# Improving User Satisfaction with the E-Learning Platform Using KJ Method and Customer Journey Map in China

**MINGRUN WANG**
Researcher, Department of Industrial Design, Faculty of Design and Architecture, University Putra Malaysia, Serdang, Malaysia[1]
**NAZLINA SHAARI**
Researcher, Department of Industrial Design, Faculty of Design and Architecture, University Putra Malaysia, Serdang, Malaysia
**YAN HE**
Researcher, School of Art and Design, Guangdong Industry Polytechnic, Guangzhou, China

## Abstract

E-Learning consists in the combination of Internet technology and traditional education, overcoming the limitations of space and time and providing users with learning convenience during the pandemic. Currently, although numerous researchers need to publish high-quality papers, many lack effective paper writing methods and skills. The E-Learning platform provides an instructive channel for these researchers to self-study during the pandemic. However, when these researchers learn courses on the E-Learning platform, they are often unable to adhere to learning, resulting in low satisfaction with the E-Learning platform. Therefore, this study aims to identify the service needs of the E-Learning platform to improve user satisfaction. A Customer Journey Map was used to identify the comprehensive service needs of users and the service strategies of the E-Learning platform. A framework was constructed to improve the user experiences of E-Learning platform. The service modules of the E-Learning platform include three aspects: platform construction, course planning, and customer service. A total of 24 important service strategies were identified for improving user satisfaction with the E-Learning platform. The results of this study can help the managers of the E-Learning platform make correct operation decisions.

## Keyword

Online Education, Service Design, User Experience, KJ method, Customer Journey Map

## 1. Introduction

E-Learning, also known as Massive Open Online Course, generally refers to a web-based learning behavior or teaching mode (Niu, 2018). E-Learning consists in the combination of Internet technology and traditional education, overcoming the limitation of space and time, thereby making the learning behavior become more liberal and improve the user's learning efficiency (Long & Jian, 2018). The concept of E-Learning was first proposed about 10 years ago. In China, E-Learning develops rapidly based on its convenience. According to the 39th Statistical Report on Internet Development in China released by China Internet Network Information Center (CNNIC), the number of E-Learning users in China has reached 138 million until December 2016. In recent years, especially during the pandemic, the number of E-Learning users grows faster with the development of the Internet technology.

The Ministry of Education of China attaches importance to the development of E-Learning because of the growth of E-Learning users. The Ministry of Education of China put forward the guidance on October 2, 2019, the guidance suggesting that the infrastructure construction level of E-Learning should be greatly improved by 2020. Modern information technologies such as Internet, Big Data and artificial intelligence should be applied more widely in the field of education. The E-Leaning model should be improved, and the resources and services should be enriched. The guideline also stipulates that the rights and interests of E-Learning consumers should be protected, the rules on the provision of E-Learning services should be clarified, and the channels for E-Learning consumer complaints should be unblocked.

Currently, there are many types of E-Leaning platforms in China. E-Leaning platforms are a software system that supports online teaching and learning activities. Some researchers have classified E-Learning platforms from different perspectives. Long and Jian (2018) posted that E-Learning platforms can be divided into two categories according to the way they are created. The first type of E-Learning platform is the platform initially with rich offline teaching resources and experience, and then gradually expand the scope of teaching services through the Internet platform, such as Beijing No. 4 Middle School, New Oriental Online, etc. The second type of E-Learning platform is to build a platform first, then recruit students by virtue of its own huge user groups and efficient promotion means of Internet companies, and then hire teachers to teach the students, such as Tencent Classroom, Baidu class, etc. Yang and Zhou (2017) proposed that E-Learning platforms can be classified from three dimensions according to previous researches. From the dimension of the market fields involved, E-Learning platform is divided into seven categories: preschool education, K12 education, higher education, vocational education, foreign language education, examination service and interest education. From the dimension of the business type provided by the platform, E-Learning platform is divided into four categories: content type, tool type, platform type and comprehensive type. From the dimension of the platform business model, E-Learning platforms is divided into six categories: Business to Business (B2B) model, Business to Customer (B2C) model, Customer to Customer (C2C) model, Customer to Business (C2B) model, Business to Business to Customer (B2B2C) model and other models.

Currently, more and more researchers need to publish papers in China. One reason is that more and more students choose to study further for a master degree or doctor degree due to the fierce employment competition. These students need to publish papers to meet the graduation requirements. Another reason is that some employees need to run for professional titles. Many employees of enterprises and institutions need to publish papers before they can run for a professional title. However, many new researchers have difficulties in writing papers because they lack the knowledge and methods to write papers. To help these researchers improve their paper writing skills, some E-Learning platforms provide a series of paper writing courses to help researchers improve their writing skills.

This study conducted an investigation on March 2, 2022. There are nearly 40 E-Learning platforms offered paper writing courses, for example ViaX Education (https://www.viax.org), AIS Learning (https://v.ais.cn), Minhand Education (https://www.minhandedu.com), Pocketgpa (http://www. pocketgpa.cn) Essay Editor (https://www.editoressay.com), PaperRight (http://www.paperrater.net), etc.

Paper writing course is a new product of E-Learning platform, it still has many problems at this stage. According to the online feedback on the paper writing course of E-Learning platform, many users said they were not satisfied with the service provided by E-Learning platforms (Yang & Zhou, 2017). Users often encounter many problems, such as learning tools cannot be used, problems cannot be answered immediately, course quality is poor, etc. These problems lead to poor online learning results for users. The essence of education is the service. Providing users with comprehensive, personalized and sustainable learning services is the inevitable choice of E-Learning platforms. High-quality learning content service is the top priority of the E-Learning platforms, and the efficient learning support service is the basic guarantee for the effective transmission of learning content (Long & Jian, 2018). However, the current E-Learning platform still lacks perfect and systematic service solutions to solve the problems. Improving user satisfaction has become a difficult problem that many E-Learning platforms need to overcome. Therefore, to improve the user satisfaction of the E-Learning platform that providing paper writing courses, this study aims to identify the systematic service needs and service strategies for the E-Learning platforms.

The In order to systemically identify the service needs and service strategies of E-Learning platforms, a suitable method needs to be identified. Theoretically, the most popular creative problem-solving methodology using creative thinking is the KJ method in Japan. The KJ method, developed by J Kawakita (1967), is a method for establishing an orderly system from chaotic information (Ohuchi & Kaji, 1992). This method puts unstructured information on a subject matter of interest into order through alternating divergent and convergent thinking steps (Kunifuji, 2016). KJ method is a direct qualitative analysis method (Tang et al., 2007), it focuses the group on the task at hand and is excellent at eliminating unnecessary discussion and distractions from the goal. Hence, KJ method is suitable for solving the problems raised in this study.

In order to better apply KJ method, a tool is needed to cooperate with this method to orderly summarize and display information. Customer Journey Map is a common method to use in service design. Kalbach (2016) explained that Consumer Journey Map shows how the consumer fits into the services provided by the organization (Kalbach, 2016). It emphasizes user experience, and deduces the service pain points and opportunity points through the display of each touch point, behavior, emotions and specific links of bad experience (Lemon & Verhoef, 2016), thereby improving the service level for operating E-Learning platform. Customer Journey Map has been widely used in the research of user needs of various products (Kalbach, 2016). User experience affects user satisfaction, because this study aims to improve user satisfaction of E-Learning platform, Customer Journey Map meets the needs of this study. Therefore, this study can cooperate with KJ method and Customer Journey Map to analyze service needs of the E-Learning platform users, thereby identifying the service strategies to improve the user satisfaction of the E-Learning platform.

## 2. Research Methodology

In order to identified the service strategies for improving the user satisfaction of the E-Learning platform, this study cooperated with KJ method and Customer Journey Map to analyze the service needs of the E-Learning platform users KJ method is a direct qualitative analysis method, it focuses the group on the task at hand, and then

list participants' individual priorities onto cards, collect them as a group, organize them by relationship, and establish group priorities through individual voting. Common research methods of KJ method include group discussion and brainstorming. Customer Journey Map can systematically show users' behaviors, ideas and experiences throughout the user journey, it can support KJ method to summarize and display all information in a more orderly way. Therefore, according to the usage of KJ method and Customer Journey Map, the research process of this study was divided into three phases.

Phase : This study learned the knowledge of KJ method and Customer Journey Map through viewing literatures.

Phase : This study created a Customer Journey Map of E-Learning platform according to the aim of the study. Research methods used at this stage included group discussion and brainstorming.

Phase : This study identified the service strategies of the E-Learning platform for improving user satisfaction through sorting out and summarizing online experience sharing of E-Learning platform.

## 3. Logical Thinking of Creating a Customer Journey Map

For beginners who have not created a Consumer Journey Map before, it is necessary to understand the logical thinking of creating a Consumer Journey Map before executing. Figure 1 shows the two-way logical thinking of creating a Consumer Journey Map. The content that a Consumer Journey Map needs includes two parts: guiding principles and elements. Principles guides elements. Principles concerning consumer, product, strategies, tactical design and potential route to reach a particular goal. The elements are the outputs and inputs that a specific Consumer Journey Map needs. Figure 1 also indicates the causal relationship of each part with verbs. The basic elements of Customer Journey Map generally include customer role, customer purpose, customer journey, customer behavior and evaluation at each contact point of the journey, so as to find the existing pain points and opportunities for service improvement (Kalbach, 2016; Lemon & Verhoef, 2016). The combination elements of the Customer Journey Map can be designed according to the needs of the research purpose (Kalbach, 2016). The two-way logical thinking provides a framework of creating a Consumer Journey Map.
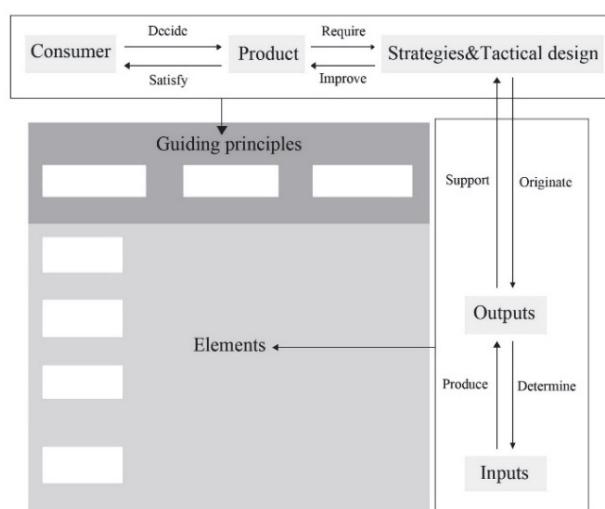


**Figure 1** Two-Way Logical Thinking of Creating a Consumer Journey Map

# 4. Customer Journey Map Design of E-Learning Platform

This study aims to identify the service needs and service strategies of E-Learning platform. Based on the two-way logical thinking of creating a Consumer Journey Map, this study needs to first analyze the elements of the Customer Journey Map of the E-Learning platform, thereby understanding the service needs of users and formulate corresponding service strategies. To understand the service needs, this study first needs to analyze user characteristics and purposes, and then reasonably formulate the user journey stages. Next step needs to systematically and clearly analyze the key touch points in each stage. After the key touch points are identified, this study can use appropriate methods (e.g., observation, secondary sources or brainstorming, etc.) to analyze the user's main behavior and ideas. Finally, the service needs can be identified in terms of the analysis of user's behavior and ideas. After the service needs of users are analyzed and summarized, the required service modules can be identified. In this situation, the components of the Customer Journey Map in this study can include the seven elements mentioned above: user role, user purpose, user journey, user behavior, user ideas, user needs and service modules. After analyzing the seven elements, this study can use the visual presentation skills to show the Customer Journey Map of E-Learning platform, as shown in Figure 2. The process of creating the Customer Journey Map includes 7 steps, the detailed steps are as follows:
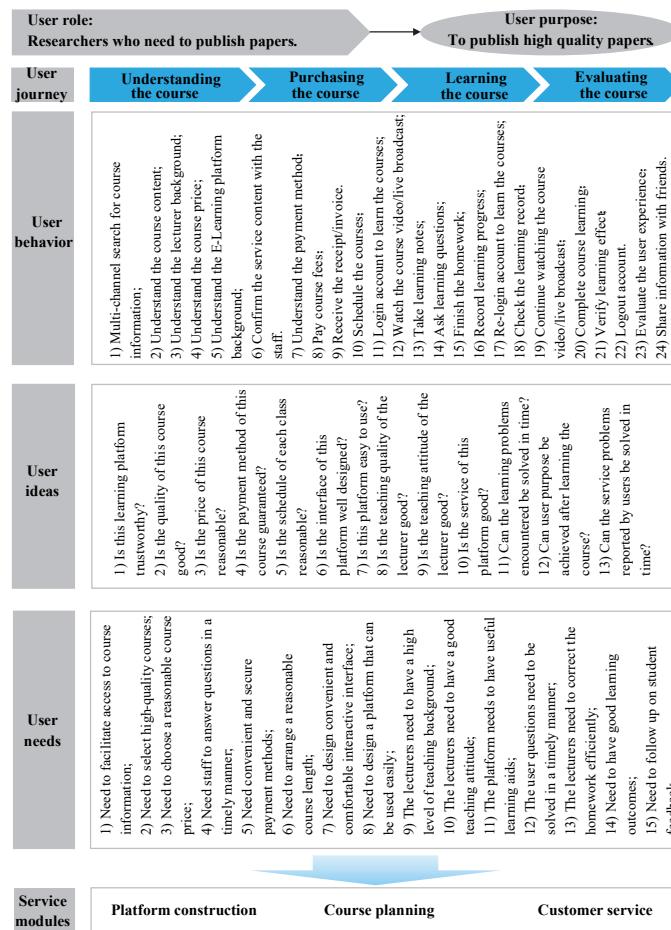


**Figure 2** Customer Journey Map of E-Learning Platform

**Step 1: Defining the user role.** This study focuses on the researchers that need to write and publish papers, such as postgraduate students, university teachers and other scholars.

**Step 2: Determining the user purpose.** E-Learning platforms users in this study are the researchers. These researchers need to learn the knowledge and methods to improve their paper writing skills, thereby achieving their purposes of successfully publishing papers. Hence, the user purpose of this study is to publish high quality papers.

**Step 3: Developing the user journey.** Generally, the users first need to know what courses are available on the E-Learning platform, and then choose the right courses according to their own needs. After choosing the courses, users need to understand the purchase instructions of the courses. After purchasing the courses, users should complete the study of the courses. Finally, users should evaluate the quality of the courses. By analyzing the stage when users interact with the E-Learning platform, this study divided the user journey into four stages: understanding the course, purchasing the course, learning the course and evaluating the course.

**Step 4: Analyzing the user behavior.** By formulating the user journey, the user behaviors at each stage can be analyzed. For example, when understanding the courses, users need to obtain information through various channels, hence users need to search and view information. In this way, the behavior of each key point can be analyzed. In this study, a group discussion method was adopted to identify user behaviors throughout the user journey as much as possible. A total of 5 participants participated in the group discussion, including 2 doctoral candidates and 3 masters. The participants range in age from 26 to 36. 1 participant is a staff member of E-Learning platform and 4 participants are teachers. These participants have experience in the relevant paper writing courses on E-Learning platforms. All the participants attended a three-hour group discussion together. First, all the participants analyzed the user behavior at each stage of the user journey in chronological order. In the meantime, the author recorded all the views put forward by the participants. And then the author sorted out and summarized all the views. Finally, a total of 24 important user behaviors were identified, as shown in Figure 2.

**Understanding the course:**
1) Multi-channel search for course information;
2) Understand the course content;
3) Understand the lecturer background;
4) Understand the course price;
5) Understand the E-Learning platform background;
6) Confirm the service content with the staff.

**Purchasing the course:**
7) Understand the payment method；
8) Pay course fees；
9) Receive the receipt/invoice.

**Learning the course:**
10) Schedule the courses；
11) Login account to learn the courses;
12) Watch the course video/live broadcast;
13) Take learning notes;

14) Ask learning questions;

15) Finish the homework;

16) Record learning progress;

17) Re-login account to learn the courses;

18) Check the learning record；

19) Continue watching the course video/live broadcast；

20) Complete course learning；

21) Verify learning effect；

22) Logout account.

**Evaluating the course:**

23) Evaluate the user experience；

24) Share information with friends.

**Step 5: Analyzing the user ideas.** After the user behavior analysis was completed, all the participants from the group discussion used brainstorming to dig out various ideas of users and express the ideas in the form of questions. The author recorded all the views put forward by the participants, and then sorted out and summarized these views. And then all participants voted together to select the representative ideas. Finally, a total of 13 important user ideas were identified as follows:

1) Is this learning platform trustworthy?

2) Is the quality of this course good?

3) Is the price of this course reasonable?

4) Is the payment method of this course guaranteed?

5) Is the schedule of each class reasonable?

6) Is the interface of this platform well designed?

7) Is this platform easy to use?

8) Is the teaching quality of the lecturer good?

9) Is the teaching attitude of the lecturer good?

10) Is the service of this platform good?

11) Can the learning problems encountered be solved in time?

12) Can user purpose be achieved after learning the course?

13) Can the service problems reported by users be solved in time?

**Step 6: Identifying the user needs.** After identifying the user ideas, this study can transform the user ideas into the user needs through group discussion. The way to transform the user ideas into the user needs is to identified the service needs based on the problem. For example, is this channel information reliable? It can be launched that the course information is needed. After group discussion, many views were obtained. The author recorded all the views put forward by the participants, and then sorted out and summarized these views. Then all participants voted together to select the representative user needs. Finally, the author selected 15 important user needs through induction and sorting as follows:

1) Need to facilitate access to course information;

2) Need to select high-quality courses;

3) Need to choose a reasonable course price;

4) Need staff to answer questions in a timely manner;

5) Need convenient and secure payment methods;

6) Need to arrange a reasonable course length;

7) Need to design convenient and comfortable interactive interface;

8) Need to design a platform that can be used easily;

9) The lecturers need to have a high level of teaching background;

10) The lecturers need to have a good teaching attitude;

11) The platform needs to have useful learning aids;

12) The user questions need to be solved in a timely manner;

13) The lecturers need to correct the homework efficiently;

14) Need to have good learning outcomes;

15) Need to follow up on student feedback.

**Step 7: Summarizing the service modules.** After the above steps are completed, , the service needs of users have been systematically identified. At this time, all identified service needs can be analyzed and summarized, and then the related service needs can be classified into one category. For example, beautiful live broadcast page design, easy-to-use learning support tools and safe payment methods are needed, which can be achieved by platform construction. Therefore, these service strategies can be classified as the service module of platform construction. In this sense, a total of 3 service modules were identified, including platform construction, course planning and customer service, as shown in Table 1. Platform construction refers to the functionality of a platform system that supports online teaching and learning activities. Course planning refers to the course content of the platform to meet the needs of researchers. Customer service refers to the staff service provided by the platform for users.

**Table 1** User Needs and Service Modules of E-Learning Platform

| User needs | Service modules |
| --- | --- |
| 1) Need to facilitate access to course information. | |
| 5) Need convenient and secure payment methods. | |
| 7) Need to design convenient and comfortable interactive interface. | Platform construction |
| 8) Need to design a platform that can be used easily. | |
| 11) The platform needs to have useful learning aids. | |
| 2) Need to select high-quality courses. | |
| 3) Need to choose a reasonable course price. | |
| 6) Need to arrange a reasonable course length. | |
| 9) The lecturers need to have a high level of teaching background. | Course planning |
| 10) The lecturers need to have a good teaching attitude. | |
| 13) The lecturers need to correct the homework efficiently. | |
| 14) Need to have good learning outcomes. | |
| 4) Need staff to answer questions in a timely manner. | |
| 12) The user questions need to be solved in a timely manner. | Customer service |
| 15) Need to follow up on student feedback. | |

## 5. Service Modules and Service Strategies of E-Learning Platform

According to the analysis of the Customer Journey Map, the users of E-Learning platform have 3 modules of service needs, as shown in Figure 3. Three service modules are platform construction, course planning and customer service.  In order to improve the user satisfaction of E-Learning platform, the service strategies should be made for each service module. Service strategies refer to some implementable plans or measures formulated to meet the needs of E-Learning platform users. This study generated the strategies by searching for relevant information on the Internet, and then sorting out appropriate service strategies according to the needs of this study.

### 5.1. Service Strategies Required for Platform Construction

1) Authoritative brands: The platform should pay attention to the construction of a brand image and enhance brand value, thereby enhancing the loyalty of users to the brand.

2) Convenient information acquisition channels: The platform should have good publicity and promotion methods to facilitate users to search and obtain information.

3) Secure payment methods: Platforms should provide users with safe and secure payment methods.

4) Diversified preferential methods: Platforms need diversified service methods to attract users to choose services.

5) Real-time interactive communication tools: The platform should have instant messaging function to facilitate users to carry out business consultation.

6) Effective operation management: The operation of the platform should be efficient.

7) Controllable video playback tools: The playback progress of the course can be freely controlled by the user.

8) Easy learning record tools: The platform needs to provide methods to help users record learning progress.

9) Self-test feedback: The platform can provide users with the function of self-testing learning results.

10) Multiple evaluation tools: The platform should provide a mechanism for users to take academic tests, thereby facilitating users to know their academic level and match appropriate service schemes for them.

### 5.2. Service Strategies Required for Course Planning

1) Reasonable course price: The price of the course should be reasonable.

2) High-quality course content: The content of the course can really help users master the skills to write a high-quality paper.

3) High-quality lecturers: The lecturers of the course are highly qualified and have rich teaching experience.

4) Modular course selection: The modules of the course are optional according to the needs of the users.

5) Reasonable learning time arrangement: The learning time of the course can be arranged according to the user's situation.

6) Timely solving user learning problems: Users can get instant answers when they encounter learning problems.

7) Reasonable course length: The length of each course is appropriate.

8) Authoritative learning certificate: The platform should provide meaningful certificate of course learning, thereby giving users a sense of achievement.

9) Effective learning incentive system: The courses are designed to motivate users to learn actively.

## 5.3. Service Strategies Required for Customer Service

1) Platform use help: Adding platform instructions on the platform system to facilitate users to view.

2) Course content help: Adding course learning instructions on the platform system to facilitate users to view.

3) Payment method help: Adding payment method instructions on the platform system to facilitate users to view.

4) Learning tool use help: Adding learning tool instructions on the platform system to facilitate users to view.

5) Student information feedback: The platform system should be able to give immediate feedback to the user's learning progress and respond to the user's problems.

6) Professional service attitude: The staff attitude of the E-Learning platform should be professional and friendly.
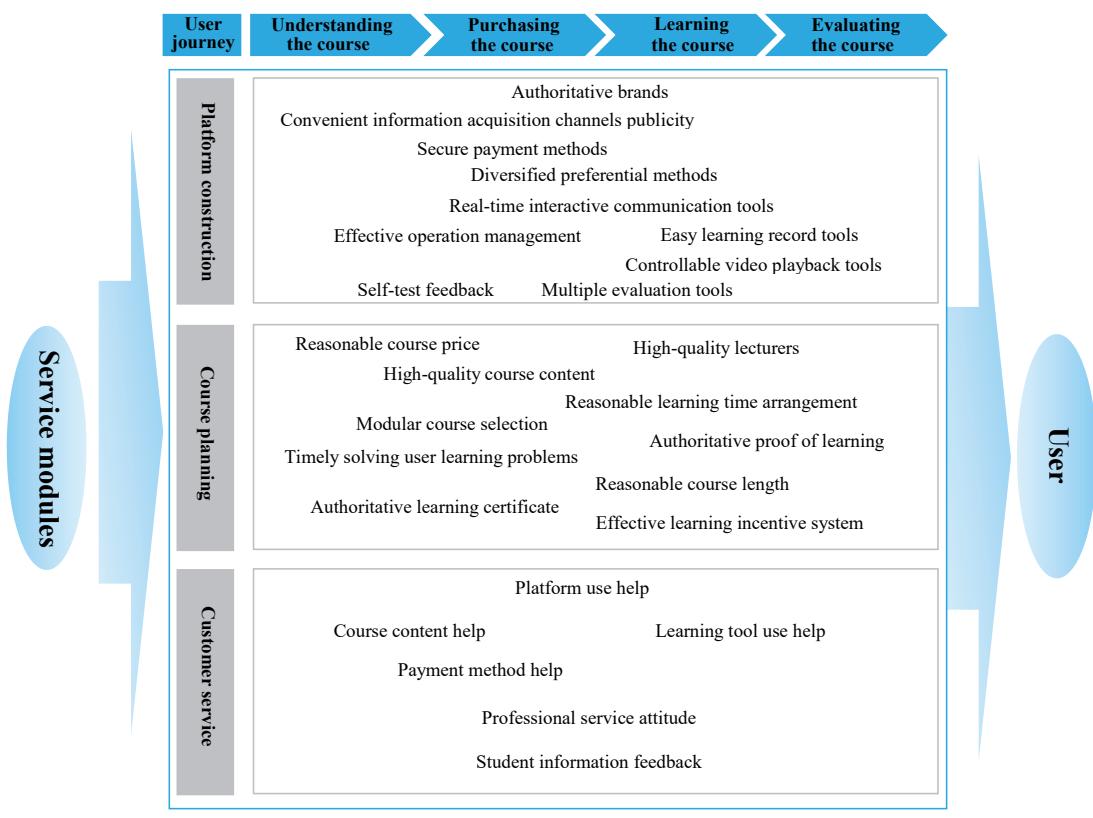


**Figure 3** Service Modules and Service Strategies of E-Learning Platform

## 6. Conclusions and Suggestions

This study analyzed and summarized the service needs of the E-Learning platform through using KJ method and Customer Journey Map, and then identified the service strategies of the E-Learning platform. A Customer Journey Map of E-Learning platform was created in this study. The elements of the E-Learning platform include

user role, user purpose, user journey, user behavior, user ideas, user needs and service modules. The Customer Journey Map was constructed in 7 steps: 1) Defining the user role; 2) Determining the user purpose; 3) Developing the user journey; 4) Analyzing the user behavior; 5) Analyzing the user ideas; 6) Identifying the user needs; 7) Summarizing the service modules. After the service needs were systematically identified, the service strategies were identified based on the user needs analysis.

According to the analysis of Customer Journey Map, the service modules include three aspects: platform construction, course planning and customer service. A total of 15 important user needs were identified. Then, a total of 24 important service strategies were identified based on the user needs. The strategies of platform construction mainly include authoritative brands, convenient information acquisition channels, secure payment methods, diversified preferential methods, real-time interactive communication tools, effective operation management, controllable video playback tools, easy learning record tools, self-test feedback, and multiple evaluation tools. The strategies of course planning mainly include reasonable course price, high-quality course content, high-quality lecturers, modular course selection, reasonable learning time arrangement, timely solving user learning problems, reasonable course length, authoritative learning certificate, and effective learning incentive system. The strategies of customer service mainly include platform use help, course content help, payment method help, learning tool use help, student information feedback, professional service attitude.

At present, although there are many E-Learning platforms, there are some problems of poor service in each E-Learning platform. For the managers of E-Learning platform involves providing paper writing courses, they need to pay attention to the service needs of users and provide comprehensive services for users. In this way, the service system of E-Learning platform can be upgraded, so that the user satisfaction can be improved. The service strategies mentioned above can help E-Learning platforms provide users with more satisfactory services. At the same time, this study can provide a practical method for E-Learning platform managers to identify more important service needs and service strategies.

Due to the limited length of the article, the service strategies in this study only indicated the service effect to be achieved. To implement these strategies, it needs to formulate a more detailed implementation scheme. Therefore, future researches can conduct in-depth research on various service strategies, thereby providing more detailed implementable schemes for improving the service level of E-Learning platform.

## Acknowledgements

## References

Kalbach, J. (2016). *Mapping experiences: A complete guide to creating value through journeys, blueprints, and diagrams*. O'Reilly Media, Inc.

Kawakita, J. (1967). Hasso hou (Idea Generation Method). *Chukoshinsho, Chuokoron-Shinsha, Inc.*, Tokyo. Retrieved from https://iss.ndl.go.jp/books/R100000039-I001224315-00

Kunifuji, S. (2016). A Japanese problem-solving approach: The KJ Ho method. In A. Skulimowski & J. Kacprzyk (Eds.), *Knowledge, information and creativity support systems: Recent trends, advances and solutions* (pp. 165-170). Springer. DOI: 10.1007/978-3-319-19090-7_13

Lemon, K. N., & Verhoef, P. C. (2016). Understanding customer experience throughout the customer journey. *Journal of Marketing, 80*(6), 69-96. DOI: 10.1509/jm.15.0420

Long, L., & Jian, B. X. (2018). 国内典型在线教育平台学习支持服务现状分析. *The Chinese Journal of ICT in Education, 12*, 1-5.

Niu, Y. (2018). 我国在线教育平台发展模式及其问题对策探析--以网易公开课为例. *New Media Research, 10*, 74-76.

Ohuchi, A., & Kaji, T. (1992). FISM/KJ: an idea processor of the FISM/KJ method. Proceedings from *1992 IEEE International Conference on Systems, Man, and Cybernetics*. Chicago, IL, USA.

Tang, H. P., Chen, H. B., Li, C. Z., & Xu, G. C. (2007). Integrated management to ecosystem of Ebinur Lake Basin based on KJ method, *Arid Land Geography, 30*(3), 337-342.

Yang, X. H., & Zhou, X. Z. (2017). Research on current situation and development trend of online education in China: From analysis of NetEase open class and other 16 online education platforms. *E-Education Research, 8*, 63-77.

# KJ 방법론과 고객 여정 지도를 활용한 E-Learning 플랫폼 사용자 만족도 향상

**왕 민런**  푸트라 말레이시아 대학교 연구원
**샤리 나즈리나** 푸트라 말레이시아 대학교 연구원
**허옌** 광동경공기술대학 연구원

## 초록

E-Learning 은 펜데믹 동안 인터넷 기술과 전통적인 교육 결합으로 공간과 시간의 한계를 극복하고, 사용자에게 학습 편의를 제공하였다. 최근 많은 연구자들은 양질의 논문을 출판하고자 하지만 효과적인 논문 작성 방법과 기술이 부족하다고 호소하고 있다. E-Learning 플랫폼은 팬데믹 기간 동안 이러한 연구자들에게 스스로 연구하기위한 유익한 채널을 제공한다. 그러나 이러한 연구자들이 E-Learning 플랫폼에서 코스들을 학습할때, 연구자들이 학습을 충실히 수행하지 못하는 경우가 종종있어 E-Learning 플랫폼에 대한 만족도가 낮다. 따라서 본 연구는 사용자 만족도 향상을 위한 E-Learning 플랫폼의 서비스를 파악하는 것을 목적으로 한다. 고객 여정 지도는 사용자의 포괄적인 서비스 요구와 E-Learning 플랫폼의 서비스 전략을 정립하는 데 사용 되었다. E-Learning 플랫폼의 사용자 경험을 향상시키기 위해 프레임워크를 구축 하였다. E-Learning 플랫폼의 서비스 모듈은 플랫폼 구축, 코스 계획 및 고객 서비스의 세 가지 측면을 포함한다. E-Learning 플랫폼에 대한 사용자 만족도 향상을 위해 총 24 개의 중요한 서비스 전략을 식별했다. 이 연구의 결과로 E-Learning 플랫폼 관리자의 올바른 운영 결정을 내리는 데 도울 수 있다.

## 키워드

온라인 교육, 서비스 디자인, 사용자 경험, KJ 방법론, 고객 여정 지도