professional applications, helping learners develop intellectual flexibility, problem-solving abilities, and intrinsic motivation, all of which are crucial for success in modern technical workplaces. In line with the research of Zeng (2015), the results of the research found that contextualized learning, which uses experiential teaching in career planning and employment guidance courses, stimulates student engagement, self-awareness, and decision-making skills, enabling students to effectively connect knowledge to real-world situations. In line with the research of Suhaebar & Isrokatun (2019), the results of the research found that contextualized teaching helps develop learning abilities. Students' self-regulated learning enhances their commitment, motivation, and independence in learning. Hu's (2024) research found that designing learning activities that reflect real-life contexts and connect with students' experiences improves critical thinking and deep learning skills. This is consistent with findings that students' academic achievement increases after completing the course.

3. Students who learned by using Context-based learning activities to enhance learning achievement had a high overall satisfaction level. It was found that students who learned by using contextual learning activities had a high overall satisfaction level ($\bar{X}$ =4.43, SD=0.56). The results of the analysis, arranged by each item from most to least, were as follows: students who liked learning activities could increase teacher-student interaction ($\bar{X}$ =4.60, SD=0.56), students who liked learning activities could improve their academic performance in the career guidance course ($\bar{X}$ =4.50, SD=0.51), and students who liked learning activities that helped develop their understanding of the career guidance course ($\bar{X}$ =4.47, SD=0.63). This was because the researcher studied the concepts and principles of context-based learning in order to design appropriate lesson plans that could be used to organize actual and effective teaching and learning activities. When students learned systematically, with clear steps, and using contexts or situations that were appropriate to the mathematics content that would be linked to real situations, students would develop their own learning more, gain more confidence, and be more motivated to learn. This is consistent with Gilbert's (2006) concept, which indicated that providing a context that helps learners connect knowledge with real

experiences promotes meaningful learning. And increase motivation and satisfaction in learning. It is also consistent with the concept of Li Jilin (2019) that the contextual teaching concept in China emphasizes the creation of simulation situations with images and contexts related to real life. To stimulate students' emotions and interest, leading to student participation and satisfaction in learning. In line with the research of Zhang Hongping (2019), the research found that designing learning activities that are consistent with the content of the subject and student characteristics, learning that is relevant and connected to real life, makes learners feel more involved and satisfied. And the research of Sutarto, Utari, Kartasmita, and Julika (2019) The research found that contextual learning helps develop mathematical problem-solving skills and self-confidence. Creating real-life models and problems helps students learn mathematical concepts in depth and can apply them. In line with the research of Zhu (2023), the research found that the application of contextual teaching in teaching English for applied students resulted in students' interest and participation in the classroom and increased learning satisfaction.

Recommendation

Teaching and Learning Recommendations

1. Expand the systematic implementation of context-based learning activities across diverse subjects and educational levels. Activities should be tailored to curriculum requirements to ensure relevance and engagement, fostering meaningful learning experiences.
2. Enhance teacher professional development to support mastery of context-based instructional design, student engagement strategies, and assessment methods aligned with experiential and situated learning principles.
3. Develop resource-rich learning environments, including advanced technological infrastructure, comprehensive teaching materials, and dedicated spaces for practice-based learning. These environments facilitate active participation, critical thinking, and knowledge transfer, which are essential for vocational skill development.

Recommendations for Future Research

1. Investigate the long-term effects of context-based learning across multiple disciplines and educational levels to assess its generalizability and sustainability.
2. Examine moderating variables such as class size, teacher expertise, and resource availability to optimize implementation frameworks.
3. Conduct in-depth studies on transferable skills, including problem-solving, collaboration, and critical thinking, to understand how context-based learning promotes holistic vocational competency development.

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