# Research on the Balance Efficiency of the Intelligent Hanging System for Jeans Production Line

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**Abstract.** Intelligent manufacturing is an important strategic direction for transforming and upgrading China's manufacturing industry, and the study of balance efficiency is the core of intelligent production. The introduction of intelligent hanging in the jeans production line is imperative to help balance the production line. Based on the information system success model, this paper explores the impact factors of introducing the intelligent hanging system on the balance efficiency of the jeans production line. According to the 2696 valid questionnaires obtained and the structural equation modeling, research has found that (i) information quality has a significant positive impact on user satisfaction and usage intention; (ii) user satisfaction positively affects usage intention. (iii) Both user satisfaction and intention to use positively impact balance efficiency. Finally, combined with the results of data analysis, practical suggestions were made for introducing intelligent equipment in jeans production lines to promote production line balancing.

**Keywords:** jeans · hanging system · balance efficiency · information quality · information system success model

## 1 Introduction

On September 27, 2022, the National Development and Reform Commission, Ministry of Finance, Ministry of Industry, and Information Technology jointly issued a notice to deploy intelligent manufacturing pilot demonstration actions to create innovative manufacturing demonstration factories. Emphasis was on promoting smart manufacturing, accelerating the transformation and upgrading of traditional industries, and exploring the path of intelligent transformation and upgrading. The intelligent hanging system is a piece of automated and intelligent transmission equipment introduced by the jeans production line for the development of intelligent manufacturing. The hanging system currently has an increasingly high degree of information integration (Gao Feng, 2020) [1]. Each station has an independent controller connected to an industrial flat panel to display hanger process information, working hours, and the number of pieces produced (Jin Dujuan et al., 2019) [2]. Each station needs real-time information interchange with the terminal to finally realize the scheduling of production capacity (Yi Fang, 2018). The key to the transformation and upgrading of intelligent production is to improve


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the production line balance rate, which is to adjust a load of each process according to the process processing sequence, and improve the production line balance rate (Huang Pengpeng & Deng, ZengYu, 2021) [4]. Traditional Chinese jeans production lines usually adopt mass production and rough management. The team leader usually executes the process preparation of the production line based on experience. At the same time, the sewing workers only focus on the number of individual production pieces and ignore the bottleneck process and the balancing condition in the whole assembly line (Song Ying et al., 2018) [5]. Automating the traditional manual production line is an effective way for production companies to improve the balance efficiency (Jin Yan & Qi Wei, 2021) [6]. Therefore, the introduction and use of intelligent hanging systems in jeans production lines to enhance balancing efficiency need development. This study examines the factors influencing the introduction of intelligent hanging systems in jeans production lines on balancing efficiency. This paper analyzes the factors influencing the introduction of an intelligent hanging system to the jeans production line on balance efficiency based on information quality, user satisfaction, and intention to use, proposes a research hypothesis and constructs a research model, and proposes suggestions through the questionnaire result analysis.

## 2 Theoretical Basis and Research Hypothesis

### 2.1 Information Quality and User Satisfaction, Intention to Use

Information quality refers to the quality of the output of an information system [7]. Balog defines information quality through four dimensions: relevance, timeliness, completeness, and accuracy [8]. Related studies include Zhang Xing et al. (2016) based on the information system success model, which states that information quality and system quality significantly impact user satisfaction from the social support perspective [9]. Jiang Yucheng et al. (2017) found that user-perceived information quality was positively related to user satisfaction with science-based websites when constructing a theoretical model of users' willingness to use science-based websites [10]. Jiang ZhiHui et al. (2017) pointed out that the expertise and support of teachers in the live mode significantly affected satisfaction [11]. Wang Wei and Liu Yu (2014) proved through empirical findings that website information quality and word-of-mouth are key factors influencing consumers' continued use of online travel websites, and satisfaction plays an important mediating role [12]. Fei Xinyi et al. (2018) pointed out in combing the application and outlook of the D&M information system success model that information quality affects user satisfaction and the system uses. User satisfaction affects each other and directly affects organizational efficiency [13]. Wang Wentao et al. (2018) found that information quality positively influences users' willingness to use virtual health communities [14].

The above literature argues that information quality positively affects user satisfaction and intention to use from different perspectives; therefore, higher information quality of the intelligent hanging system may increase the satisfaction and intention to use the production line. Accordingly, the hypothesis is proposed.

H1: Information quality has a positive and significant effect on user satisfaction.

H2: Information quality has a positive and significant effect on the intention to use.

User satisfaction is the response to using information system outputs, and intention to use is the user's willingness to consume the use of information system outputs [15]. Satisfaction and intention to use are widely applied. Wang Jinghun and Wei Qunyi's (2018) results showed that satisfaction and intention to use are positively correlated, and user satisfaction enhances users' intention to use mobile libraries [16]. Du Yawen et al. (2017) found that satisfaction positively affects visitors' behavioral intentions [17]. Liang Xiaobei et al. (2017) showed that satisfaction plays a partially mediating role in the process of the influence of participation motivation on the intention to continue participation [18]. Qian Li et al. (2016) research analysis concluded that satisfaction positively influences the public's intention to continue using [19]. The results of Yang Tao (2016) showed that satisfaction significantly positively affected e-book users' intention to continue using [20].

The above literature argues for a significant impact of user satisfaction on intention to use from different industries. Therefore, the higher the user satisfaction with the intelligent hanging system, the more likely it is to increase the intention to use the production line. Accordingly, the hypothesis is proposed.

H3: User satisfaction has a positive and significant effect on the intention to use.

### 2.2 User Satisfaction, Usage Intention, and Balance Efficiency

Balancing efficiency evolved from organizational efficiency, which refers to maximizing the overall organizational efficiency of a production line by combining and assigning processes to make the standard work hours at each station as equal as possible (Johannes F et al., 2019) [21]. The results of Shen Pengyi and Zhang Ya (2016) showed that employee job satisfaction has a positive effect on organizational commitment, and organizational commitment has a positive effect on organizational performance [22]. Qiu Yong and Yang Xuhua (2015) used a questionnaire method and analyzed that career satisfaction fully mediates the effect of benevolent leadership on task performance [23]. Yao Ruosong et al. (2013) divided job satisfaction into two dimensions: internal and external satisfaction and found that it was positively related to job performance [24]. Wu Yuhua and Qu Wenjian (2015) showed that intention to use and perceived usefulness significantly affect usage performance, with intending to use having the most significant total effect on usage performance [25]. Du Huiping (2015) pointed out through a structural equation modeling approach that the intention to use information systems consistently affects the net benefits obtained by users [26]. Chen Yu and Yin Hui (2013) showed that intention to use directly affects performance expectations [27].

The above literature argues that user satisfaction and intention to use positively affect organizational efficiency from different perspectives. Therefore, the higher the satisfaction of the production line employees with the intelligent hanging system and the stronger the intention to use it, the more likely it is to drive the improvement of balance efficiency. Accordingly, the hypothesis is proposed.

H4: User satisfaction has a positive and significant impact on organizational efficiency.

H5: Intention to use has a positive and significant effect on equilibrium efficiency.

In summary, the research finds that the information quality of the intelligent hanging system may have a positive and significant influence on user satisfaction and usage

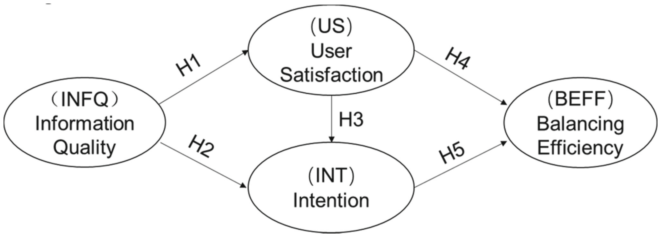


**Fig. 1.** Equilibrium efficiency model of jeans intelligent hanging production system

intention, user satisfaction may also positively influence usage intention, and both user satisfaction and usage intention of the hanging system may positively influence the balance efficiency. Based on the above analysis, the research model of the factors influencing the balance efficiency of the intelligent hanging system can be constructed, as shown in Fig. 1.

## 3 Research Methodology

### 3.1 Object

The research subjects selected for this study were front-line sewing workers in jeans production enterprises in Guangzhou province and Henan province, essential jeans production bases in China. The questionnaire collection was completed for the target group by sharing in a WeChat group, with jeans production enterprises as the cluster sampling unit. The questionnaires were distributed to the front-line jeans production line from March 25 to December 30, 2022, through the personnel management department of the enterprises on their behalf. A total of 3,000 questionnaires were sent out, excluding incomplete questionnaires and questionnaires with the same answer options, and finally, 2,696 valid questionnaires were collected.

### 3.2 Questionnaire Design

The questionnaire of this study is divided into two major parts: the first part is the influencing factors of the jeans intelligent hanging system, which is divided into four dimensions, in order of information quality, user satisfaction, usage intention, and balance efficiency. The second part is the basic personal information, including the gender, age, education, marital status, work experience, and income of the respondents. The questionnaire used a seven-level scale, with “1” indicating strong disagreement and “7" indicating strong agreement. Experts and scholars in the industry reviewed the questionnaire after the design was completed and gradually revised it to perfection. The final questionnaire contains four dimensions, 21 measurement indicators, and literature sources, as shown in Table 1.

**Table 1.** Summary of dimensional measures

| Latent variables | Observed variables |
|---|---|
| Information quality | Output information (INFQ01); Employee information and equipment information (INFQ02); Real-time information (INFQ03); Real information (INFQ04); Easy to understand (INFQ05) |
| User satisfaction | Easy to use (US01); easy to find the required information (US02); more satisfied than others (US03); ideal satisfaction (US04); working environment (US05) |
| Intention to use | Willing to pay attention (INT01); willing to promote (INT02); inclined to introduce intelligent equipment (INT03); willing to improve intelligence (INT04); looking forward to achieve intelligent production (INT05) |
| Balance efficiency | Reduce transfer time (BEFF01); Process balance (BEFF02); Reduce sewing time (BEFF03); Reduce supervision cost (BEFF04); Make full use of equipment (BEFF05); Solve bottleneck process (BEFF06) |

### 3.3 Statistical Methods

Structural equation modeling (SEM) is a validated multivariate statistical analysis method [28]. In this study, SEM and SPSS were used for statistical data analysis. The analysis consisted of three parts: descriptive statistics, measurement model, and structural model: firstly, descriptive statistics analyze the mean and variance of each variable. Secondly, the measurement model analyzes the convergent and differential validity of each variable dimension and, again, the structural model for understanding the significance of the independent variable (information quality) on the dependent variable (balance efficiency) through the mediating variables (user satisfaction, intention to use). Furthermore, to verify whether the five hypotheses are valid or not.

## 4 Data Analysis and Results

### 4.1 Descriptive Statistics

The basic information of the survey in this study shows that the most significant number of respondents, 2481 (92%), were female, which is consistent with the current situation of gender ratio in jeans manufacturing enterprises. The specific results are shown in Table 2, with 2696 valid questionnaires, with mean values ranging from 5.494 to 5.639, standard deviations ranging from 1.301 to 1.366, kurtosis values ranging from -0.319 to 0.12, and skewness values ranging from -0.806 to -0.631. The mean value of "BEFF05: By introducing an intelligent hanging system, the technical equipment of jeans manufacturers can be more fully utilized" was as high as 5.616, which means that the sewers in the production line agree that the hanging system can help improve the balance efficiency. In the Information Quality (INFQ) dimension, the mean value of "INFQ02: The intelligent hanging system provides more comprehensive information about employees and equipment" is 5.594, which means that the respondents have a high level of agreement with the comprehensiveness of the hanging system's information. In the Intention to

**Table 2.** Descriptive statistical analysis table

| Variable | Number | Average value | Standard Deviation | Skewness | Kurtosis | Minimum value | Maximum value |
|---|---|---|---|---|---|---|---|
| INFQ01 | 2696 | 5.559 | 1.321 | −0.672 | −0.238 | 1 | 7 |
| INFQ02 | 2696 | 5.594 | 1.321 | −0.725 | −0.123 | 1 | 7 |
| INFQ03 | 2696 | 5.588 | 1.323 | −0.730 | −0.077 | 1 | 7 |
| INFQ04 | 2696 | 5.494 | 1.366 | −0.631 | −0.319 | 1 | 7 |
| INFQ05 | 2696 | 5.588 | 1.316 | −0.711 | −0.124 | 1 | 7 |
| INT01 | 2696 | 5.575 | 1.327 | −0.726 | −0.042 | 1 | 7 |
| INT02 | 2696 | 5.595 | 1.343 | −0.752 | −0.123 | 1 | 7 |
| INT03 | 2696 | 5.594 | 1.324 | −0.756 | −0.059 | 1 | 7 |
| INT04 | 2696 | 5.620 | 1.327 | −0.755 | −0.074 | 1 | 7 |
| INT05 | 2696 | 5.639 | 1.303 | −0.777 | 0.047 | 1 | 7 |
| US01 | 2696 | 5.618 | 1.301 | −0.752 | −0.003 | 1 | 7 |
| US02 | 2696 | 5.573 | 1.340 | −0.712 | −0.209 | 1 | 7 |
| US03 | 2696 | 5.637 | 1.330 | −0.779 | −0.059 | 1 | 7 |
| US04 | 2696 | 5.590 | 1.331 | −0.753 | −0.038 | 1 | 7 |
| US05 | 2696 | 5.572 | 1.311 | −0.696 | −0.125 | 1 | 7 |
| BEFF01 | 2696 | 5.597 | 1.330 | −0.806 | 0.116 | 1 | 7 |
| BEFF02 | 2696 | 5.586 | 1.334 | −0.776 | 0.073 | 1 | 7 |
| BEFF03 | 2696 | 5.603 | 1.339 | −0.765 | −0.040 | 1 | 7 |
| BEFF04 | 2696 | 5.583 | 1.329 | −0.798 | 0.120 | 1 | 7 |
| BEFF05 | 2696 | 5.616 | 1.311 | −0.745 | −0.004 | 1 | 7 |
| BEFF06 | 2696 | 5.531 | 1.366 | −0.783 | 0.081 | 1 | 7 |

Use (INT) dimension, the maximum mean value of "INT05: I look forward to intelligent production as soon as possible" is 5.639, which represents the willingness of production line workers to advance the process of intelligent production. In the user satisfaction (US) dimension, the mean value of "US03: I think the hanging system satisfies me more than other methods of transferring semi-finished products" is 5.637, which is slightly higher than the mean value of "US01: Overall, I am satisfied with the ease of use of the hanging system" at 5.618, representing the respondents' higher satisfaction than the hanging system.

## 4.2 Measurement Model Testing

### 4.2.1 Convergent Validity

Table 1 summarizes unstandardized factor loadings, standard errors, multiple square correlations, composite reliability, and average variance extracted (AVE). Previous scholars

(Nunnally & Bernstein, 1994) [29] and (Fornell & Larcker, 1981) [30] suggested that the standardized factor loadings (Standardized Factor Loading) for each indicator should be at least greater than 0.50, while the composite reliability (Composite Reliability) should be greater than 0.60. The average variance Extracted (AVE) should be higher than 0.50, and the measurement model has good convergent validity. As shown in Table 3, all standardized factor loadings of questions are from 0.794 to 0.857, falling into a reasonable range. The data demonstrate that all questions have convergent validity. All the composite reliability of the constructs ranging from 0.913 to 0.936 exceed 0.7. Lastly, all average variance extracted (AVE) ranging from 0.678 to 0.708 exceed 0.5, showing all constructs have adequate convergent validity.

Unstd.: Unstandardized factor loadings; Std: Standardized factor loadings; SMC: Square Multiple Correlations; CR: Composite Reliability; AVE: Average Variance Extracted.

**Table 3.** Convergent validity

| Construct | Item | Std. | SMC | CR (Construct Reliability) | AVE |
|---|---|---|---|---|---|
| INFQ | INFQ01 | 0.795 | 0.632 | 0.913 | 0.678 |
| | INFQ02 | 0.797 | 0.635 | | |
| | INFQ03 | 0.838 | 0.702 | | |
| | INFQ04 | 0.847 | 0.717 | | |
| | INFQ05 | 0.839 | 0.704 | | |
| INT | INT01 | 0.813 | 0.661 | 0.918 | 0.690 |
| | INT02 | 0.816 | 0.666 | | |
| | INT03 | 0.837 | 0.701 | | |
| | INT04 | 0.834 | 0.696 | | |
| | INT05 | 0.853 | 0.728 | | |
| US | US01 | 0.793 | 0.629 | 0.915 | 0.682 |
| | US02 | 0.803 | 0.645 | | |
| | US03 | 0.849 | 0.721 | | |
| | US04 | 0.845 | 0.714 | | |
| | US05 | 0.838 | 0.702 | | |
| BEFF | BEFF01 | 0.815 | 0.664 | 0.931 | 0.692 |
| | BEFF02 | 0.815 | 0.664 | | |
| | BEFF03 | 0.848 | 0.719 | | |
| | BEFF04 | 0.846 | 0.716 | | |
| | BEFF05 | 0.832 | 0.692 | | |
| | BEFF06 | 0.834 | 0.696 | | |

**Table 4.** Discriminant validity of measurement models

| | AVE | INFQ | INT | US | BEFF |
|---|---|---|---|---|---|
| **INFQ** | 0.678 | 0.823 | | | |
| **INT** | 0.690 | 0.421 | 0.831 | | |
| **US** | 0.682 | 0.360 | 0.429 | 0.826 | |
| **BEFF** | 0.692 | 0.255 | 0.478 | 0.452 | 0.832 |

Note: The items on the diagonal in bold represent the square roots of the AVE; off-diagonal elements are the correlation estimates

### 4.2.2 Discriminant Validity

This study used the more rigorous AVE method for discriminant validity testing. The results of the discriminant validity test among the latent variables are shown in Table 4. Because all the numbers in the diagonal direction are more significant than the off-diagonal numbers, discriminant validity appears to be satisfactory for all constructs.

## 4.3 Structural Model Report

### 4.3.1 Model Fit

The most widely used nine-fit indicators proposed by Jackson, Gillaspy, and Purc-Stephenson (2009) are applied to report the results of this study [31]. Among them, the smaller the ML$\chi$2, the better, and the larger the DF, the better, Table 5 presents several model fit indicators and the recommended thresholds. Except for $\chi$2, all model fits indicators Except for $\chi$2, and all model fits indicators exceed the recommended levels (Schumacker & Lomax, 2010) [32]. The model fits indicators as the table satisfy most of the independent level of recommended fits and the combination rule. Thus, it proved that the proposed model most of the constructs have Thus, it has been proven that the proposed model most of the constructs have a good fit.

### 4.3.2 Path Analysis

The results of the path coefficients are shown in Table 6. Information quality (INFQ) (b = 0.307, $p < 0.001$) and user satisfaction (US) (b = 0.319, $p < 0.001$) significantly affect intention to use (INT). Information quality (INFQ) (b = 0.360, $p < 0.001$) significantly influenced user satisfaction (US). Intention to use (INT) (b = 0.348, $p < 0.001$) and user satisfaction (US) (b = 0.303, $p < 0.001$) significantly influenced balance efficiency (BEFF). The explanatory power of information quality (INFQ) and user satisfaction (US) for explaining intention to use (INT) was 26.6%. The explanatory power of information quality (INFQ) to explain user satisfaction (US) is 12.9%, and the explanatory power of intention to use (INT) versus user satisfaction (US) versus to explain equilibrium efficiency (BEFF) is 30.3%. Thus the findings support the research questions of this model. Because all the p-values are $< 0.05$, all five hypotheses proposed in this paper are supported, and the equilibrium efficiency model of the intelligent hanging system of the jeans production line is established.

**Table 5.** Model fit

| Model fit | Criteria | Model fit of the research model |
|---|---|---|
| ML$\chi$2 | The small the better | 904.384 |
| DF | The large the better | 184.000 |
| Normed Chi-sqr ($\chi$2 /DF) | $1 < \chi 2 /DF < 3$ | 4.915 |
| RMSEA | $< 0.08$ | 0.038 |
| SRMR | $< 0.08$ | 0.036 |
| TLI (NNFI) | $> 0.9$ | 0.980 |
| CFI | $> 0.9$ | 0.982 |
| GFI | $> 0.9$ | 0.978 |
| AGFI | $> 0.9$ | 0.975 |

**Table 6.** Regression coefficients

| DV | IV | Unstd | S.E. | Unstd./S.E. | p-value | Std. | R2 |
|---|---|---|---|---|---|---|---|
| INT | INFQ | 0.315 | 0.022 | 14.632 | 0.000 | 0.307 | 0.266 |
| | US | 0.333 | 0.022 | 15.185 | 0.000 | 0.319 | |
| US | INFQ | 0.353 | 0.021 | 16.978 | 0.000 | 0.360 | 0.129 |
| BEFF | INT | 0.349 | 0.021 | 16.378 | 0.000 | 0.348 | 0.303 |
| | US | 0.318 | 0.022 | 14.402 | 0.000 | 0.303 | |

The model path and estimated parameters are shown in Fig. 2, in which information quality and user satisfaction significantly influence usage intention. The influence coefficients of the two factors are 0.307 and 0.319, respectively. Information quality has a significant favorable influence on user satisfaction, and the influence coefficient is 0.360. The comparison reveals that information quality has a more substantial influence on user satisfaction, which indicates that the trouser production line hanging system's information quality greatly influences user satisfaction. In addition, usage intention and user satisfaction significantly influence balancing efficiency, with influence efficiencies of 0.348 and 0.303, respectively, further indicating that user satisfaction strongly influences balancing efficiency while influencing usage quality.

## 5 Key Findings and Implications

The empirical results show that the information quality of the intelligent hanging system positively affects user satisfaction and usage intention, user satisfaction has a significant positive impact on usage intention, and user satisfaction and usage intention positively affect the balance efficiency. In order to improve the balance efficiency of the intelligent

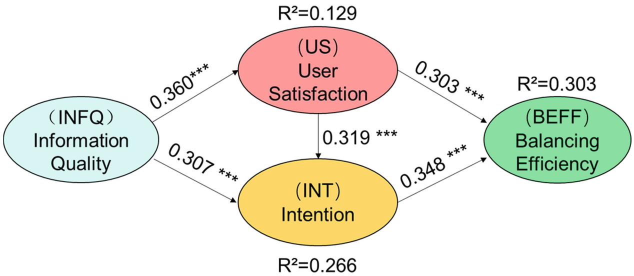


**Fig. 2.** Model path and estimated parameter results

hanging production line, jeans manufacturers can take measures from the following two aspects.

First of all, enterprises need to make full use of the significant influence of information quality of intelligent hanging systems on user satisfaction and usage intention. Therefore, jeans manufacturers should pay special attention to the real-time data of intelligent hanging system terminals and conduct timely data tracking and analysis. Jeans manufacturers should make full use of the hanger chip of the intelligent hanging system to monitor the production progress in real-time and collect on-site data effectively. The server analyzes and processes the data, provides accurate information for the production process, and solves the problem of complex information transmission in the jeans production line. The IPAD of each workstation can intuitively reflect the running condition of the jeans production line, forming a real-time transmission information chain. Through the electronic signage, the data collected from the server side can be displayed in the form of bar graphs and information tables to improve the information quality management capability. Enterprises can use real-time data to improve quality and output and guide production planning and scheduling. Then promote the jeans production line smoothly to the direction of data, intelligent transformation.

Secondly, according to the average value of user satisfaction and intention to use, which are above 5.5, we should fully realize that sewing workers have intense satisfaction and intention to use the intelligent hanging system. Therefore, each jeans production line should seize the demand of employees and use the transformation opportunity to steadily and reasonably promote the application process of intelligent hanging in the production line to continuously improve the balance efficiency and thus enhance the competitiveness of enterprises.

## References

1. Gao, F. (2020) A brief introduction to integrating hanging and information systems in custom-made garment production. Industrial Innovation Research, 08:124–125. https://kns.cnki.net/kcms/detail/detail.aspx?FileName=CYCX202008067&DbName=CJFQ2020.
2. Jin, D.J., Cao, B., Li, Y.R. (2019) Application of digital technology in apparel equipment. Tianjin Textile Science and Technology, 02:19-21. DOI:https://doi.org/10.13518/j.cnki.tjtst.2019.02.006.

3. Yi, F. (2018) Intelligent manufacturing 2025 St. Rex apparel intelligent production system. China Textile, 10:126–127. https://kns.cnki.net/kcms/detail/detail.aspx?FileName=FAZI201810049&DbName=CJFQ2018.
4. Huang, P.P. & Deng, Z.Y. (2021) Witness-based analysis and improve production line balance rate. Manufacturing Automation,09:50–55. https://kns.cnki.net/kcms/detail/detail.aspx?FileName=JXGY202109011&DbName=CJFQ2021.
5. Song, Y., Teng, H.J., Chen, Z. (2018) The application of lean production in the field simulation teaching of the garment profession. Textile and Apparel Education,33:57-58. DOI:https://doi.org/10.13915/j.cnki.fzfzjy.2018.04.020.
6. Jin, Y. & Qi, W. (2021) Research on the idea and critical technology of automation transformation of traditional manual production line. Agricultural Machinery Use and Maintenance,04:49-50. DOI:https://doi.org/10.14031/j.cnki.njwx.2021.04.020.
7. Wang, W. T., Lai, Y. J. (2014) Examining the adoption of KMS in organizations from an integrated perspective of technology, individual, and organization. Computers in Human Behavior,38:55-67.
8. Balog, A.(2011) Testing a Multidimensional and Hierarchical Quality Assessment Model for Digital Libraries.Studies in Informatics and Control, 20:233-246.
9. Zhang, X., Chen, X., Xia, H.S. & Wang, L. (2016) A study of factors influencing user loyalty in online health communities: A perspective of information system success and social support. Intelligence Science,03:133–138+160. DOI:https://doi.org/10.13833/j.cnki.is.2016.03.027.
10. Jiang, Y. C., Xie, G. L. & Zhou, R. T. (2017) A theoretical model construction of users' willingness to use science popularization websites in China. Science and Society, 02:100–117+99. DOI:https://doi.org/10.19524/j.cnki.10-1009/g3.2017.02.100.
11. Jiang, Z.H., Zhao, C.L., Li, H.X., Hu, P. & Huang, Y. (2017) Factors influencing online learners' satisfaction: comparing live and recorded contexts. Open Education Research,04:76-85. DOI:https://doi.org/10.13966/j.cnki.kfjyyj.2017.04.007.
12. Wang, W. & Liu, Y. (2014) An Empirical Study of Consumers' Consistent Use of Emerging Online Travel Websites - The Mediating Role of Customer Satisfaction and Trust. Journal of Jinan (Philosophy and Social Science Edition),04:84–92+164. https://kns.cnki.net/kcms/detail/detail.aspx?FileName=JNXB201404014&DbName=CJFQ2014.
13. Fei, X.Y., Shi, Y. & Yuan, Q.J.(2018) The application and prospect of D&M information system success model. Modern intelligence,11:161–171+177. https://kns.cnki.net/kcms/detail/detail.aspx?FileName=XDQB201811026&DbName=CJFQ2018.
14. Wang, W. T., Li, J., Zhang, S. & Xie, Y. Q. (2018) A study on users' willingness to use virtual health communities from the perspective of information system success. Modern intelligence, 02:29–35. https://kns.cnki.net/kcms/detail/detail.aspx?FileName=XDQB201802005&DbName=CJFQ2018.
15. Delone, W.H., Mclean, E.R.(2003) The DeLone and McLean model of information systems success: A ten-year update.Journal of Management Information Systems, 19:9–30.
16. Wang, J.Y. & Wei, Q.Y. (2018) Meta-analysis of factors influencing user experience in mobile libraries. National Library Journal,05:44-53. DOI:https://doi.org/10.13666/j.cnki.jnlc.2018.05.006.
17. Du, Y. W., Chen, Z. G. & Liu, D. (2017) A study on the perception of food culture authenticity, brand image and satisfaction in rural tourism: the case of "Yuanjia Village" in Shaanxi Province. Resource Development and Market,01:90–94. https://kns.cnki.net/kcms/detail/detail.aspx?FileName=ZTKB201701017&DbName=CJFQ2017.
18. Liang, X.B., Huang, L.X. & Jiang, J. (2017) A study on factors influencing the willingness of continuous participation of crowdsourced logistics receivers. Business Economics and Management,07:5-15. DOI:https://doi.org/10.14134/j.cnki.cn33-1336/f.2017.07.001.

19. Qian, L., Wang, Y., Huang, H. & Cao, X. (2016) Research on the public adoption model of "Internet+government" services. Intelligence Science,10:141-146. DOI:https://doi.org/10.13833/j.cnki.is.2016.10.026.
20. Yang, T. (2016) A study of e-book users' continuous use behavior: An extension of the expectation confirmation model. Library Studies,22:76–83+68. DOI:https://doi.org/10.15941/j.cnki.issn1001-0424.2016.22.014.
21. Johannes, F., Yannick, E., Nicole, S., et al.(2019) Changeability flexibility of assembly line balancing as a multi-objective optimization problem—Journal of Manufacturing Systems,53:150–158.
22. Shen, P. Y. & Zhang, Y. (2016) The impact of service orientation on organizational citizenship behavior and organizational performance in nonprofit organizations. East China Economic Management,01:142–149. https://kns.cnki.net/kcms/detail/detail.aspx?FileName=HDJJ201601022&DbName=CJFQ2016
23. Qiu, Y. & Yang, X.H. (2015) A study on the influence of paternalistic leadership on college teachers' work behaviors -- A differential perspective based on task performance and organizational citizenship behaviors. Fudan Education Forum,06:62-71. DOI:https://doi.org/10.13397/j.cnki. ref.2015.06.011.
24. Yao, R.S., Chen, H.J. & Miao, Q.Y. (2013) An empirical analysis of the impact of personality traits on job performance among front-line employees in the public transportation industry - using work attitude as a moderating variable. Journal of Psychology,10:1163–1178. https://kns.cnki.net/kcms/detail/detail.aspx?FileName=XLXB201310010&DbName=CJFQ2013.
25. Wu, Y. H. & Qu, W. J. (2015) A study on academic resource access behavior of university faculty. Library Science Research,03:56–62+83. DOI:https://doi.org/10.15941/j.cnki.issn1001-0424.2015.03.010.
26. Du, H.P. (2015) Information system success model and its application in digital libraries. Library Studies,11:30–33+39. DOI:https://doi.org/10.15941/j.cnki.issn1001-0424.2015.11.006.
27. Chen, Y. & Yin, H. (2013) An empirical study of online education and training users' willingness to adopt. Research in Technology Economics and Management,05: 15–19. https://kns.cnki.net/kcms/detail/detail.aspx?FileName=JXJG201305004&DbName=CJFQ2013.
28. Guo, J., Qi, Y.Z. (2017) Empirical study of the public policy and technology innovation performance in China's western national regions. Science Research Management,38:550-557. DOI:https://doi.org/10.19571/j.cnki.1000-2995.2017.s1.075.
29. Nunnally, J. C., & Bernstein, I. H. (1994) Psychometric theory (3rd ed.). New York: McGraw-Hill.
30. Fornell, C., & Larcker, D. F. (1981) Evaluating structural equation models with unobservable variables and measurement error. Journal of marketing research, 18:39-50.
31. Jackson, D. L., Gillaspy Jr, J. A., & Purc-Stephenson, R. (2009) Reporting practices in confirmatory factor analysis: An overview and some recommendations. Psychological methods, 14: 6-23.
32. Schumacker, R. E., & Lomax, R. G. (2010) A beginner's guide to Structural equation modeling (3 ed.). Taylor and Francis Group, LLC.