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# Key Factors Influencing Performance of Students in Higher Vocational Colleges Based on the Vocational Skill Evaluation System in Zhejiang, China

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## Abstract

**Purpose:** This research explains the relationship between student experience, academic culture, employability, compatibility with online mode, innovation, new opportunities, knowledge management process, and performance. **Research design, data, and methodology:** This research scopes to 500 students of ten higher vocational schools from Zhejiang Province, China to investigate and comprehensively evaluate participants' adaptability, ability, and skill advantage in their academic performance. Purposive, quota and convenience sampling were conducted to collect the data, using questionnaire as a tool. The Structural Equation Model and Confirmatory Factor Analysis were utilized to analyze the data, which included model fit, reliability, and validity of the constructs. **Results:** Most hypotheses were tested to realize research objectives. Academic culture has a significant influence on student experience. Academic culture, student experience, employability, compatibility with online mode, and innovation significantly influence performance. Additionally, knowledge management processes have significant influence on innovation. However, new opportunities and knowledge management processes have no significant influence on performance. **Conclusions:** The third-party evaluation system in vocational education utilized by industrial companies has built a relatively scientific evaluation model, which assists students in finding their own learning direction and skill expertise and the rules of skill formation and training, elevating their professional performance.

**Keywords :** Academic Culture, Employability, Innovation, Knowledge Management Process, Performance

**JEL Classification Code:** E44, F31, F37, G15

## 1. Introduction

To make education evaluation of scientific education work as an important part and let students stand far from being evaluated solely by scores, driving the comprehensive development of people and accommodating to social and economic development shall be taken as the fundamental criteria for evaluating the quality of education. The National E-Commerce Vocational Education and Teaching Instruction Committee actively tried the third-party evaluation system for vocational education involving industry companies. It led to the pilot work of skills joint examination in e-commerce majors in vocational schools.

The initial aim of this research is to build a relatively scientific evaluation model, find an economical method and path that can carry out the large-scale evaluation, which facilitates students to dig their self-learning drive and skills, lead students to study independently, better professional teaching, and find out the effect of skill formation and training by the continuous amassment and tracing of evaluation data. This research will implement statistical analysis of the data results to assist colleges and universities in knowing the rules of talent training, meet the demands of companies for employment, and build professional features

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of colleges and universities. Let students comprehensively understand job adaptability, job ability, and competitiveness, know their comparative advantages, better match them with jobs, reinforce students' learning drive, and enhance their learning efficiency. The research aims to find out the cause-and-effect relationship between academic culture, student experience, employability, compatibility with online mode, new opportunities, innovation, KM processes, and performance in higher education institutions in Zhejiang, China.

The population of this research is to investigate students majoring in e-commerce from 10 vocational colleges in Zhejiang Province, China, and to investigate the factors that affect their performance based on the vocational skills assessment system in Zhejiang Province. There are six independent variables: academic culture, employability, compatibility with online mode, new opportunities, KM processes, two intermediaries: student experience innovation, and a dependent variable: performance. Quantitative methods were utilized for collecting and analyzing data. The sample size will be distributed to different majors of students from 2021 and 2022. From March to May 2023, the questionnaire will be used as a data collection tool and distributed online to the students. Fifty samples were tested before the larger population distribution on a pilot basis to ensure the reliability and consistency of each item to be measured. One thousand questionnaires were finished to determine the cause-and-effect relationship between variables and measure the previously presented assumptions. The study used Confirmatory factor analysis (CFA) and structural equation model (SEM) to analyze the data. The research outcomes revealed the vital variables that influence the performance and the variables that indirectly or directly influence the performance. The significance of the research results and suggestions will be presented from the research results.

This research result will assist people in deepening the integration of education and industry, discovering the effect of skill formation and training, and knowing the major effects behind achievements. On the one hand, schools can better cultivate programs for talents, ameliorate curriculum system standards, guide accurate matching of personnel and positions, and enhance the evaluation of professional construction. On the other hand, educational authorities could push a closer match between industry talent needs and vocational education.

## 2. Literature Review

### 2.1 Academic Culture

Academic culture is very important for universities, and it is essential to the survival and progress of universities. The development of the academic culture of a university determines whether it can be recognized by society and has a high social reputation. Academic culture is a scientific conclusion or theoretical generalization based on the systematic and detailed investigation of professional or cultural knowledge in a certain discipline. For example, they explore human philosophy and history, deeply interpret the emotional world and aesthetic psychology, analyze economic laws and guiding market operation, or reveal the meaning of life and standardize the construction of social ethics and morals (Dai, 2007).

Academic culture includes the academic environment, teaching environment, and academic operation. Academic culture is the basic element of quality teaching and education, an important field for colleges and universities. The perfect academic culture is important for schools to gain the ability to explore the future, and a student-oriented learning way can stimulate students to study. Academic culture has exhibited benefits to universities, such as elevated attractiveness and better student services, through student attendance in decision-making and involvement in affecting employee experience (Pandita & Kiran, 2020).

Under the influence of traditional teaching and academic culture, effective teaching and academic work in educational institutions is constrained by factors such as lagging educational concepts, imbalanced teacher evaluation systems, lack of evaluation standards for teaching and academic achievements, and lack of achievement exchange platforms. In order to promote the true progress of academic culture in educational institutions and reshape their academic culture, it is necessary to update academic concepts, reconstruct grassroots academic organizations in the logic of academic activities, establish diversified teaching and academic exchange platforms, establish scientific and reasonable evaluation mechanisms, improve teacher evaluation systems, and create a good academic atmosphere on campus (Guo, 2022). Therefore, below hypotheses are stated:

**H1:** Academic culture has a significant influence on student experience.

**H2:** Academic culture has a significant influence on performance.

## 2.2 Student Experience

Higher education institutions have recently received great attention as a service industry in meeting students' hopes (Deshields et al., 2005). If students are consumers, education is like an investment for them. The student experience comes from their exploration, educational growth, and expectations for investment returns (Lawrence & Sharma, 2002). Students receiving education are the main consumers of education, with the main purpose of acquiring knowledge/information (Sinclair & Zairi, 1995). The Total Quality Management (TQM) group in the higher education industry believes that educating students is for survival. More and more students now view themselves as customers, and education is an adventure for them to explore the world, provide excellent products, and expect returns (Lawrence & Sharma, 2002).

In the new learning environment, teachers have shifted from teacher-centered to student-centered. The role of a teacher is only a facilitator, while students are motivated to become controllers of knowledge (Frambach et al., 2014). They are inspired to learn from each other, and the engagement of the students is increasing (Elliott & Reynolds, 2014; Hillyard et al., 2010). On the one hand, students' influence on knowledge requires less control and arrangement, and on the other hand, student-centered education heavily relies on teaching situations (Frambach et al., 2014).

Many first-year college students will respond to the country's call to join the military. After two years of compulsory military service, they will return to the university classroom to continue their studies. These students have developed good organizational and disciplinary abilities after a military exercise, which is also a very valuable experience from the military. In classroom teaching and class management, efforts should be made to make these students a positive factor among students and to use their better self-control to influence other students in the classroom (Zhang & Li, 2018). Accordingly, this study posits a hypothesis:

**H3:** Student experience has a significant influence on performance.

## 2.3 Employability

Employment and education are theoretically linked to the construction of "employability" (Shilpa et al., 2015). It has been documented that "professional identity" is an important factor affecting employability (Pandita & Kiran, 2020). Professional status helps maintain employment. However, the relationship between professional identity and employment is a complex issue.

Universities should be clearer in the process of transformation. The goals and norms of professional training should be clear. Based on this list, the core competencies of university learners have been developed, and a comprehensive marketing major has been dynamically established, with job courses offered. (Wang et al., 2022).

However, decision-makers usually need to pay more attention to employers (Lagrosen et al., 2004; Niven, 2015), which results in the weak management of the quality of higher education. The internal environment of universities creates output, and the quality of higher education can only be reflected in the market. Universities can control the education process, but they cannot. The gap immediately becomes apparent when graduates enter the job market and are hired by employers. Measure the quality of graduates, such as their abilities, knowledge, and skill levels (Kaplan, 2001; Marshall, 2000). Thus, this study points out a hypothesis:

**H4:** Employability has a significant influence on performance.

## 2.4 Compatibility with Online Mode

The rapid development of digital education technology brings the widespread adoption of hybrid and fully online teaching in universities. Online learning (OL) has several important strengths: cost-effectiveness, greater access, and the invention of a democratic "community of learners" capable of operating in both real-time and asynchronous modes (Beishuizen, 2008). In 2020, influenced by the COVID-19, Internet education will become the "new normal" of colleges and universities. This rapid transformation supports the continuity of school teaching. However, some people believe that the overall structure of digital education has been integrated for over a decade and may have completed most of the work (Kaplan & Haenlein, 2016). Although hybrid models are quite common in Australia, the UK, Italy, and Singapore, many educators and higher education institutions face the impact of fully online teaching and the first digital teaching (Dhawan, 2020).

Due to the impact of the pandemic, students will gradually adapt to the technology and convenience of online teaching, which makes it difficult for them to transform into face-to-face teaching. In addition, students can easily watch pre-recorded video courses, adding important value to the online learning model. Unlike offline learning, the interaction between teachers and students may decrease. In addition, technical failures may be the main obstacle to effective online learning (Bhaskar & Nima, 2021).

The affordability and convenience of online courses are the main driving forces for improving the education system's overall performance. Research has found that compatibility with online modes has a crucial positive impact on the performance of education systems (Bhaskar & Nima, 2021).

Heckman and Annabi (2005) found that the high-level cognitive activities generated by students through online asynchronous learning networks (ALNs) are equivalent to, sometimes even better than, face-to-face classrooms. Williams and Castro (2010) investigated the organizational behavior of students to understand their views on team performance and propose that online team relationships are more advantageous. Therefore, a below hypothesis is set:

**H5:** Compatibility with online has a significant influence on performance.

## 2.5 New Opportunities

COVID-19 forced many people to change some cultural customs and daily activities, such as personal, organizational, outdoor, and community activities (Al-Kumaim et al., 2021). In addition, as students become accustomed to studying online, they may choose to continue their research or obtain a degree online (Bhaskar & Nima, 2021).

This epidemic also directly affects all sectors of life, including education. Network-based learning is a good choice for online learning media based on the network. Teachers must focus on students' motivation, satisfaction, participation, and attitude toward online learning (Crawford et al., 2020). In addition, in online study classes based on the Web, those students who learn with a strong willingness will gain confidence, a sense of accomplishment, and satisfaction through independent learning and influence their friends simultaneously (Patricia Aguilera-Hermida, 2020). WBL is an online learning medium with reasonable educational objectives (Astuti et al., 2020), including learning via the Internet (such as web pages) to satisfy the requirements of students (Zhang, 2020). It also offers simple, easy-to-use, and affordable access to information anytime, anywhere (Cahyana & Supatmi, 2019; Hamzah et al., 2017; Valverde-Berrocoso et al., 2020).

Research has found that educational system performance is influenced by new opportunities (Bhaskar & Nima, 2021). Affected by the COVID-19 blockade, online education provides students and teachers a new opportunity to understand the world. In terms of social life, reducing commuting between teachers and students enhances the green dimension of the college.

Student attitudes are different when learning online and can positively and significantly improve student achievement (Male et al., 2020). Online learning plays a crucial role, as its activities and materials influence students' motivation and academic performance (Na et al., 2020). Several studies have shown that blended learning with face-to-face themes can enhance students' learning experience and engagement by providing other means (Rasheed et al., 2019). Research has found that people have a positive attitude towards online learning, e-learning, or WBL, but the values taught in offline teaching and online systems differ (Lin et al., 2020). Students like learning in different ways, merging offline delivery with online/e-learning (Raheem & Khan, 2020). Mixed learning ways and strategies are better keys for students to sustain WBL in the future. Mixed learning can also be a key to reducing student anxiety. Thus, effective e-education practices by students and lecturers are increasing (Ridwan et al., 2021).

**H6:** New opportunities have a significant influence on performance.

## 2.6 Innovation

Innovation refers to creating new things, like novel technologies, practices, or methods, and the progress of new goods or services (Mckeown, 2008). Thus, innovation includes developing novel products or implementing new courses that elevate the company's financial state (Easa, 2012). The main aim of innovation for companies is to acquire long-standing competitive advantages and increase customer satisfaction (Easa & Orra, 2020). Today, innovation is essential to academia and entrepreneurs due to the greatly elevated level of global competition and the truth that customers constantly search for value maximization when they decide to buy things (Michel et al., 2008; Vargo & Lusch, 2004).

In today's emulative and blended business environments, innovation is an important tool to acquire organizational prosperity (Obeidat et al., 2016). Innovation is equally important in higher education, as it addresses global pressures and rapidly changing social needs (Elrehail et al., 2018). Simultaneously, an engine of economic and social progress (Al-Husseini & Elbeltagi, 2016). Several researchers named innovation as follows (Costa & Monteiro, 2016): the innovation of administration and technology (Al-Hakim & Hassan, 2016), thorough and step-by-step innovation (Chahal & Bakshi, 2015), and innovation of product and procedure (Al-Sa'Di et al., 2017). Nevertheless, learned men such as Jaskyte (2004) and Obendhain and Johnson (2004) considered that educational institutions need innovation to promote teaching quality and performance. However, several research personnel have recorded the active impact of true and transformational leadership on higher education innovation (Al-Husseini & Elbeltagi, 2016; Elrehail et al., 2018).

Based on previous research, innovation is considered as the progress and implementation of new courses, textbooks and methods, academic projects, and research projects. Process innovation is considered the progress and implementation of new incentive and reward systems and the introduction of new technologies and equipment to promote the educational process (Rehman & Iqbal, 2020). Thus, a hypothesis is indicated:

**H7:** Innovation has a significant influence on performance.

### 2.7 Knowledge Management Process

Many scholars considered the process of KM as the activities to improve organizational competitiveness and performance, like how to store, share, collect, organize, create, and identify knowledge (Ali et al., 2016; Obeidat et al., 2016; Sadeghi & Rad, 2018). From the perspective of knowledge resources, organizations depend more on their knowledge resources (Zack et al., 2009) to get superior performance (Al-Hakim & Hassan, 2016) and a competitive edge (Shujahat et al., 2019). The present empirical and theoretical paper (Ologbo et al., 2015; Shujahat et al., 2018) sticks to the knowledge-based theory that companies that manage knowledge resources usually perform better.

Knowledge management infrastructure contains culture, technology, and organizational structure that promotes the movement of knowledge (Ahmed, 2017; Chang & Chuang, 2011; Ho, 2009). Knowledge management procedures, or knowledge management practices, mean the flow of information and knowledge among the participants in an organization (Razzaq et al., 2018) and are seen as the ability of an organization to achieve or invent, share and use knowledge (Gharakhani & Mousakhani, 2012; Humayun & Gang, 2013; Obeidat et al., 2016). The paper divides KM into process and infrastructure (Chang & Chuang, 2011; Gold & Segars, 2001; Iqbal et al., 2018). Knowledge management is a systematic way or business procedure (Kor & Maden, 2013) to formalize expertise, experience, and knowledge to assist organizations in creating new capabilities to achieve higher organizational performance (Gold & Segars, 2001). Knowledge is an important organizational asset (Obeidat et al., 2016) and must be effectively regulated to achieve sustained prosperity and competitive advantage for organizations (Shahzad et al., 2006). Thus, following hypotheses are developed:

**H8:** Knowledge management process has a significant influence on performance.

**H9:** Knowledge management process has a significant influence on innovation.

### 2.8 Performance

The most important goal of knowledge management, innovation, and drive is to get excellent performance of the organization (Ahmed, 2017), which is the development and progress of the organization. Abualoush et al. (2018) consider that organizational performance is the advancement of new methods and technologies, problem-solving, innovation, leadership member relationships, promotion of products and procedures, and evaluation of employee efficiency and work quality. The performance evaluation of an organization is based on its purpose and indicators (Akhavan et al., 2014). Each organization represents specific goals and evaluates its performance to determine the acquisition of expected aims (Masa'deh et al., 2016).

Therefore, some indicators, such as citations, academic

In order to meet the challenges of a fiercely competitive business environment, innovation is considered an important way for all types of organizations to survive, execute, and maintain success. Innovation has improved management capabilities, enabling organizations to respond quickly to market changes, thereby improving enterprise performance and customer satisfaction (Alipour & Karimi, 2011; Sadikoglu & Zehir, 2010). In addition, organizations that focus on the enhancement of procedures and innovation of products could get better performance and cost reduction, flexibility, and quality (Tan, 2016). Based on the previously established relationship between organizational performance and product and process innovation, the establishment of higher education institutions may lead to some performance outcomes, such as excellent service quality, improved courses, increased student satisfaction, and higher research productivity (Al-Hakim & Hassan, 2016; Al-Sa'Di et al., 2017).

## 3. Research Methods and Materials

### 3.1 Research Framework

There are seven variables in the conceptual construct of the research. Hair et al. (2006) suggested three variable types: the independent variable and the dependent variable. Independent variables can affect another variable (Clark-Carter, 2018). The dependent variable is the target variable of the research (Jackson, 2006) and is the variable that the researchers need to investigate (Weale, 2010). The research's independent variables are academic culture, employability, compatibility with online mode, new opportunities, and KM processes. The mediating variable exists between the independent and dependent variables (Gray, 2016). Two mediating variables were shown in this research: student experience and innovation. There is only one dependent variable in this research: performance.

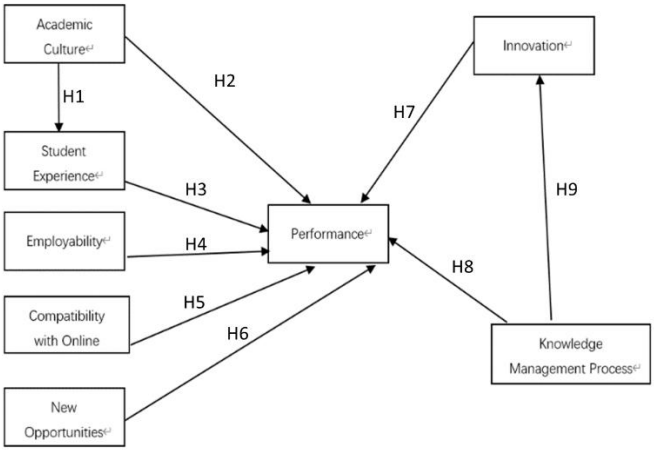


**Figure 1:** Conceptual Framework

**H1:** Academic culture has a significant influence on student experience.
**H2:** Academic culture has a significant influence on performance.
**H3:** Student experience has a significant influence on performance.
**H4:** Employability has a significant influence on performance.
**H5:** Compatibility with online has a significant influence on performance.
**H6:** New opportunities have a significant influence on performance.
**H7:** Innovation has a significant influence on performance.
**H8:** Knowledge management process has a significant influence on performance.
**H9:** Knowledge management process has a significant influence on innovation.

## 3.2 Research Methodology

A quantitative research design is used in this research, and the research tool is a questionnaire. Researchers can ask people to complete the questionnaire online (Tomii et al., 2021). This paper adopts the quantitative survey method, which is used because the quantitative method collects data based on variables. Juanzhixing is the most widely used online survey business platform in China and has been widely used to collect data for various social science research in recent years (Mei & Brown, 2017).

Before collecting data, researchers carried out an Item-Objective Congruence (IOC) and a pilot test. A panel of three experts conducted the evaluation of Item-Objective Congruence (IOC), and all items surpassed the acceptable threshold of 0.6. During the pilot test with 50 participants, Cronbach's alpha reliability was utilized. Following Tavakol and Dennick's guidelines from 2011, a measurement tool is deemed appropriate for use when the Alpha coefficient equals or exceeds 0.60, signifying an acceptable structural quality.

Then, confirmatory factor analysis (CFA) is used to check convergence accuracy, and validation is performed. In the case of given data, the model fit degree is calculated through the overall test to ensure the validity and reliability of the model. Finally, structural equation modeling (SEM) was used to analyze the data.

## 3.3 Population and Sample Size

This study selected 10 higher vocational colleges in Zhejiang Province as the investigation objects and comprehensively evaluated the adaptability, ability, and skill advantages of e-commerce post-group participants. The population is vocational school students of e-commerce and cross-border e-commerce enrolled in vocational schools in Zhejiang Province. They are trained in the vocational skills assessment system.

According to Israel (1992), in the research of multiple regression, covariance analysis, or logarithmic linear analysis, there is a need to determine the appropriate sample size. The number shall be between 200-500, which has a vital effect on the accuracy and reliability of the entire research (Anderson & Gerbing, 1984; Walliman, 2010). In addition, sample size is also very important in the evaluation process. This research has chosen 500 as the sample size to investigate the adaptability, ability, and skill advantages of students majoring in e-commerce in 10 vocational colleges in Zhejiang Province.

## 3.4 Sampling Technique

Researchers utilized a three-step sampling method, including purposive, stratified random, and purposive and convenient sampling.

**Step 1. Purposive Sampling**

E-commerce and cross-border E-commerce are the representatives of E-commerce post groups, which have a good application in the vocational skills evaluation system. The group is made up of students from 2021 to 2022. These subjects are core majors in these ten universities, and many students are studying these subjects.

**Step 2. Quota Sampling**

This study divided the population into four groups by stratification method. The proportional stratified sampling technique calculates the number of samples in any group to select samples representative of the population. The two groups of students are students majoring in e-commerce and cross-border e-commerce in the class of 2021 and 2022, respectively. Table 1 shows the number of students. For enrollment in 2021, researchers must choose from each major based on sample size and student proportion, as shown below.

**Step 3. Purposive and Convenient Sampling**

Convenience sampling is a nonprobability sampling method that satisfies the requirements of target respondents based on specific criteria such as time availability, accessibility, or willingness to participate. In other words, data will be collected from respondents who are ready and willing to join. This sampling method is feasible when more resources, such as time and money, are needed. It can assist researchers in quickly finishing the distribution of large numbers of questionnaires. Thus, a convenient sample was selected to reach target respondents who were available at the time of distribution and willing to answer the questionnaire. Respondents are selected from the screening questions to ensure that they meet the target of vocational school students trained by the Vocational Skills Assessment System in 2021 and 2022.

**Table 1:** Sample Units and Sample Size

| Two Main Subjects | Enrolled in 2021 | Proportional Sample Size |
|---|---|---|
| **Electronic Commerce** | 5085 | 476 |
| **Cross-Border Electronic Commerce** | 253 | 24 |
| **Total** | **5338** | **500** |

**Source:** Constructed by author

# 4. Results and Discussion

## 4.1 Demographic Information

The researcher surveyed 500 participants, and the demographic data is presented in Table 2. The survey results show that in terms of gender structure, 45.4% of the respondents were male, and 54.6% were female. Regarding age level, the largest percentage of respondents was 20-22 years old at 40.6%, 18-19 years old at 35.2%, and 22 years old and above at 24.2%.

**Table 2:** Demographic Profile

| Demographic and General Data (N=500) | | Frequency | Percentage |
|---|---|---|---|
| **Gender** | Male | 227 | 45.4% |
| | Female | 273 | 54.6% |
| **Age** | 18-19 years old | 176 | 35.2% |
| | 20-22 years old | 203 | 40.6% |
| | More than 22 years old | 121 | 24.2% |

**Source:** Constructed by author

## 4.2 Confirmatory Factor Analysis (CFA)

Confirmatory factor analysis (CFA) is utilized to investigate the structure of variables and factor sequences, evaluate the SEM model (Lei & Wu, 2007), and examine whether the data can satisfy the assumptions suggested by researchers (Fox, 2010). CFA can be utilized to test the relationship between observed and potential variables. Factor loadings show a greater value than 0.30 and a p-value lower than 0.05. The construct reliability is greater than the cut-off points of 0.7, and the average variance extracted was greater than the cut-off point 0.5.

**Table 3:** Confirmatory Factor Analysis Result, Composite Reliability (CR) and Average Variance Extracted (AVE)

| Variables | Source of Questionnaire (Measurement Indicator) | No. of Item | Cronbach's Alpha | Factors Loading | CR | AVE |
|---|---|---|---|---|---|---|
| Student Experience (SE) | Lawrence and Sharma (2002) | 6 | 0.951 | 0.740-0.808 | 0.902 | 0.605 |
| Academic Culture (AC) | Pandita and Kiran (2020) | 5 | 0.962 | 0.709-0.871 | 0.896 | 0.633 |
| Employability (EM) | Pandita and Kiran (2020) | 3 | 0.949 | 0.675-0.821 | 0.781 | 0.544 |
| Compatibility with Online Mode (COM) | Beishuizen (2008) | 4 | 0.870 | 0.695-0.791 | 0.822 | 0.537 |
| New Opportunities (NO) | Al-Kumaim et al. (2021) | 4 | 0.858 | 0.719-0.793 | 0.849 | 0.585 |
| Innovation (I) | Mckeown (2008) | 4 | 0.952 | 0.749-0.784 | 0.853 | 0.593 |
| Knowledge Management Process (KMP) | Al-Hakim and Hassan (2016) | 4 | 0.954 | 0.720-0.823 | 0.847 | 0.582 |
| Performance (P) | Ahmed (2017) | 4 | 0.975 | 0.725-0.812 | 0.863 | 0.612 |

The square root of the average variance extracted is determined that all the correlations are greater than the corresponding correlation values for that variable as of Table 4. In addition, GFI, AGFI, NFI, CFI, TLI, and RMSEA are used as model fit indicators in CFA testing.

**Table 4:** Goodness of Fit for Measurement Model

| Fit Index | Acceptable Criteria | Statistical Values |
|---|---|---|
| **CMIN/ DF** | < 5.00 (Al-Mamary & Shamsuddin, 2015) | 1250.433/499 or 2.506 |
| **GFI** | ≥ 0.85 (Sica & Ghisi, 2007) | 0.876 |
| **AGFI** | ≥ 0.80 (Sica & Ghisi, 2007) | 0.852 |
| **NFI** | ≥ 0.80 (Wu & Wang, 2006) | 0.879 |
| **CFI** | ≥ 0.80 (Bentler, 1990) | 0.923 |
| **TLI** | ≥ 0.80 (Sharma et al., 2005) | 0.913 |
| **RMSEA** | < 0.08 (Pedroso et al., 2016) | 0.055 |
| **Model Summary** | | **In harmony with empirical data** |

**Remark:** CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = Goodness-of-fit index, AGFI = Adjusted goodness-of-fit index, NFI = Normed fit index, CFI = Comparative fit index, TLI = Tucker-Lewis index and RMSEA = Root mean square error of approximation.

The convergent and discriminant validity was verified as the research values shown in Table 5 are greater than acceptable. Therefore, convergent validity and discriminant validity are ensured. Moreover, these model measurement results consoled discriminant validity and validation to measure the validity of subsequent structural model estimation.

**Table 5:** Discriminant Validity

| | SE | AC | EM | COM | NO | I | KMP | P |
|---|---|---|---|---|---|---|---|---|
| **SE** | **0.778** | | | | | | | |
| **AC** | 0.498 | **0.796** | | | | | | |
| **EM** | 0.434 | 0.428 | **0.738** | | | | | |
| **COM** | 0.487 | 0.406 | 0.404 | **0.733** | | | | |
| **NO** | 0.485 | 0.505 | 0.407 | 0.365 | **0.765** | | | |
| **I** | 0.551 | 0.482 | 0.423 | 0.421 | 0.394 | **0.770** | | |
| **KMP** | 0.497 | 0.466 | 0.426 | 0.413 | 0.451 | 0.378 | **0.763** | |
| **P** | 0.631 | 0.527 | 0.471 | 0.459 | 0.469 | 0.591 | 0.444 | **0.782** |

**Note:** The diagonally listed value is the AVE square roots of the variables
**Source:** Created by the author.

## 4.3 Structural Equation Model (SEM)

SEM is a statistical technique investigating the relation between general observable and potential variables (Beran & Violato, 2010). SEM is more accurate than regression analysis because it could find errors in testing the linear relationship of variables (Gonzalez et al., 2008). SEM combines regression and factor analysis, more accurately showing the relationship among different variables. The goodness of fit indices for the Structural Equation Model (SEM) is measured as demonstrated in Table 6. The model fit measurement should not be over 3 for the Chi-square/degrees-of-freedom (CMIN/DF) ratio and GFI and CFI should be higher than 0.8, as Sica and Ghisi (2007) recommended. The calculation in SEMs and adjusting the model by using SPSS AMOS version 26, the results of the fit index were presented as a good fit, which are CMIN/DF = 2.624, GFI = 0.850, AGFI = 0.806, NFI = 0.883, CFI = 0.923, TLI = 0.906 and RMSEA = 0.057, according to the acceptable values are mentioned in Table 6.

**Table 6:** Goodness of Fit for Structural Model

| Index | Acceptable | Statistical Values Before Adjustment |
|---|---|---|
| **CMIN/DF** | < 5.00 (Al-Mamary & Shamsuddin, 2015) | 1209.721/461 or 2.624 |
| **GFI** | ≥ 0.85 (Sica & Ghisi, 2007) | 0.850 |
| **AGFI** | ≥ 0.80 (Sica & Ghisi, 2007) | 0.806 |
| **NFI** | ≥ 0.80 (Wu & Wang, 2006) | 0.883 |
| **CFI** | ≥ 0.80 (Bentler, 1990) | 0.923 |
| **TLI** | ≥ 0.80 (Sharma et al., 2005) | 0.906 |
| **RMSEA** | < 0.08 (Pedroso et al., 2016) | 0.057 |
| **Model Summary** | | **In harmony with Empirical data** |

**Remark:** CMIN/DF = The ratio of the chi-square value to degree of freedom, GFI = Goodness-of-fit index, AGFI = Adjusted goodness-of-fit index, NFI = Normed fit index, CFI = Comparative fit index, TLI = Tucker-Lewis index and RMSEA = Root mean square error of approximation.

## 4.4 Research Hypothesis Testing Result

Researchers utilize hypotheses to reveal the presumption through research. This research hypothesis assumes the relation between independent variables and dependent variables. Assumptions are suggested by statements or research questions, which require further support or overturn assumptions through research (Mourougan & Sethuraman, 2017). Based on the conceptual construct of the research, nine hypotheses are suggested and verified in Table 7, and the testing results are shown in Table 7.

**Table 7:** Hypothesis Results of the Structural Equation Modeling

| Hypothesis | (β) | t-Value | Result |
|---|---|---|---|
| H1: AC→SE | 0.341 | 7.242* | Supported |
| H2: AC→P | 0.185 | 4.127* | Supported |
| H3: SE→P | 0.412 | 7.365* | Supported |
| H4: EM→P | 0.117 | 2.837* | Supported |
| H5: COM→P | 0.135 | 3.096* | Supported |
| H6: NO→P | 0.075 | 1.835 | Not Supported |
| H7: I→P | 0.324 | 6.428* | Supported |
| H8: KMP→P | 0.025 | 0.627 | Not Supported |
| H9: KMP→I | 0.119 | 2.832* | Supported |

**Note:** * p<0.05
**Source:** Created by the author

The result from Table 7 can be refined that:

**H1** has demonstrated that student experience has a vital positive effect on academic culture and that academic culture acts as an intermediary between comprehensive performance and student experience, which creates a new experience for higher education students (Pandita & Kiran, 2020). As for **H2**, academic culture is an essential road to affect schools to acquire good performance and has a significantly active effect on ameliorating performance (Pandita & Kiran, 2020). **H3** has shown that academic culture compromises the relationship between overall performance and student experience (Pandita & Kiran, 2020). With academic culture as the intermediary, the student experience is the most important indicator to enhance performance (Anderson et al., 1994; Owlia & Aspinwall, 1997; Pandi et al., 2013). Student experience is vital for overall performance, and the effect is more evident when academic culture is a medium (Pandita & Kiran, 2020). **H4** has proven that students' employability is vital in affecting the overall performance of higher education (Shilpa et al., 2015). Students' employability needs the organizers' focus because it influences the school's performance. **H5** has proven that the convenience and affordability provided by online courses are a major push for ameliorating the educational system's comprehensive performance. The educational system's performance was significantly impacted by compatibility with the online model (Bhaskar & Nima, 2021). **H6** has shown that COVID-19 leads most people to alter cultural customs and daily

activities, like organizational, personal, outdoor, and community activities (Al-Kumaim et al., 2021). **H7** has demonstrated that innovation has a critical impact on performance and partially mediates the impact of knowledge-based leadership on organizational performance. The findings suggest that higher education managers can successfully implement knowledge management processes, effectively manage their knowledge assets, enhance process and product innovation, and achieve higher organizational performance by demonstrating knowledge-based behaviors (Rehman & Iqbal, 2020). Jaskyte (2004), Obendhain and Johnson (2004), and other scholars believe that higher education institutions must focus on innovation to strengthen education quality and performance. **H8** has shown that not all knowledge management processes significantly influence the innovation of the public sector, quality, and operational performance.

Moreover, the system-oriented knowledge management system strategy could not significantly influence knowledge management procedure capability, organizational performance, and creativity. **H9** has proven that the knowledge management process is more critical to innovation (Obeidat et al., 2016), which exerts a vital influence on innovation and achieves excellent organizational performance by influencing innovation (Al-Sa'Di et al., 2017). The knowledge-based perspective (KBV) believes effective knowledge management will affect innovation (Grant, 1996).

## 5. Conclusion and Recommendation

### 5.1 Conclusion and Discussion

Confirmatory Factor Analysis (CFA) was implemented to measure and test the validity and reliability of the conceptual model. Hence, the influential factors that impact student experience, performance, and Innovation were analyzed by applying the Structural Equation Model (SEM).

Last, the research described the findings as follows:

Academic culture affects the student experience in an obvious way. Academic culture is the basis for high-quality teaching and education. It could benefit the university by affecting the employee experience, such as improving the retention rate, employee attractiveness, productivity, and student service.

Academic culture affects performance in an obvious way. The perfect academic culture will assist the school in creating the future, and the student-centered learning method can cultivate more independent students. Through students' engagement in decision-making and affecting employee experience, academic culture will benefit universities by increasing attractiveness and improving students' performance.

The student experience has a significant impact on academic performance. The student experience is very important to overall performance, and this impact is even more pronounced when academic culture is used as a medium (Pandita & Kiran, 2020). Student experience is a good motivator to stimulate interest in learning, which can make teaching more effective with half the effort.

### 5.2 Recommendation

Employability has an important impact on performance. The Flexible Human Resource Management System (FHRMS) hugely positively impacts employees' innovative performance, in which employability plays a mediating role.

Organizational competence regulates employees' employability and innovation performance. Organizations recognize the role of human resource management systems as mediators in employees' innovative performance through employability. Compatibility with online mode has a significant impact on performance. Specially prepared online courses that support "student-led" exploration and cognitive challenges are listed as factors supporting better learning outcomes (Stevens et al., 2021). New opportunities have no important influence on performance. Innovation has a significant impact on performance. Higher education institutions must focus on Innovation to improve the quality and performance of education. KM processes have no important influence on performance. Knowledge management processes have a significant impact on Innovation. The findings suggest that managers in higher education institutions can effectively regulate knowledge assets by demonstrating knowledge-oriented behaviors and ensuring the successful implementation of knowledge management procedures, thereby enhancing process and product innovation, and achieving better organizational performance (Rehman & Iqbal, 2020).

### 5.3 Limitation and Further Study

This study has limitations, such as bias and insufficient sample size. In the sampling investigation, the multi-stage sampling method was adopted. Because the sampling area covered only some colleges and universities in all regions of the province, the sample may not represent the parents in the study, and there are issues related to selective bias. In addition, during the sample sampling process, due to practical problems, it may not be possible to obtain enough samples, which may lead to bias in the results and the problem of insufficient sample size. The number of variables cited needs to be increased to cover the entire area studied in this paper, and the relationships between these variables shown in this paper are insufficient to support error-free results.

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