



## The Effect of Blended Learning of Management Course on Art Management Students' Performance at College of Sichuan, China

Yupeng Shi<sup>1</sup> and Lu Zhu<sup>2</sup>

<sup>1</sup>Doctoral Candidate, Graduate School of Business and Advanced Technology Management, Assumption University, Thailand

<sup>2</sup>Program Director of Ph.D. Art, Music, Sports and Entertainment Management, Graduate School of Business and Advanced Technology Management, Assumption University, Thailand

E-mail: shiyupeng@vip.163.com, RCID ID: <https://orcid.org/0009-0001-2484-9899>

E-mail: zhulu@au.edu, ORCID ID: <https://orcid.org/0000-0001-6736-4309>

Received 02/08/2024

Revised 12/08/2024

Accepted 12/09/2024

### Abstract

**Background and Aim:** Blended learning, or hybrid learning, is the integration of online educational resources and opportunities for interaction with traditional face-to-face classroom approaches. This study examined the impact of blended learning on the academic performance of art management students taking management courses at Sichuan College, China, with a specific focus on the application of the Chaoxing platform. Additionally, it explored the students' viewpoints regarding the utilization of the Chaoxing platform. The research objectives had been to determine the effectiveness of blended learning methods in enhancing the performance, management skills, and problem-solving ability of art management students in their management course, and to determine the extent to which blended learning methods influenced students' attitudes towards their intention to adopt the Chaoxing platform for management learning.

**Materials and Methods:** The study employs a combination of qualitative and quantitative approaches and combines quantitative analysis of pre-test and post-test scores with qualitative insights obtained from the open-ended questionnaire. There were a total of 61 undergraduate students who were studying art management and took part in the pre-test/post-test design. Each group underwent a single modality of teaching for a duration of eight weeks. The JAMOWI software program was used to analyze the quantitative data. The NVivo program was used to analyze qualitative data to investigate the experiences, usage, and recommendations of students regarding the Chaoxing platform.

**Results:** The quantitative analysis revealed significant enhancements in performance, management skills, and problem-solving ability among students in the experimental group. Independent sample t-tests for all evaluated variables confirmed that there were statistically significant differences between the experimental and control groups. The inclusion of qualitative observations provided additional depth, highlighting the favorable impact of blended learning on experience, usage, and recommendation.

**Conclusion:** The study revealed that blended learning had a favorable impact on student learning outcomes, improving their performance, managerial skills, and problem-solving ability. The experimental group, which got blended learning using the Chaoxing platform, showed significant score changes compared to the control group, indicating the effectiveness of this platform in management education. The qualitative data indicates that the effective integration of blended learning can greatly improve the outcomes of art management education.

**Keywords:** Blended learning; Chaoxing platform; Management course; Art management

### Introduction

Art management is a dynamic field that allows professionals to combine their business skills, artistic talent, and organizational ability to create projects that have a significant influence on individuals and communities (Chong, 2009). Art management encompasses the coordination and organization of artistic and cultural activities. An arts manager is a person involved in the field of art management, who, in different roles, supports the achievement of artistic projects. Arts managers essentially act as intermediaries, connecting art with its audience. Management is a relatively new profession that can be typified by personalities such as Frederick Taylor. The management of arts and culture is a more recent development within this field. The non-profit status of many arts and cultural institutions requires a unique management approach and imposes specific professional responsibilities on both managers and board members. (Colbert, 2003).





The field of art management encompasses an interdisciplinary program intended to provide students with the necessary knowledge, skills, practical experience, and confidence to emerge as leaders in areas like arts, entertainment management, and various cultural industries. Within this major, students will delve into the challenges influencing modern arts and cultural sectors, cultivate business acumen and managerial expertise for effective professional choices, and engage in exercises that foster both creative and analytical thinking.

The Art Management major is specifically tailored to meet the varied needs and interests of students who have a strong enthusiasm for the arts and possess sharp commercial acumen. The curriculum provides a thorough education that covers a wide range of subjects, such as management, arts administration, marketing, finance, entrepreneurship, and organizational management. Through the integration of theoretical knowledge and practical experiences, students acquire a comprehensive awareness of the intricate and diverse realm of art and its management.

Currently, the arts and culture sector in China has seen significant expansion and progress, resulting in the establishment of a thriving artistic community and a dynamic creative industry. In response to the increasing cultural growth, schools and institutions have established art management majors to cater to the growing need for proficient people who can effectively oversee and promote artistic endeavors and cultural enterprises. Currently, 31 colleges are offering undergraduate programs in art management, with 3 of them located in Sichuan province. The three institutes mentioned are the Sichuan Conservatory of Music (SCCM), the Sichuan University of Media and Communications (SCMC), and the Sichuan Film and Television University (SCFTVC) (E. E. I. P. (n.d.), 2023).

The art management major is based on current management principles and theories, specifically designed to fulfill the needs of the cultural and artistic business. Consequently, the management course has become a crucial element of the curriculum for students who are studying art management. The management course is often provided during either the first or second semester of the first grade. It includes a variety of highly specialized topics such as leadership, customer service, team building, negotiating skills, financial management, overall quality management, and performance evaluation, among others (Costin, 1996).

In recent times, rapid technological progress has completely transformed the lives of many pupils. It had become common to observe pupils carrying fewer textbooks, instead using smartphones, tablets, or laptops. The accessibility of the internet, with its plethora of educational resources, university portals, and various apps, has become a simple matter. Students could easily and conveniently access their course-related websites from any location (Weil et al., 2014). These technological advancements have opened limitless educational opportunities for pupils, with blended learning being a notable method.

Blended learning (BL) is an educational approach that mixes face-to-face learning with online learning, offering students a more adaptable and varied learning experience. Blended learning enables students to utilize Internet platforms to access a wide range of educational resources, such as online courses, virtual discussions, case studies, and multimedia materials. The face-to-face aspect of blended learning enables a direct connection between teachers and students, as well as the opportunity for practical exercises and collaborative teamwork. This helps to enhance students' motivation and involvement in the learning process.

Teachers typically use traditional face-to-face learning (TDL) methods to impart knowledge and skills and foster problem-solving ability in the classroom. However, TDL often involves passive lectures where students merely receive information, leading to reduced retention and comprehension (Prince, 2004). This passive nature can result in low student engagement and attendance rates, hindering effective learning outcomes. Another limitation of TDL is its difficulty in accommodating diverse learning styles and paces due to time constraints and a one-size-fits-all approach (Hilton & Honey (2011). This can leave some students feeling either left behind or unchallenged, impacting their motivation and performance. As a result, their test scores and assessments may be unsatisfactory, and their grasp of management skills and problem-solving abilities may remain insufficient.



Although blended learning has been extensively researched and validated in several sectors, there is a lack of studies explicitly investigating its usefulness for art management students. Hence, the main aim of this study is to examine the impact of BL on the academic achievement of art management students at colleges around Sichuan, China. This study is to investigate the effects of including the Chaoxing platform in the management course for art management students at Sichuan institutions. By conducting a comprehensive analysis, the study aims to evaluate the influence of this integration on the performance of these students.

## Objectives

Management is a fundamental course that examines the basic ideas and methods of management activities. It is usually taken in the first year of professional study. This course enhances students' managerial skills and attributes by addressing subjects such as decision-making, organizational structure, leadership, control mechanisms, and innovation. Students acquire a thorough comprehension of management principles, indispensable skills, and problem-solving ability. A management course provides not just theoretical information but also facilitates personal and professional development in areas such as self-awareness, teamwork, problem-solving, active listening, self-reflection, communication, and collaboration. According to Margerison (1972), individual learning is dependent on three important factors: knowledge, skill, and attitude. Problem-solving abilities, which encompass creativity, are crucial in higher education (Puccio et al., 2021; Finch et al., 2013).

Blended learning integrates TDL with online components to tackle these difficulties. BL promotes active participation and customized learning by incorporating digital resources and interactive platforms (Graham, n.d., 2013). Students could conveniently access information, actively participate in conversations, cooperate on projects, and interact with simulations, thus improving their comprehension and recall of management ideas. Hence, the objective of this study is to implement BL techniques in the art management course at Sichuan College, utilizing Chaoxing technology, to enhance the performance of the students.

Therefore, the following research objectives were proposed:

1. To determine the effectiveness of blended learning methods in enhancing the performance of art management students in their management courses.
2. To identify the benefits of using blended learning methods in terms of mastering effective management skills.
3. To identify the benefits of using blended learning methods in terms of enhancing problem-solving ability.
4. To determine the extent to which blended learning methods students' attitudes towards their intention to adopt the Chaoxing platform for management learning.

## Literature review

### *Management Education*

Management is a fusion of science and art, combining knowledge acquisition with practical application. The artistic practice of management presents significant challenges, making it a key focus for educational institutions specializing in management (Sridevi, 2020). Effective management education relies on fostering interaction between students and educators in the classroom, facilitating the transfer of essential knowledge, skills, and abilities (Rao, 2016). Management education transfers knowledge from academics to students, facilitating the acquisition and refinement of skills needed for managerial roles (Elmuti, 2004). It involves both education and training, focusing on developing specific proficiencies. "Development" prepares individuals for roles across different levels or sectors within management, encompassing both training and education.

Management in education combines social and economic sciences, overseeing information resources, and navigating problem-solving and decision-making (Lewis et al., 1995). Management education aims to enhance managers' performance in any environment. Decision-making and problem-solving are central



tasks for managers, and curricula should prepare students for these roles (Carneiro, 2004). Educators have the flexibility to devise individualized classroom management strategies rooted in their holistic vision of an optimal classroom environment (Baloche, 1998). The absence of an effectively managed classroom, strategies for instigating student motivation, and inventive methodologies can undermine the attainment of learning goals.

A standardized structure is essential for the curriculum of management education to foster the development of students' knowledge and abilities. The curriculum strongly emphasizes developing students' thorough comprehension and foundational knowledge of business and commerce, effectively addressing both theoretical and practical components. Its purpose is to cultivate pupils' aptitude in problem-solving and analytical reasoning.

### ***Traditional face-to-face learning***

The traditional approach of TDL, one of the earliest instructional methods (Salcedo, 2010), is a valuable and cost-effective way to deliver crucial information and fundamental concepts to large audiences. It involves a teacher delivering lectures to groups ranging from 20 to 1000 students, focusing on a specific topic. This lecture style, used across various educational institutions, positions the teacher as the primary source of information and is also known as the conventional lecture method (Hafeez & Akhter, 2021).

Despite the numerous benefits associated with the traditional learning strategy, empirical findings from diverse prior research studies have indicated its limited effectiveness in fostering the essential teaching-learning skills and critical thinking abilities demanded in higher education, especially within fields related to medicine. This underscores the characterization of traditional learning as a teacher-centered approach, wherein the instructor imparts information that is passively absorbed by the learners (Samuelson et al., 2017). Conventional teaching settings have faced criticism due to their promotion of passive learning, neglect of individual variations and learner requirements, and limited emphasis on activities like problem-solving and critical thinking, which encompass higher-order cognitive skills (Reigeluth & Garfinkle, 1994; Sweeney et al., 2004).

### ***Blended learning***

In recent years, there has been extensive discourse surrounding the term "blended learning," and the prevailing consensus is that blended learning involves integrating face-to-face learning experiences, such as on-campus classroom contact, with online learning experiences (Ayala, 2009). It is characterized by a combination of delivery methods that complement each other and support student learning. BL's strategy embodies a flexible pedagogical approach that seamlessly intertwines face-to-face instruction with online learning, harnessing technology to enrich the learning journey (Makhdoom et al., 2013). This strategy amalgamates traditional in-person teaching with technologically-driven education to enhance the learning proficiency of both students and teachers.

Blended learning might encompass virtual classes as part of its methodology. It is an educational framework that harmonizes components of physical classroom instruction with online resources, fostering a cohesive learning experience (Eryilmaz, 2015). In this context, Albiladi and Alshareef (2019) underscore that blended learning encompasses a pedagogical synergy between conventional face-to-face teaching and digital learning, optimizing instructional hours within the classroom environment. Blended learning (BL) combines traditional face-to-face instruction with online or digital activities (Singh et al., 2021). It integrates the benefits of in-person and online interactions to provide a flexible, personalized learning environment (Arnesen, 2019). BL involves a mix of in-classroom instruction, virtual lectures, online discussions, multimedia resources, and interactive platforms (Muradkhanli, 2011). By merging conventional and virtual education methods, BL supports both individualized and collaborative learning (Jamieson et al., 2000; Gillett-Swan, 2017). The integration level between traditional and online methods depends on practical factors like economic and logistical considerations, as well as the effectiveness of different modalities in enhancing learning (Laumakis et al., 2019).

It is an effective strategy for engaging large student cohorts and enhancing learning beyond traditional methods. It is endorsed by many institutions for its positive impact on academic achievements





and overall scholarly motivation. Research shows that BL improves student learning outcomes, engagement, and satisfaction. A meta-analysis by Means et al. (2013) found that students in BL environments outperformed those in traditional classrooms. Similarly, Bernard et al. (2014) noted that BL in higher education leads to better performance, higher retention rates, and greater satisfaction, emphasizing the need for effective course design and technology integration.

### ***Performance***

Performance, some studies also refer to academic performance, is a critical aspect of education that reflects students' abilities to comprehend, apply, and synthesize knowledge and skills acquired throughout their learning journey. It serves as a key indicator of students' success in meeting academic standards and achieving learning objectives (Day et al., 2016). The concept of performance is multifaceted, encompassing both cognitive and non-cognitive dimensions, and it is influenced by various internal and external factors. Students' academic performance is a complex interplay of their cognitive abilities, motivation, learning styles, prior knowledge, and the learning environment (Shi & Qu, 2021).

Measuring performance encompasses a range of assessment methods that capture students' cognitive and non-cognitive abilities. Traditional assessments such as exams, quizzes, and assignments remain vital for evaluating students' understanding and knowledge retention (Suskie, 2018). Standardized tests offer a standardized benchmark to assess students' proficiency in specific subjects, enabling comparisons across diverse student populations (Sackett et al., 2017). Formative assessments, such as ongoing feedback and in-class assessments, provide valuable insights into students' learning progress and allow for timely adjustments to instructional strategies (Black & Wiliam, 2012).

Performance plays a pivotal role in education, reflecting students' progress, achievement, and proficiency in their academic endeavors. Extensive research on this topic has shed light on the various factors that influence academic performance, including student motivation, socio-economic background, teacher quality, and technology-enhanced learning (Sun & Metros, 2011). By employing a diverse range of assessment methods, educators and researchers can gain a holistic understanding of student's academic performance, enabling them to tailor instructional approaches and support systems to optimize student learning outcomes and foster academic success.

### ***Management skills***

Management is a whole body of knowledge, which emphasizes practice. Hence, practical application underscores the significance of management skills. Management skills encompass a diverse range of competencies that are fundamental to effective leadership and successful organizational outcomes. Skills development is becoming the most significant learning need because of the increasing demand of the ever-changing global economy (Nakata et al., 2019). In the realm of management research, Katz (2009) was among the first to focus on the important problem of attempting to identify the skills that a person requires to be an effective and successful manager. Katz's seminal work on managerial skills laid the foundation for understanding the multifaceted nature of these skills. Katz proposed three primary management skills: technical skills, which involve specialized knowledge and expertise in a particular domain; human skills, which encompass the ability to work collaboratively and empathetically with others; and conceptual skills, which revolve around the capacity to analyze complex situations and make strategic decisions. These skills are interrelated and complementary, shaping managers into effective leaders capable of tackling diverse challenges. Katz's model has been widely accepted in the management literature, particularly in textbooks.

Mintzberg's (1980) research advanced the understanding of managerial roles by identifying ten distinct roles, such as figurehead, liaison, and negotiator. His work highlighted the dynamic nature of management, showing that managers switch between roles based on the situation. For example, a manager might act as a spokesperson in a team meeting (interpersonal role) and then analyze financial data for a strategic decision (informational role). Management skills are crucial for effective leadership and organizational success. Building on Katz and Mintzberg's foundational research, contemporary studies emphasize the role of emotional intelligence in managerial effectiveness. Accurate measurement of management skills involves self-assessment, multi-source feedback, and behavioral observations.

Organizations that invest in developing these skills are likely to see improved team performance, higher employee satisfaction, and a competitive edge.

### ***Problem-solving ability***

Solving problems is a complex cognitive skill and one of the most intelligent human activities (Chi & Glaser, 1985). A problem arises when someone needs to achieve a specific goal and must find a method to do so. Problems vary in difficulty and complexity but share common characteristics, including an initial state and a defined goal. Solving a problem involves taking action on the initial state to reach the desired outcome, often within certain constraints or regulations.

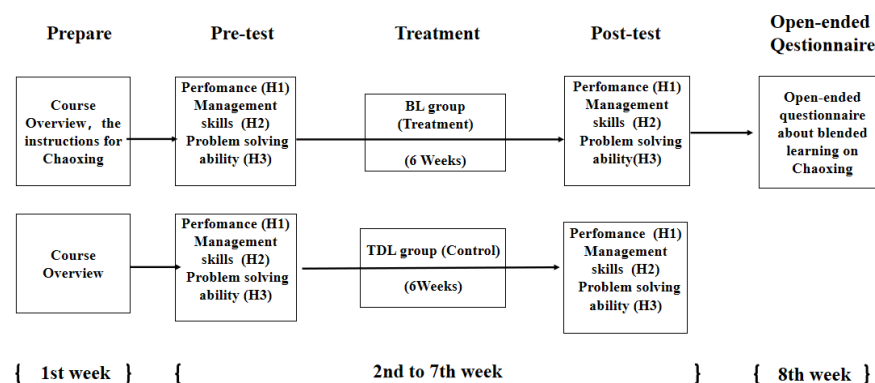
Problem-solving constitutes the aptitude that orchestrates the interplay of cognitive, metacognitive, and behavioral mechanisms when individuals confront a novel or challenging circumstance (Karyotaki & Drigas, 2016). In an educational context, problem-solving is what a student does when he or she is given a task and not told how to approach it. Problem-solving plays a pivotal role in the process of project execution. To accomplish a project, students must surmount various challenges, leading to the gradual improvement and meaningful enhancement of their problem-solving ability. Nurturing students' proficiency in problem-solving stands as a significant objective within the realm of management education (Chiang & Lee, 2016).

The significance of problem-solving ability has grown as a crucial indicator of academic accomplishment within the education sector. Students are required to possess the capability to navigate complex problem scenarios, effectively manage and synthesize diverse information, and ultimately arrive at precise solutions (Bicer et al., 2013). The attributes inherent to problem-solving encompass the necessity for cognitive engagement, thereby presenting students with a stimulating avenue for formulating predictions procuring pertinent solutions, and substantiating evidence (Ahdhianto et al., 2020). Enhancing problem-solving ability can be achieved through organized training, and the elucidation of problem-solving procedures serves as a potent pedagogical framework, enabling educators to gain a comprehensive grasp of both the process and the rationale behind instructional advancements (Van Meter & Sperling, 2005).

### **Conceptual Framework**

The conceptual framework for this research had been designed to systematically explore the multifaceted impact of blended learning on the academic performance and skills development of art management students. It integrated both quantitative and qualitative methodologies to provide a comprehensive understanding of how the Chaoxing learning platform influenced students' learning experiences. The framework had been built around key constructs, including performance, management skills, and problem-solving ability.

The conceptual framework for this research is as follows:



**Figure 1** Conceptual framework

## Hypotheses

Based on the literature review, and the conceptual framework, the hypotheses have been developed as follows.

H<sub>a1</sub>: There are differences in the performance between the treatment group and the control group.

H<sub>a2</sub>: There are differences in the management skills between the treatment group and the control group.

H<sub>a3</sub>: There are differences in the problem-solving ability between the treatment group and the control group.

## Methodology

This study utilized a quasi-experimental design as part of a mixed research methodology. Quantitative data were collected through performance tests and an open-ended questionnaire to provide a thorough and profound understanding. The data-gathering method began with a pre-test that assessed students' proficiency in performance, management skills, and problem-solving ability. Subsequently, lessons devised by BL were carried out in the treatment group, while the control group had been administered TDL. After the experiment ended, post-tests were administered to assess the student's performance, managerial skills, and problem-solving ability, and to collect data. An open-ended questionnaire was utilized to investigate the treatment groups' predisposition towards blended learning, classroom involvement, and general learning contentment. The research had been conducted in the following manner.

### Population and sample:

The target population consisted of students enrolled in art management programs at three universities in Sichuan Province, China: SCCM, SCMC, and SCFTVC. These students were currently taking management courses. This research selected a sample of 61 students from these two classes at SCMC. This sample was deemed representative and suitable for the research's objectives and analysis.

### Research instruments:

The research instruments utilized in this study consisted of a performance test and an open-ended questionnaire. The selection of these tools was strategic to evaluate several aspects of students' performance, management skills, problem-solving ability, and perspectives on the blended learning strategy. The performance test assessed students' comprehension of management ideas, and mastery of management skills, and evaluated their problem-solving ability. The open-ended questions elicited qualitative information about students' experiences, utilization, and suggestions regarding blended learning and the Chaoxing platform.

### Data Collection:

The data gathering had taken place in two distinct phases. The initial stage of the study employed a quasi-experimental design, which involved 31 students in the control group and 30 students in the experimental group. The selection of participants had been done using purposive sampling, as outlined by Saunders et al. (2015) and Patton (2002). During the second phase, an open-ended questionnaire was used to investigate students' learning experiences and supplement the qualitative data. The questions had been evaluated on the treatment group exposed to the Chaoxing platform, with modifications made to enhance clarity.

### Data analysis:

Scores from pre-tests and post-tests in both the experimental and control groups were collected and analyzed using JAMOVI. The qualitative data was collected and analyzed using NVivo.

## Results

This section offered an in-depth analysis of the study's outcomes. The process commenced with the analysis of demographic data, which was then followed by a thorough examination of inferential statistics

and hypothesis testing. The primary concern had been whether blended learning methods when compared to traditional learning methods, had a discernible effect on student achievement.

Detailed demographics of the treatment group and control group elucidated the gender distribution and corresponding percentages. Of the 61 participants, 16 boys accounted for 26.3%, and 45 girls accounted for 73.7%. There were 31 people aged 18 years old, accounting for 50.8%, 26 people aged 19 years old, accounting for 42.6%, and 4 people aged 20 years old, accounting for 6.5%.

1. Results of data analysis from the variable of performance between pre-test and post-test.

**Table 1** Descriptives of Performance

		N	Mean	SD
Experimental group	Pre-test	30	39.6	8.30
	Post-test	30	49.6	6.55
Control group	Pre-test	31	43.4	7.15
	Post-test	31	48.3	7.14

From Table 1, the results showed that the experimental group had a mean score of 39.6 before the experiment and 49.6 after the experiment. The control group also showed an improvement from a mean score of 43.4 before the experiment and 48.3 after the experiment. The mean values range from 43.4 to 49.6, with the highest mean at 49.6 and the lowest at 43.4. The standard deviation values range from 6.55 to 8.3, with the highest standard deviation at 8.3 and the lowest at 6.55.

Table 2 shows the independent sample t-test that was conducted to compare the performance between the treatment group and the control group. The results of the analysis revealed a statistically significant difference in performance between the two groups ( $t(59) = 4.11, p < 0.001$ ). The calculated t-value of 4.11, with 59 degrees of freedom, indicated that the mean performance scores for the treatment group and the control group were significantly different. The p-value of less than 0.001 provided strong evidence against the null hypothesis ( $H_0: \mu(T) = \mu(C)$ ), leading to the rejection of the null hypothesis. Therefore, it can be concluded that there was a statistically significant difference in performance scores between the treatment and control groups.

The mean difference in performance (5.13) represented the average change in scores between the treatment and control groups. Specifically, the treatment group exhibited, on average, a 5.13-point increase in performance scores compared to the control group. The standard error of the mean difference (SE difference), which was 1.25, provided an estimate of the variability of the mean difference.

**Table 2** Results of Independent Samples T-Test on Performance

		Statistic	df	p	Mean difference	SE difference
Performance	Student's t	4.11 <sup>a</sup>	59.0	< .001	5.13	1.25

Note.  $H_a: \mu T \neq \mu C$

<sup>a</sup> Levene's test is significant ( $p < .05$ ), suggesting a violation of the assumption of equal variances





2. Results of data analysis from the variable of management skills between pre-test and post-test.

**Table 3** Descriptives of Management Skills

		N	Mean	SD
Experimental group	Pre-test	30	9.53	2.15
	Post-test	30	13.07	1.34
Control group	Pre-test	31	10.2	2.07
	Post-test	31	12.5	1.88

According to the data in Table 3, the experimental group's average score for management skills was 9.53 before the experiment and 13.07 after the exercise. The control group likewise exhibited enhancement, with an average score of 10.2 before the trial, which increased to 12.5 after the session. The greatest mean value is 13.07, while the lowest mean value is 9.53. The standard deviation values range from a maximum of 2.15 to a minimum of 1.34.

Table 4 presents the results of an independent sample t-test that was performed to compare the management skills of the treatment group and the control group. The study showed a significant difference in managerial skills between the two groups ( $t(59) = 3.11, p = 0.003$ ). The t-value of 3.11, with 59 degrees of freedom, suggests a significant difference between the mean management skills ratings of the treatment group and the control group. The p-value of 0.003 is below the standard significance level of 0.05, which means that we can reject the null hypothesis ( $H_0: \mu(T) = \mu(C)$ ). Thus, it may be inferred that there exists a substantial disparity in management aptitude between the treatment and control groups.

The mean difference in management skills (1.21) represents the average change in scores between the treatment and control groups. Specifically, the treatment group exhibited, on average, a 1.21-point increase in management skills scores compared to the control group. The standard error of the mean difference (SE difference), which is 0.389, provides an estimate of the variability of the mean difference.

**Table 4** Results of Independent Samples T-Test on Management Skills

		Statistic	df	p	Mean difference	SE difference
Management skills	Student's t	3.11 <sup>a</sup>	59.0	0.003	1.21	0.389

Note.  $H_a \mu T \neq \mu C$

<sup>a</sup> Levene's test is significant ( $p < .05$ ), suggesting a violation of the assumption of equal variances

3. Results of data analysis from the variable of creative ability between pre-test and post-test.



**Table 5** Descriptives of Problem-solving Ability

		N	Mean	SD
Experimental group	Pre-test	30	14.5	2.99
	Post-test	30	20.6	2.14
Control group	Pre-test	31	15.5	2.95
	Post-test	31	19.2	2.34

According to the data in Table 5, the experimental group had an initial mean score of 14.5 before the experiment, which increased to a mean score of 20.6 after the trial. The mean value of the control group likewise exhibited improvement in the score. The group's average score was 15.5 before the trial and increased to 19.2 following the experiment. The mean values vary between 14.5 and 20.6, with the greatest mean being 20.6 and the lowest being 14.5. The range of standard deviation values is between 2.14 and 2.99, with the highest standard deviation being 2.99 and the lowest being 2.14.

The independent sample t-test was conducted to compare the problem-solving ability between the treatment group and the control group. The results of the analysis revealed a statistically significant difference in problem-solving ability between the two groups ( $t(59) = 3.34$ ,  $p = 0.001$ ). The calculated t-value of 3.34, with 59 degrees of freedom, indicates that the mean problem-solving ability scores for the treatment group and the control group were significantly different. The p-value of 0.001 is less than the conventional significance level of 0.05, leading to the rejection of the null hypothesis ( $H_0: \mu(T) = \mu(C)$ ). Therefore, it can be concluded that there is a significant difference in problem-solving ability between the treatment and control groups (Table 6 ).

The mean difference in problem-solving ability (2.49) indicates the average variation in scores between the treatment and control groups. The treatment group, on average, showed a 2.49-point improvement in problem-solving ability ratings compared to the control group. The standard error of the mean difference (SE difference), with a value of 0.745, gives us an estimation of the variability of the mean difference.

**Table 6** Results of Independent Samples T-Test on Problem-solving Ability

		Statistic	df	p	Mean difference	SE difference
Problem-solving ability	Student's t	3.34	59.0	0.001	2.49	0.745

Note.  $H_a \mu T \neq \mu C$

#### 4. Results of data analysis from the open-ended questions.

In this study, qualitative data was collected from treatment students through their open-ended questionnaire responses to gain in-depth insights into their use of Chaoxing. This data, collected in the last week of the experiment via the Tencent questionnaire platform, was analyzed using NVivo software for



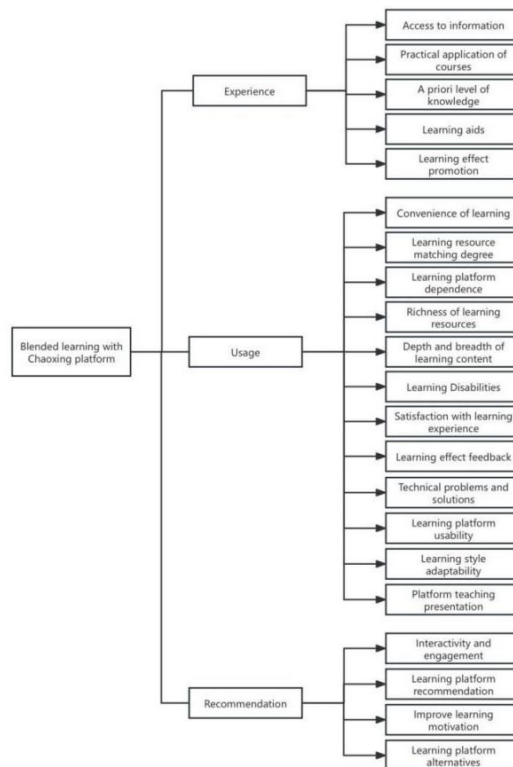
thematic analysis. The responses were transcribed and imported into NVivo for data organization. Each response had been coded into nodes reflecting diverse themes or subjects, ensuring thorough and systematic coding. Prominent themes that had emerged across various responses were identified and analyzed to uncover the underlying patterns and insights related to the study's objectives.

The word cloud analysis revealed the student's feedback on the Chaoxing platform, with "learning" being the most prominent, indicating discussions on learning processes, outcomes, and experiences. "Knowledge" had also been significant, highlighting the importance of acquiring and understanding knowledge through the platform. Students had valued the platform's "convenience" for its flexibility and resource access and had found it "helpful" in understanding course material and improving efficiency. Furthermore, the "teacher" had emphasized the crucial role of instructors, and students had valued their guidance. "Understand" had been critical, as the platform and teacher support had enhanced comprehension of course content. "Class" highlighted the importance of classroom teaching, suggesting the integration of traditional and online learning. Terms like "online" and "offline" had pointed to interest in comparing these environments, while "teaching" had indicated high expectations for teaching quality and methods. (Figure 2).



**Figure 2** Word Cloud of Qualitative Research

The focus had been on engagement quality and the effectiveness of the blended learning approach, with responses coded to identify recurring themes and insights. The analysis of the open-ended questionnaire responses from students using Chaoxing yielded several key findings, categorized into themes related to their experiences, usage, and recommendations (Figure 3).



**Figure 3** Mind Map of Qualitative Research

Initially, students had expressed having a restricted understanding of the course material before the teacher's explanation. They greatly appreciated the supplementary information offered by platforms such as Chaoxing, as it enhanced their comprehension and expedited their learning progress. The platform had been commonly utilized in a range of courses, including Management, where students had found the additional resources beneficial for real-world implementation. Additionally, Chaoxing has been praised for providing supplementary materials that went beyond traditional classroom training, enabling students to rapidly comprehend key concepts and enhance their overall understanding.

In addition, students emphasized the simplicity and flexibility of online learning with Chaoxing, saying that it aligns effectively with their schedules and offers customized resources. The platform received acclaim for its ability to cater to students' study needs and provide a wide array of materials that extend beyond individual courses. Although students generally found Chaoxing's design and functionality to be satisfactory, they encountered technical and usability problems that impacted their learning experience. These difficulties included reliance on network quality and restrictions in altering progress.

Furthermore, there was a demand for enhanced communication capabilities and a more dynamic, face-to-face learning atmosphere to enhance interaction. Despite expressing their willingness to recommend Chaoxing to their classmates and use it in their leisure time, students still prefer traditional face-to-face learning due to its interpersonal advantages.

## Discussion

In this study, the statistical results indicate that students who underwent the blended learning approach, facilitated by the Chaoxing platform, exhibited a substantial and statistically significant superiority in their overall performance compared to those in the traditional face-to-face learning setting.





As previously mentioned, numerous investigations have highlighted the beneficial effects of blended learning on educational achievements. Studies by Ayob et al. (2021), López-Pérez et al. (2011) and LaMeres & Plumb (2014) have all concluded that blended learning surpasses traditional instructional approaches in enhancing academic performance. The analysis demonstrates a statistically significant improvement in the academic performance of students who underwent blended learning compared to those in traditional face-to-face settings. The performance test scores indicate that blended learning has a positive impact on students' comprehension of management concepts and their ability to apply these concepts in practice.

Moreover, the learning experience can be tailored to meet individual needs and progress, granting students personalized learning time, space, and access to multiple learning channels. This allows students to engage in independent learning before class, freeing up more class time for active participation and fostering the exploration of their learning potential (Ewing & Ewing, 2017; Nayar & Koul, 2020). Ultimately, this facilitates the effective transfer of knowledge and skills, thereby enhancing the overall quality of teaching.

The result uncovered the advantages of blended learning for mastering effective management skills. Blended learning stimulates increased engagement levels among students. The interactive nature of online components, combined with face-to-face sessions, promoted active participation and deeper comprehension of management concepts and skills. (e.g. organization skills, opportunity identification skills, etc.) (Treanor et al., 2021).

Similar findings were found in some studies, where using blended learning significantly improved students' knowledge generation (Jones & Lau, 2010; Mitchell & McKeown, 2004). Blended learning's flexibility, which allows students to access resources and materials at their own pace, nurtures a learning experience tailored to individual needs. This adaptability positively impacted the mastery of management skills, catering to diverse learning preferences. Blended learning facilitated the immediate application of theoretical knowledge in practical scenarios. Online modules frequently incorporate real-world case studies and simulations, offering students opportunities to apply management skills in simulated environments.

The benefits of blended learning in terms of enhancing problem-solving ability are evident both quantitatively and qualitatively. The approach not only contributes to higher mean scores in problem-solving assessments but also cultivates a dynamic and interactive learning environment that nurtures the practical application of problem-solving ability (Fatirul & Subandowo, 2021). These findings have implications not only for art management education but also for broader discussions on the effectiveness of blended learning in fostering key competencies essential for professional success.

The qualitative dimension explored through an open-ended questionnaire unveiled nuanced insights into the factors shaping students' attitudes. Participants consistently expressed appreciation for the platform's user-friendly interface, interactive features, and the ability to seamlessly integrate with their learning preferences. The flexibility to access content anytime, anywhere, and engage in collaborative discussions emerged as critical contributors to a positive attitude toward the Chaoxing platform. Moreover, the qualitative data highlighted the role of instructor guidance and platform facilitation in influencing students' perceptions. Instructors who effectively leveraged the Chaoxing platform to create interactive and meaningful learning experiences played a pivotal role in fostering positive attitudes among students (CHEN Yi, 2021; Wang, 2019). The collaborative and participatory elements of blended learning, facilitated by the platform, were instrumental in shaping a favorable disposition toward its adoption. (Wu et al., 2021;) Participants appreciated the opportunity to tailor their learning paths, progressing at their own pace. This flexibility resonated positively with their intention to adopt the platform for management learning (Fu et al., 2023). Students acknowledged the platform's capacity to facilitate meaningful interactions among peers and with instructors. The collaborative aspect positively influenced their attitudes and their inclination to adopt the platform.

Beyond the primary research questions, varying levels of digital literacy and technological preparedness among students were observed (Satria et al., 2022). Some students adapted easily to the blended learning environment, while others struggled with digital tools. As Mohammadyari and Singh





(2015) found, individuals with high digital literacy adapt better to e-learning, efficiently using educational technologies and managing information. Although the Chaoxing platform was generally well-received, some participants faced challenges related to technological access and proficiency. This underscores the need to consider students' baseline technological skills and diverse backgrounds when implementing blended learning.

An incidental finding was the impact of blended learning on students' time management skills. The flexibility of online components requires greater self-discipline and time management (Uzir et al., 2020). Some students reported improved skills in balancing coursework with other responsibilities, indicating a potential ancillary benefit of blended learning. However, analysis of platform data showed that some students failed to complete online courses, submit assignments, and participate in discussions on time, indicating shortcomings in time management.

## Conclusion

The objective of this study was to thoroughly investigate the efficacy of blended learning, specifically using the Chaoxing platform, in the instruction of management courses. The main goals were to analyze the effects of blended learning on the performance, management skills, and problem-solving ability of art management students, as well as to examine their level of engagement with the Chaoxing platform. This study utilized a performance test and an open-ended questionnaire to gain significant insights into the implementation of blended learning in the field of management education. This research is unique since it explores the performance, management skills, problem-solving ability, and engagement levels of art management students by using the Chaoxing platform in their management courses.

The study uncovered discoveries concerning the efficacy of blended learning. The deployment of blended learning was found to have a favorable impact on student learning outcomes, specifically in terms of improving performance, management skills, and problem-solving ability. Significant disparities were detected in the scores between the experimental group, which received a blended learning intervention, and the control group. The use of blended learning, specifically using the Chaoxing platform, was found to be very efficient in enhancing students' academic achievement, organizational ability, and capacity to solve problems in the field of management education.

The utilization of NVivo for thematic analysis yielded a thorough comprehension of students' encounters with the Chaoxing platform. The integration of the Chaoxing platform proved quite effective in fostering student participation. The feedback received from the open-ended questions indicated a positive reception to the blended learning activities conducted through the Chaoxing platform. Students praised the interactive and multimedia features of Chaoxing, which greatly increased their interest in participating in management instructional activities. The results revealed that although the platform presented various benefits, such as adaptability and enhanced availability of resources, there were areas that needed enhancement, specifically in terms of technological reliability and interactive functionalities. The students' overall favorable comments indicated that the integration of blended learning with traditional techniques might greatly improve abilities learning results in art management education.

This study enhances our comprehension of the profound influence of blended learning on art management education. The text emphasizes the benefits of using technology to boost academic achievement, build skills, improve problem-solving, and promote positive attitudes toward innovative learning platforms. These findings have consequences for educators, institutions, and policymakers who aim to improve the quality and efficacy of art management education in the digital era.

## Recommendation

1. Future research should include a gender-based analysis to understand how gender affects learning outcomes in blended learning. This would involve a balanced representation of male and female participants to investigate any gender-related differences in learning performance and experiences.





2. To overcome the limitation of single-university data collection, future research should conduct a multi-institutional study. Collaborating with various institutions offering art management degrees will enhance external validity and generalizability, capturing a broader range of perspectives on blended learning.

3. Adopting a longitudinal research strategy can provide valuable insights into the long-term effects of blended learning on academic achievement, skill development, and career outcomes by tracking students over an extended period. This approach helps evaluate the sustainability and durability of the benefits of blended learning.

4. Comparative studies on different blended learning modalities or instructional designs can provide insights into the most effective approaches for enhancing learning outcomes in art management education. By analyzing various models and practices, scholars can identify optimal techniques and key elements that facilitate successful implementation and student engagement.

5. In addition to using the open-ended questionnaire, future research should incorporate qualitative methods like focus groups, interviews, and observations to capture nuanced aspects of students' experiences and attitudes towards blended learning, providing a deeper understanding often overlooked in quantitative studies.

## References

- Ahdhianto, E., Marsigit, M., Haryanto, H., & Nurfauzi, Y. (2020). Improving fifth-grade students' mathematical problem-solving and critical thinking skills using problem-based learning. *Universal Journal of Educational Research*, 8(5), 2012-2021.
- Albiladi, W. S., & Alshareef, K. K. (2019). Blended learning in English teaching and learning: A review of the current literature. *Journal of Language Teaching and Research*, 10(2), 232.
- Arnesen, K. T., Graham, C. R., Short, C. R., & Archibald, D. (2019). Experiences with personalized learning in a blended teaching course for preservice teachers. *Journal of Online Learning Research*, 5(3), 275-310.
- Ayala, J. S. (2009). Blended learning as a new approach to social work education. *Journal of Social Work Education*, 45(2), 277-288.
- Ayob, H. H., Daleure, G., Solovieva, N., Minhas, W., & White, T. (2021). The effectiveness of using blended learning teaching and learning strategy to develop students' performance in higher education. *Journal of Applied Research in Higher Education*, 15(3), 650-662.
- Baloche, L. A. (1998). *The cooperative classroom: Empowering learning*. NJ: Pearson.
- Bernard, R. M., Borokhovski, E., Schmid, R. F., Tamim, R. M., & Abrami, P. C. (2014). A meta-analysis of blended learning and technology use in higher education: From the general to the applied. *Journal of Computing in Higher Education*, 26(1), 87-122.
- Bicer, A., Capraro, R. M., & Capraro, M. M. (2013). Integrating Writing into Mathematics Classroom to Increase Students' Problem-Solving Skills. *International Online Journal of Educational Sciences*, 5(2), 361-369.
- Black, P., & Wiliam, D. (2012). Assessment for learning in the classroom. *Assessment and Learning*, 11-32.
- Carneiro, A. (2004). Teaching management and management educators: Some considerations. *Management Decision*, 42(4), 430-438.
- CHEN Yi. (2021). Most common types of online English teaching during COVID-19 pandemic in China—An introduction to Fanya and Chaoxing platform. *Sino-US English Teaching*, 18(4), 79-85.
- Chi, M. T. H., & Glaser, R. (1985). Problem-solving ability. In R. J. Sternberg (Ed.), *Human abilities: An information-processing approach* (pp. 227-257). San Francisco, CA: W. H. Freeman.
- Chi, M. T. H., & Glaser, R. (1985). Problem-Solving Ability. In R. J. Sternberg (Ed.), *Human Abilities: An Information-Processing Approach* (pp. 227-257). San Francisco, CA: W H Freeman & Co. (Sd).



- Chiang, C. L., & Lee, H. (2016). The effect of project-based learning on learning motivation and problem-solving ability of vocational high school students. *International Journal of Information and Education Technology*, 6(9), 709-712.
- Chong, D. (2009). *Arts management*. India: Routledge.
- Colbert, F. (2003). Management of the arts. In R. Towse (Ed.), *A handbook of cultural economics* (Chapter 37). Edward Elgar Publishing.
- Costin, H. (1996). *Management development and training: A TQM approach*. London: The Dryden Press.
- Day, C., Gu, Q., & Sammons, P. (2016). The impact of leadership on student outcomes. *Educational Administration Quarterly*, 52(2), 221-258. <https://doi.org/10.1177/0013161x15616863>
- E. E. I. P. (n.d.). (2023). *Art management majors set up colleges and universities*. Art Management Majors. <https://gaokao.chsi.com.cn/zyk/zybk/ksyxPage?specId=5yev2y92u4ou72yf>
- Elmuti, D. (2004). Can management be taught? *Management Decision*, 42(3/4), 439-453.
- Eryilmaz, M. (2015). The effectiveness of blended learning environments. *Contemporary Issues in Education Research (CIER)*, 8(4), 251-256.
- Ewing, D. R., & Ewing, R. L. (2017). undefined. *Journal of Marketing Education*, 39(3), 132-144.
- Fatirul, A. N., & Subandowo, S. (2021). Development of virlenda-based blended learning with problem based learning strategy for problem solving ability for students. *Jurnal Pendidikan: Teori, Penelitian, dan Pengembangan*, 6(12), 1837
- Finch, D. J., Hamilton, L. K., Baldwin, R., & Zehner, M. (2013). An exploratory study of factors affecting undergraduate employability. *Education + Training*, 55(7), 681-704.
- Fu, P., Lin, C., Zheng, Q., Wang, Y., & Li, W. (2023). A model of hybrid teaching innovation. *Atlantis Highlights in Social Sciences, Education and Humanities*, 245-253.
- Gillett-Swan, J. (2017). The challenges of online learning: Supporting and engaging the isolated learner. *Journal of Learning Design*, 10(1), 20.
- Graham, C. R. (n.d.). Emerging practice and research in blended learning. *Handbook of Distance Education*.
- Hafeez, M., & Akhter, Y. (2021). Effects of blended learning in comparison of traditional learning to provide safer learning environment- A comparative review. *International Journal of Educational Research & Social Sciences*, 2(6), 1604-1615.
- Hilton, M. & Honey, M. A. (2011). *Learning science through computer games and simulations*. Washington, DC: National Academies Press.
- Jamieson, P., Fisher, K., Gilding, T., Taylor, P. G., & Trevitt, A. C. (2000). Place and space in the design of new learning environments. *Higher Education Research & Development*, 19(2), 221-236.
- Jones, N., & Lau, A. M. (2010). Blending learning: Widening participation in higher education. *Innovations in Education and Teaching International*, 47(4), 405-416.
- Karyotaki, M., & Drigas, A. (2016). Latest trends in problem solving assessment. *International Journal of Recent Contributions from Engineering, Science & IT (iJES)*, 4(2), 4.
- Katz, R. L. (2009). *Skills of an effective administrator*. Harvard Business School Press.
- LaMeres, B. J., & Plumb, C. (2014). Comparing online to face-to-face delivery of undergraduate digital circuits content. *IEEE Transactions on Education*, 57(2), 99-106.
- Laumakis, M., Graham, C., & Dziuban, C. (2019). The Sloan-C pillars and boundary objects as a framework for evaluating blended learning. *Online Learning*, 13(1).
- Lewis, B. R., Snyder, C. A., & Rainer, R. K. (1995). An empirical assessment of the information resource management construct. *Journal of Management Information Systems*, 12(1), 199-223.
- López-Pérez, M. V., Pérez-López, M. C., & Rodríguez-Ariza, L. (2011). Blended learning in higher education: Students' perceptions and their relation to outcomes. *Computers & Education*, 56(3), 818-826.







- Makhdoom, N., Khoshhal, K. I., Algaidi, S., Heissam, K., & Zolaly, M. A. (2013). 'Blended learning' as an effective teaching and learning strategy in clinical medicine: A comparative cross-sectional university-based study. *Journal of Taibah University Medical Sciences*, 8(1), 12-17.
- Margerison, C. (1972). Management education. *Management Decision*, 10(2), 187-195.
- Means, B., Toyama, Y., Murphy, R., & Baki, M. (2013). The effectiveness of online and blended learning: A meta-analysis of the empirical literature. *Teachers College Record: The Voice of Scholarship in Education*, 115(3), 1-47.
- Mintzberg, H. (1980). *The nature of managerial work*. Prentice Hall.
- Mitchell, P. C., & McKeown, A. E. (2004). Importance of peer support and tutor involvement in entrepreneurship education for overseas bioscience students. *Bioscience Education*, 3(1), 1-19.
- Mohammadyari, S., & Singh, H. (2015). Understanding the effect of E-Learning on individual performance: The role of digital literacy. *Computers & Education*, 82, 11-25.
- Muradkhanli, L. (2011). Blended learning: The integration of traditional learning and eLearning. In *Proceedings of the 2011 5th International Conference on Application of Information and Communication Technologies (AICT)*. Baku, Azerbaijan.
- Nakata, S., Chowdhury, A. R., Nagashima, Y., Rahman, M. M., Rahman, T., Rahman, M. A., & Asia, S. (2019). *Graduate employability of affiliated colleges: New evidence from Bangladesh*. World Bank. Dhaka.
- Nayar, B., & Koul, S. (2020). Blended learning in higher education: A transition to experiential classrooms. *International Journal of Educational Management*, 34(9), 1357-1374.
- Patton, M. Q. (2002). *Qualitative research & evaluation methods* (3rd ed.). SAGE.
- Prince, M. (2004). Does active learning work? A review of the research. *Journal of Engineering Education*, 93(3), 223-231.
- Puccio, G., Lohiser, A., & Seemiller, C. (2021). *Creative problem solving: A 21st century workplace skill*. SAGE Publications.
- Rao, M. (2016). Tools and techniques to ensure innovative management education in India. *Industrial and Commercial Training*, 48(5), 265-268.
- Reigeluth, C. M., & Garfinkle, R. J. (1994). *Systemic change in education*. Educational Technology.
- Sackett, P. R., Hardison, C. M., & Cullen, M. J. (2004). On interpreting stereotype threat as accounting for African American-White differences on cognitive tests. *American Psychologist*, 59(1), 7.
- Salcedo, C. S. (2010). Comparative analysis of learning outcomes in face-to-face foreign language classes vs. Language lab and online. *Journal of College Teaching & Learning (TLC)*, 7(2).
- Samuelson, D. B., Divaris, K., & De Kok, I. J. (2017). Benefits of case-based versus traditional lecture-based instruction in a preclinical removable prosthodontics course. *Journal of Dental Education*, 81(4), 387-394.
- Satria, W., Iskandar, I., & Dewanti, R. (2022). The effect of blended learning and digital literacy on students' reading comprehension. *Proceedings of the 4th International Conference on Innovation in Education*.
- Saunders, M., Lewis, P., & Thornhill, A. (2015). *Research methods for business students*. Prentice Hall.
- Shi, Y., & Qu, S. (2021). Cognitive ability and self-control's influence on high school students' comprehensive academic performance. *Frontiers in Psychology*, 12, Article 783673.
- Singh, J., Steele, K., & Singh, L. (2021). Combining the best of online and face-to-face learning: Hybrid and blended learning approach for COVID-19, post vaccine, & post-pandemic world. *Journal of Educational Technology Systems*, 50(2), 140-171.
- Sridevi, K. (2020). Filling the quality gaps for a futuristic management education. *Journal of Economic and Administrative Sciences*, 37(4), 393-400.
- Sun, J. C., & Metros, S. E. (2011). The digital divide and its impact on academic performance. *US-China Education Review A2* (2011), 153-161.
- Suskie, L. (2018). *Assessing student learning: A common sense guide*. John Wiley & Sons.





- Sweeney, J., O'donoghue, T., & Whitehead, C. (2004). Traditional face-to-face and web-based tutorials: A study of university students' perspectives on the roles of tutorial participants. *Teaching in Higher Education*, 9(3), 311-323.
- Treanor, L., Noke, H., Marlow, S., & Mosey, S. (2021). Developing entrepreneurial competences in biotechnology early career researchers to support long-term entrepreneurial career outcomes. *Technological Forecasting and Social Change*, 164, 120031.
- Uzir, N. A., Gasevic, D., Jovanovic, J., Matcha, W., Lim, L., & Fudge, A. (2020). Analytics of time management and learning strategies for effective online learning in blended environments. *Proceedings of the 2020 ACM Conference on Learning at Scale (L@S '20)*, 392-401. Association for Computing Machinery.
- Van Meter, P., & Sperling, R. (2005). Enhancing learner processing for effective problem solving. *Journal of Professional Issues in Engineering Education and Practice*, 131(3), 187-191.
- Wang, T. (2019). Exploration on the mixed teaching mode of financial accounting against the background of internet plus: Based on the application of Chaoxing learning platform. *Proceedings of the 5th International Conference on Economics, Management, Law and Education (EMLE 2019)*.
- Weil, S., De Silva, T., & Ward, M. (2014). Blended learning in accounting: A New Zealand case. *Meditari Accountancy Research*, 22(2), 224-244.
- Wong, 2017),
- Wu, D., Guo, P., Zhang, C., Hou, C., Wang, Q., & Yang, Z. (2021). Research and practice of data structure curriculum reform based on outcome-based education and Chaoxing platform. *International Journal of Information and Education Technology*, 11(8), 375-380.

