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The Impact of Blended Learning with TikTok on The Crop Production Technology Course at An Agricultural School, Hebei, China

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Abstract

Background and Aim: Integrating social media platforms like TikTok into education has dramatically improved learning experiences, as TikTok can provide engaging, small-scale teaching content for courses. This study investigates the impact of blended learning with TikTok on student performance in the crop production technology course at Tangshan Agricultural School in Hebei, China. It aims to assess differences in student performance between blended learning with TikTok and traditional teaching methods, evaluate student acceptance and satisfaction with TikTok as a learning tool, and determine TikTok's impact on learning motivation, clarity of instructional content.

Methodology: A quasi-experimental design involved 100 students divided into two groups: 50 in the blended learning with TikTok group and 50 in the traditional learning group. Pre-tests and post-tests were administered, and the resulting data were analyzed using paired t-tests and independent t-tests in Jamovi software. Additionally, a questionnaire was distributed to assess student acceptance and satisfaction.

Results: The blended learning with the TikTok group significantly outperformed the traditional learning group in theoretical knowledge, practical skills, and decision-making ability ($p < 0.001$). Additionally, students in the blended learning with TikTok group exhibited greater acceptance (mean = 4.46), satisfaction (mean = 4.44), learning motivation (mean = 4.45), and clarity of instructional content (mean = 4.50) with TikTok as a learning tool. These results confirm that blended learning with TikTok is more effective than traditional teaching methods in improving student learning outcomes, aligning with the research objectives.

Conclusion: This research demonstrates that integrating TikTok into a blended learning framework significantly enhances students' academic performance in the crop production technology course. Additionally, students expressed high satisfaction with their experience using the TikTok platform. The findings highlight the effectiveness of TikTok in agricultural education and suggest that incorporating TikTok into blended learning models can modernize agricultural education, making education more engaging and accessible.

Keywords: Blended Learning; TikTok; Agricultural Education; Crop Production Technology

Introduction

Traditional agricultural education relies significantly on face-to-face instruction and hands-on fieldwork, often constrained by geographic barriers and limited resources. TikTok's short video format enables visual demonstrations of complex agricultural techniques, helping students understand essential concepts more effectively. Research shows that video-based learning enhances information retention and skill acquisition in technical subjects (Li et al., 2023). This study evaluates the effectiveness of incorporating TikTok into blended learning to improve student performance in the Crop Production Technology course at Tangshan Agricultural School in Hebei, China.

Technology has transformed traditional education in the digital age by introducing new teaching methods that enhance student engagement and learning outcomes. One such approach is blended learning, which combines conventional face-to-face instruction with online digital content to improve flexibility and effectiveness in learning. In agricultural education, blended learning has been recognized as an effective method for bridging theoretical knowledge with practical applications. Studies have shown that integrating digital tools into agricultural education enhances students' understanding, engagement, and skill development (Deegan et al., 2015; Northey et al., 2015). Blended learning has been successfully

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implemented in agricultural education to facilitate remote learning, provide access to expert knowledge, and offer hands-on training through multimedia instructional content (Deegan et al., 2016).

Building on the success of blended learning in agricultural education, using TikTok for blended learning has emerged as a novel approach. As a social media platform, TikTok offers short-form video content that is engaging, easily accessible, and highly interactive. The rise of TikTok in education has created opportunities for integrating multimedia into technical and vocational training, particularly in agriculture. Given its interactive and visually appealing format, TikTok can serve as an innovative tool to enhance student learning experiences in crop production technology (Li et al., 2023). The platform's ability to deliver concise instructional videos enables students to visualize complex agricultural techniques, improving their comprehension and retention.

Based on these findings, the following research questions are proposed regarding blended learning with TikTok in the Crop Production Technology course:

1. How does student performance differ when using blended learning with TikTok compared to traditional teaching methods for Crop Production Technology?
2. How acceptable and satisfied are students with using TikTok as a teaching tool for the Crop Production Technology course?
3. What impact does employing TikTok as a teaching tool for the Crop Production Technology course have on students' motivation to learn, as well as the clarity and usefulness of the instruction?

Objectives

This experiment aims to understand how blended learning with TikTok affects students enrolled in crop production technology courses and how these students perceive this teaching model. To address the research question, the objectives of this study are as follows:

1. Identify differences in student performance between blended learning with TikTok and traditional teaching methods in the Crop Production Technology course.
2. Investigate student acceptance and satisfaction with TikTok as a learning tool.
3. Examine the impact of using TikTok as a teaching tool in the crop production technology course on students' motivation to learn and the clarity and usefulness of the instruction.

Literature review

Crop Production Technology Courses in Chinese Agricultural Vocational Schools

China's secondary agricultural vocational schools are vital in training future agricultural professionals. The Crop Production Technology course is a fundamental component of the curriculum, providing students with theoretical knowledge and hands-on experience in modern agricultural practices. This course covers soil management, pest control, irrigation techniques, and crop disease prevention. Practical training ensures that students acquire the necessary skills for real-world agricultural applications (Deegan et al., 2016).

The structure of the Crop Production Technology course varies among institutions but generally includes classroom instruction, fieldwork, and laboratory experiments. Blended learning models integrating digital tools with traditional instruction have been increasingly adopted to enhance teaching effectiveness. Online learning platforms, including TikTok, have gained popularity recently, offering students on-demand access to instructional videos and interactive content (Elaine et al., 2022).

Despite these advances, challenges remain in implementing blended learning in agricultural education. Limited access to digital resources in rural areas and varying levels of technological literacy among students and teachers pose barriers to widespread adoption. Research indicates effective technology integration requires comprehensive teacher training programs to ensure optimal curriculum delivery (Ye et al., 2022). Future research should explore how emerging technologies can enhance agricultural education and improve student outcomes in vocational training programs.

The Effect of Blended Learning

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Constructivist learning theory posits that learners actively construct and internalize knowledge through interaction, collaboration, and reflection rather than passively receiving information. This theory provides critical theoretical support for blended learning models. According to Al-Huneidi and Schreurs (2011), applying constructivist-based blended learning models in higher education allows for flexible time and space arrangements, enhancing learners' autonomy and knowledge construction. Students can engage in interactive and cooperative activities during class and utilize online learning platforms to reflect and consolidate knowledge after class.

Blended learning combines traditional in-person instruction with digital learning methods. Research indicates that this approach enhances flexibility, engagement, and academic performance. According to Graham (2006), blended learning effectively combines face-to-face instruction with online resources, providing students with personalized learning experiences. This model has been widely adopted across various educational fields, improving student comprehension, participation, and motivation. In agricultural education, blended learning supports a more flexible curriculum, allowing students to gain theoretical knowledge and practical experience (Northey et al., 2015). However, some studies stress the need for technological infrastructure and teacher training to maximize effectiveness (Al-Ayed et al., 2021).

Blended learning fosters student-centered education by incorporating multimedia tools that cater to diverse learning styles. This approach has proven especially effective in vocational and technical education, where hands-on training is vital (Panyakom et al., 2020). Research shows that interactive e-learning tools and traditional methods enhance student retention and skill acquisition (Bernard et al., 2014). Blended learning has been shown to improve both theoretical and practical knowledge in agricultural education. Studies indicate that students in blended learning environments demonstrate better retention and understanding of subject matter (Deegan et al., 2016). Moreover, integrating digital learning tools boosts students' technical skills, making them more proficient in practical agricultural practices (Shamraliuk et al., 2022).

The Role of TikTok in Education.

TikTok is a creative social media platform for short videos developed by ByteDance. It serves as a means of disseminating internet content, typically featuring videos that are under five minutes long. A straightforward production process, low production barriers, strong user participation, and rapid dissemination speed characterize TikTok. This study utilized the TikTok account from the Yutian Campus of Tangshan Agricultural School, which produced and uploaded a systematic short video covering content from a crop production course. TikTok has gained popularity as an educational tool due to its short video format, which enhances student engagement and knowledge retention. Research indicates that TikTok can promote active learning by allowing students to consume and create content that simplifies complex concepts (Salasac & Lobo, 2022). However, concerns about content credibility and oversimplification present significant challenges (ZULKIFLI et al., 2022).

TikTok in Blended Learning

Social media platforms like TikTok, YouTube, and Facebook have transformed agricultural education by fostering engagement and facilitating real-time knowledge transfer. Studies show that social media in educational settings enhances student interaction and improves academic performance (Northey et al., 2015). Educators can also share step-by-step guides on crop cultivation and pest management (Lottering, 2020).

The potential of TikTok as a tool in blended learning is becoming increasingly recognized. Research indicates that TikTok can enhance traditional learning methods by delivering micro-learning content that helps students understand complex topics better (Wang et al., 2024). In programming education, for instance, TikTok has proven effective in engaging students and simplifying coding concepts (Garcia et al., 2022). Similarly, museums have used TikTok in cultural education to enhance public engagement with art and history (Huebner, 2022). These findings highlight TikTok's versatility across various educational domains.

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Theoretical Knowledge, Practical Skills, and Decision-Making Ability in Blended Learning

Blended learning is widely recognized for enhancing theoretical knowledge, practical skills, and educational decision-making abilities. Research shows that students who engage in blended learning environments significantly improve their theoretical comprehension due to the integration of multimedia resources and interactive content. In agricultural education, blended learning enables students to apply theoretical concepts through hands-on activities, promoting a deeper understanding and retention (Northey et al., 2015). Theoretical knowledge in agricultural education encompasses students' grasp of crop production and management concepts. Mishra et al. (2016) emphasized the role of machine learning in improving the accuracy and objectivity of theoretical knowledge assessments. As Isaac et al. (2009) studied, cognitive mapping techniques have also been used to analyze how students apply theoretical concepts in agricultural decision-making. Assessing theoretical knowledge should extend beyond traditional exams to include practical applications, allowing educators to evaluate students' ability to integrate theory with real-world agricultural scenarios. Practical skills in agriculture involve applying theoretical knowledge to real farming situations. Research indicates that hands-on training is essential for skill development; however, it often encounters challenges such as limited resources and inadequate scheduling (Oyesola, 2007). Blended learning has proven effective in skills training, with Deegan et al. (2016) reporting that online and offline learning boost student motivation and practical abilities. Evaluating practical skills necessitates performance-based assessments, such as those described by Septiani and Rustaman (2017), which involve observing students' technical proficiency in agricultural tasks. A thorough assessment should combine practical fieldwork with theoretical learning to ensure that students gain essential hands-on experience. Decision-making ability is vital in agricultural education, enabling students to analyze complex farming situations and make informed choices. Studies have identified key factors influencing agricultural decision-making, including cognitive abilities and external constraints (Willock et al., 1999). Evaluating decision-making skills involves scenario-based simulations where students navigate real-world agricultural challenges, focusing assessments on risk assessment, sustainability, and economic feasibility (Nagy, 2009).

Conceptual Framework

This study examined students' academic performance after implementing blended learning with TikTok and their perceptions of the teaching model. The participating students were divided into an experimental group and a control group. The experimental group utilized blended learning with TikTok, while the control group relied on conventional classroom teaching methods. The experiment lasted for eight weeks, during which both groups studied the content of the crop production technology course. Throughout this period, the students in the experimental group engaged in blended learning with TikTok by watching short videos, practicing skills, and participating in interactive activities. The control group followed traditional classroom teaching methods.

The variables included in this study are theoretical knowledge, practical skills, decision-making ability, acceptance, learning motivation, clarity and usefulness of instructional content, and teaching satisfaction. To measure the first three variables, a pre-test and post-test of course content were conducted for each student group through exams, and data analysis assessed the impact of blended learning with TikTok on academic performance. After the experiment, the last four variables were measured by administering a questionnaire to the experimental group and analyzing the data to understand students' perspectives on the teaching model. The conceptual framework is as follows:

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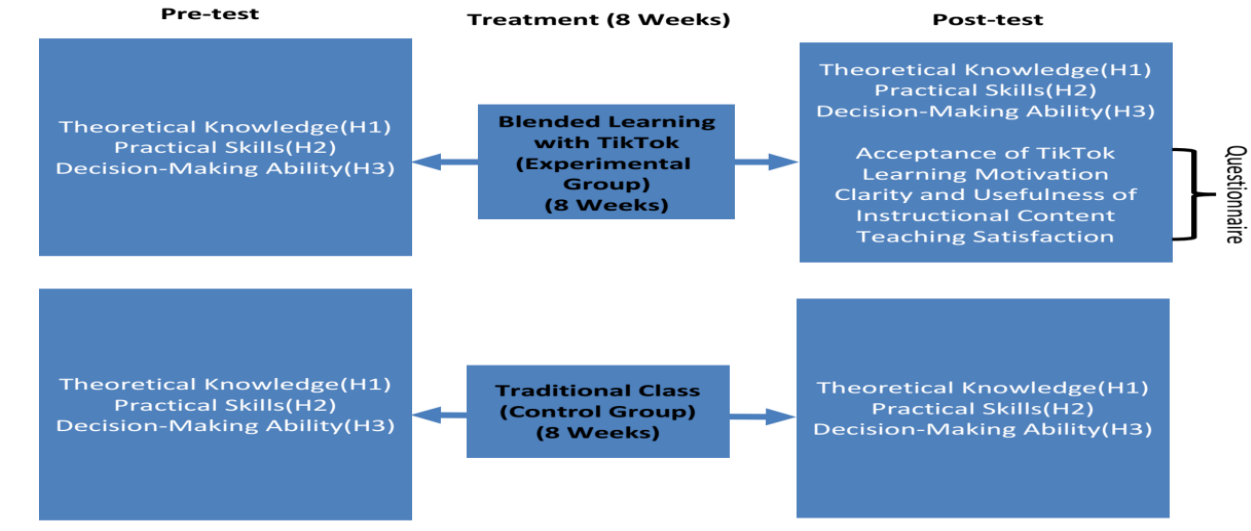

Figure 1 Conceptual

According to the conceptual framework, the hypotheses are as follows:

H01: There is no difference in the theoretical knowledge of the crop production technology course between the experimental and control groups.

H02: The experimental and control groups have no difference in practical skills.

H03: There is no difference in decision-making abilities in the crop production technology course between the experimental and control groups.

Methodology

This study utilized a mixed-methods research approach. A quasi-experiment was carried out to assess the effectiveness of incorporating TikTok into the crop production technology course. At the same time, a survey questionnaire was employed to examine students' perceptions of blended learning with TikTok.

Population

This study's target population consists of new students enrolled in the Crop Production Technology course at Tangshan Agricultural School, which has 220 new students divided into four classes.

Sample

The sample for this study was randomly chosen from two of the four first-year classes at Tangshan Agricultural School. There are 50 students in each selected class, leading to a total sample size of 100. One class was designated as the experimental group (N = 50), which utilized blended learning with TikTok, while the other served as the control group (N = 50), which adhered to traditional teaching methods.

Research Instruments and Tools

Performance tests and questionnaires serve as the research tools used in this study. These tools were developed to collect data on the impact of blended learning with TikTok on the crop production technology course from various perspectives.

Performance testing emphasizes the following key learning outcome variables: the evaluation criteria adhere to the established methods for assessing the crop production technology course results at Tangshan Agricultural Broadcasting and Television School.

1. Students' theoretical knowledge of crop production technology: This component includes students' mastery of core theories in planting, management, and disease control. Students'

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understanding and retention of relevant theoretical concepts were evaluated using multiple-choice questions.

2. Students' practical operation skills: Questions regarding practical operations aim to assess students' ability to apply theoretical knowledge to real-world agricultural tasks, such as implementing planting techniques and ensuring the accuracy and efficiency of crop maintenance and pest management operations.

3. Students' decision-making ability: The short-answer section examines how students utilize their knowledge to perform effective problem analyses and make sound decisions when facing practical challenges in agricultural production. This area tests students' critical thinking, innovation, and coping strategies in complex situations.

The questionnaire was designed to gather students' perceptions and satisfaction regarding TikTok as a learning tool. This survey combines quantitative and qualitative questions to comprehensively evaluate student engagement, motivation for learning, and overall satisfaction with teaching methods. All items were constructed based on the theoretical framework of educational psychology and tailored to specific research objectives to ensure the questionnaire's scientific and practical integrity.

The questionnaires used in this study were originally in English and required translation into Chinese to accommodate the students at Tangshan Agricultural School. Professional translators with the necessary academic background and language certification conducted the translations.

To ensure the validity of the questionnaire, three experts will be invited to review the survey to confirm its clarity of purpose and address any concerns. (IOC >0.67)

Table 1 Results of the Index of Item-Objective Congruence (IOC) Rating

Construct No	Item No	Rating from experts			$\sum R$	$IOC=\frac{\sum R}{N}$	Result
		1st Expert	2nd Expert	3rd Expert			
I	1	0	1	1	2	0.67	Pass
	2	1	1	1	3	1	Pass
	3	1	1	1	3	1	Pass
	4	1	0	1	2	0.67	Pass
	5	1	1	1	3	1	Pass
II	6	1	1	1	3	1	Pass
	7	1	1	1	3	1	Pass
	8	1	1	1	3	1	Pass
	9	1	1	1	3	1	Pass
	10	1	1	0	2	0.67	Pass
III	11	1	0	1	2	0.67	Pass
	12	1	1	1	3	1	Pass
	13	1	1	1	3	1	Pass
	14	1	0	1	2	0.67	Pass
	15	1	1	1	3	1	Pass
IV	16	1	1	1	3	1	Pass
	17	1	1	1	3	1	Pass
	18	1	1	1	3	1	Pass
	19	1	1	1	3	1	Pass

According to the table data, IOC >0.67. The questionnaire is valid.

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A pilot test will be conducted to ensure the reliability of the questionnaire, with a Cronbach's alpha coefficient greater than 0.7. The data analysis tool used is Jamovi (Hair et al., 2010).

Table 2 Results of Cronbach's Alpha of the research instruments

Variable	Number of Items	Cronbach's Alpha	Interpretation
Acceptance	5	0.919	Excellence
Learning Motivation	5	0.946	Excellence
Clarity and Usefulness of Instructional Content	5	0.855	Very Good
Teaching Satisfaction	4	0.932	Excellence

According to the table data, Cronbach's Alpha >0.7. The questionnaire is reliable.

Results

Data Collection and Analysis

Gather information on course content. Collect qualitative data using a survey questionnaire to explore students' perspectives on this teaching model. The data analysis methods used in this study include t-tests and descriptive statistics. Hypothesis testing employs a t-test, while descriptive statistical analysis is applied to the questionnaire data. Additionally, quantitative data from pre-test and post-test exam scores will be used to analyze students' performance. The data analysis tool utilized is Jamovi.

Hypothesis Testing

To test the study's hypotheses, paired-sample t-tests were conducted to compare each group's pre-test and post-test scores. In contrast, independent-sample t-tests were used to evaluate performance differences between the experimental and control groups.

H01: There is no difference in the theoretical knowledge of the crop production technology course between the experimental and control groups.

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Table 3 Paired Samples T-test Results for Theoretical Knowledge

Group	Mean (Pre-test)	Mean (Post-test)	Mean Difference	t	p
Experimental	65.2	82.5	+17.3	6.89	<0.001**
Control	64.8	70.3	+5.5	2.45	0.019*

The experimental group significantly improved theoretical knowledge ($p < 0.001$). The control group also improved ($p = 0.019$*), though the effect size was considerably smaller. This suggests that TikTok-based learning led to better knowledge retention than traditional methods.

Table 4 Independent Samples T-test Results for Theoretical Knowledge

Group	Mean (Post-test)	Standard Deviation	t-value	p-value
Experimental	82.5	5.8	6.89	<0.001**
Control	70.3	6.3		

Since $p < 0.001$, we reject the null hypothesis (H_01), indicating a difference in theoretical knowledge of the crop production technology course between the experimental and control groups. The blended learning approach using the TikTok model significantly improved students' theoretical knowledge compared to traditional teaching methods.

H_02: There is no difference in practical skills between the experimental and control groups in the crop production technology course.

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Table 5 Paired Samples T-test Results for Practical Skills

Group	Mean (Pre-test)	Mean (Post-test)	Mean Difference	t	p
Experimental	60.4	80.2	+19.8	7.45	<0.001**
Control	61.1	68.5	+7.4	2.89	0.015*

The experimental group significantly increased practical skills ($p < 0.001$). The control group also exhibited improvement ($p = 0.015$*), but the effect size was considerably smaller.

Table 6 Independent Samples t-test Results for Practical Skills

Group	Mean (Post-test)	Standard Deviation	t-value	p-value
Experimental	82.5	5.5	7.12	<0.001**
Control	68.5	6.1		

Since $p < 0.001$, the null hypothesis (H02) is rejected, indicating a difference in practical skills between the experimental and control groups in the crop production technology course. Blended learning using TikTok enhances students' practical skills in crop production.

H03: There is no difference in decision-making abilities between the experimental and control groups in the crop production technology course.

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Table 7 Paired Samples T-test Results for Decision-Making Ability

Group	Mean (Pre-test)	Mean (Post-test)	Mean Difference	t	p
Experimental	58.7	77.1	+18.4	5.67	<0.001**
Control	59.2	67.5	+8.3	2.12	0.041*

The experimental group's post-test scores were significantly higher than the pre-test ($p < 0.001$). The control group also showed improvement, but the effect was less pronounced. This suggests that students in the experimental group greatly enhanced their decision-making abilities after engaging with blended learning using TikTok.

Table 8 Independent Samples T-test Results for Decision-Making Ability

Group	Mean (Post-test)	Standard Deviation	t-value	p-value
Experimental	77.1	5.9	6.02	<0.001**
Control	67.5	6.5		

Since $p < 0.001$, the null hypothesis (H03) is rejected, confirming a difference in the decision-making abilities between the experimental and control groups in the crop production technology course. Blended learning with TikTok significantly improved students' decision-making skills in agricultural education.

Table 9 Summary of Hypothesis Testing and Results

Hypotheses	Statement	Result
H_o1	There is no difference between experimental group and control group in theoretical knowledge on the crop production technology course.	Reject
H_o2	There is no difference between experimental group and control group in practical skills on the crop production technology course.	Reject
H_o3	There is no difference between experimental group and control group in decision-making abilities on the crop production technology course.	Reject

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Based on the analysis above, all null hypotheses have been rejected. The results indicate that blended learning using TikTok significantly improved students' theoretical knowledge, practical skills, and decision-making abilities compared to traditional instruction.

Arbitrary Level of Questionnaire

The 5-Level Likert Scale questionnaire (Agreement) was employed in the study to collect samples' attitudes toward each variable measured.

Table 10 Descriptive Statistics for Acceptance

Item	Mean	SD	Interpretation
I like learning through TikTok instead of traditional methods.	4.35	0.74	Agree
The TikTok platform is easy to use.	4.42	0.68	Agree
TikTok's multimedia materials are more appealing than textbooks.	4.58	0.71	Strongly Agree
I think TikTok should continue to be used in future studies.	4.50	0.65	Strongly Agree
TikTok makes course content easier to remember.	4.47	0.70	Agree
Total	**4.46**	**0.69**	**Agree**

The overall average score of 4.46 suggests that students perceive TikTok as an effective and engaging platform for learning. These results demonstrate that students regard TikTok as an appealing and visually engaging educational tool, which enhances their acceptance of this learning method.

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Table 11 Descriptive Statistics for Teaching Satisfaction

Item	Mean	SD	Interpretation
After using TikTok, my exam performance has improved.	4.39	0.76	Agree
I am satisfied with the assignments and projects submitted through TikTok.	4.32	0.71	Agree
I believe that TikTok has broad potential for application in agricultural education.	4.55	0.68	Strongly Agree
TikTok as a learning platform positively impacts my learning experience.	4.48	0.74	Strongly Agree
Total	**4.44**	**0.72**	**Agree**

The results indicate that students are generally satisfied with TikTok as a teaching tool, achieving an overall average of 4.44, categorizing it in the "Agree" range.

Table 12 Descriptive Statistics for Learning Motivation

Item	Mean	SD	Interpretation
Using TikTok as a teaching tool makes learning more enjoyable.	4.52	0.68	Strongly Agree
Using TikTok has helped me improve my self-learning ability.	4.40	0.72	Agree
TikTok enables me to arrange my study time more flexibly.	4.35	0.75	Agree
The interactive function of TikTok increases my learning participation.	4.55	0.64	Strongly Agree
Using TikTok can improve my learning efficiency.	4.48	0.66	Agree
Total	**4.45**	**0.69**	**Agree**

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The results show that TikTok significantly enhances students' learning motivation, with an overall mean score of 4.45. This indicates that students acknowledge TikTok's benefits in boosting their motivation.

Table 13 Descriptive Statistics for Clarity and Usefulness of Instructional Content

Item	Mean	SD	Interpretation
TikTok helps to improve my understanding of the course content.	4.50	0.65	Strongly Agree
I can communicate effectively with teachers and classmates through TikTok.	4.40	0.72	Agree
TikTok enhanced my practical operation ability in crop production technology.	4.45	0.70	Agree
The content on TikTok is of very high quality.	4.48	0.68	Agree
I got real-time updates directly related to the course through TikTok.	4.55	0.66	Strongly Agree
Total	**4.50**	**0.68**	**Agree**

The overall average score of 4.50 indicates that students generally believe TikTok improves the clarity and usefulness of instructional content.

Table 14 Statistics of Satisfaction in Summary

Dimensions	Mean	SD	Interpretation
Acceptance	4.46	0.69	Agree
Learning Motivation	4.45	0.69	Agree
Clarity and Usefulness of Instructional Content	4.50	0.68	Agree
Teaching Satisfaction	4.44	0.72	Agree
Total	**4.46**	**0.70**	**Agree**

The questionnaire analysis revealed that students held a positive attitude toward participation and satisfaction with blended learning via TikTok. Additionally, TikTok had a positive effect on learning motivation and instructional clarity. These findings suggest that TikTok can be an effective digital learning tool for crop production technology.

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Discussion

The findings of this study indicate that blended learning with TikTok significantly enhances student performance in the Crop Production Technology course. These results align with prior research highlighting the benefits of blended learning in agricultural education (Deegan et al., 2016). The substantial improvements in theoretical knowledge, practical skills, and decision-making abilities suggest that integrating TikTok as a supplementary learning tool effectively boosts student engagement and learning outcomes.

Student acceptance and satisfaction with TikTok as a learning tool were also notably high. The results support prior studies that found social media platforms effective in increasing student motivation and engagement (Northey et al., 2015). TikTok's ease of access, interactive features, and engaging format contributed to positive student perceptions, reinforcing the importance of modern digital tools in education.

Despite these positive findings, several challenges must be considered. As earlier research has noted, concerns about content credibility and information overload remain potential drawbacks of using social media for learning (ZULKIFLI et al., 2022). Future studies should explore strategies to ensure content accuracy and incorporate verification mechanisms for instructional materials.

Conclusion

After analyzing the performance test data and questionnaire responses, we concluded that the experimental group utilizing blended learning with TikTok exhibited significantly higher academic performance than the control group. This demonstrates that blended learning with TikTok can effectively enhance students' learning outcomes on the Crop Production Technology course. The survey results indicated a generally high level of student satisfaction with TikTok. Additionally, TikTok positively influenced learning motivation and instructional clarity, underscoring multimedia and interactive learning tools' crucial role in modern agricultural education. The findings highlight the effectiveness of TikTok in agricultural education and suggest that incorporating TikTok into blended learning models can modernize agricultural education, making education more engaging and accessible.

Recommendation

Based on the findings of this study, several recommendations are proposed to enhance the implementation of blended learning with TikTok in agricultural education:

1. Integrate TikTok into Curriculum Design: To fully utilize TikTok's potential, educational institutions should consider incorporating its unique learning resources into the formal curriculum for agricultural courses. Short instructional videos can supplement traditional lectures and hands-on training sessions, creating new avenues for learning.

2. Teacher Training and Content Curation: Recognizing educators' critical role, they should receive training in crafting and curating high-quality TikTok content. This will ensure the material's accuracy and pedagogical effectiveness, while collaborations with agricultural experts and institutions can enhance the credibility of the educational resources.

3. Encourage Active Student Participation: Students are not just passive knowledge recipients but active contributors. They should be encouraged to engage with educational TikTok content and create instructional videos. This approach fosters deeper engagement, creativity, and peer-to-peer learning, as suggested by De Souza and Costa (2021).

4. Future Research on Long-Term Impact: Further studies should explore the long-term effects of TikTok-integrated blended learning on student performance and career readiness in agricultural education. Comparative research across different disciplines can also provide insights into this approach's broader applicability.

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