

# User Experience

Subjects: **Business**

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User experience (UX)<sup>19</sup> refers to the feelings of users' feelings before, during and after using a product or system, including emotions, beliefs, preferences, etc. Zahidi et al.<sup>20</sup> pointed out that the factors that affect user experience were the driving factors that triggered user satisfaction and dissatisfaction. Moreover, user satisfaction depends on user needs, expectations, and existing user experience.

user experience

COVID-19

data mining

## 1. Introduction

The global spread of COVID-19 resulted in the suspension of classes for students from more than 60 countries, disrupting the original teaching plans of schools in these countries and regions <sup>[1]</sup>. As the first country to detect the spread of the virus, China was also deeply affected by it <sup>[2]</sup>. Under the influence of the COVID-19 pandemic, schools were forced to suspend in China. However, the massive suspension of school is found to affect the teaching progress <sup>[3]</sup>. In order to minimize the impact of the pandemic on education and control the spread of the pandemic, online teaching has become a necessary strategy to restore the normal teaching order in this special period. In the face of massive demand, some office-meeting software, supported by the strong technical ability and the keen insight into market opportunities, have also developed and improved relevant functions, and have become a platform for teachers and students to realize online teaching together with many education platforms. Among many online teaching platforms, the office-meeting software represented by DingTalk has provided service such as online classroom and online teaching functionalities. However, due to some technical and functional defects, these online teaching platforms have been criticized by millions of students. For instance, the satisfaction score of DingTalk dropped from 5 stars to 1 star quickly <sup>[4]</sup>.

The above phenomenon shows that although the online education industry has a broad application prospect, it exposes some existing problems in its development process, especially during a public emergency period. Since MOOC (Massive Open Online Course) was widely used in 2013, online teaching modes have gradually been known. At the same time, online education has attracted more and more attention due to its advantages such as breaking the spatio-temporal limitations and improving the fairness of education<sup>5</sup>. Furthermore, research shows that the MOOC teaching model can develop teachers' careers and improve teachers' teaching skills<sup>6</sup>. However, at present, due to technology restrictions, online education has been focused on vocational classes and tutorial classes without involving basic courses and professional courses. Most schools still adopt the traditional teaching ways<sup>7</sup>. As a result, school suspensions are a common risk aversion measure in the education sector when facing public health emergencies such as COVID-19.

The current pandemic prompts the reform of existing teaching modes in ways that make online education suddenly transit from an auxiliary method to the key way. This change brings obvious difficulties and challenges to the online education platforms, including the changes of users' concerns regarding online education, new requirements for online education, the satisfaction of these requirements, and the live broadcast. All above issues need to be further thought and discussed.

## 2. User Experience Evaluation of Online Education Platform

UX is widely used in the evaluation and optimization research of commercial platforms, but rarely in online education. For example, Pappas<sup>21</sup> conducted the research with regards to the influencing factors of purchase intention, according to the real-time experience feedback of 185 users with online shopping experience. Lohse et al.<sup>22</sup> used the user experience questionnaire to evaluate the music, cutting and flickering of the learning video. According to the analysis of customers' online shopping comments' vocabularies, Li et al.<sup>23</sup> obtained 11 indicators which constitute to the satisfaction index system of e-commerce platforms. Yang<sup>24</sup> calculated the evaluation score of a certain online courses by establishing a word library with positive/negative emotional tendency, and combining the proportion weight of comments in each category and the gap between the number of positive and negative comments. Compared with the questionnaire data, the analysis based on online user comments is more realistic and objective. The objects of questionnaire analysis are directional and not globally representative. Moreover, the questions set in the questionnaire analysis are subjective. The data of network comments generally contain user objects with various ages and levels, and there is no need to set some specific questions to obtain the data, so the data obtained are more objective. Meanwhile, the evaluation index model built on this basis can help the platform receive continuous evaluation feedback and dynamically understand its advantages and disadvantages.

Current research on online education platforms is mainly focused on the satisfaction evaluation results, willingness for continuous use, and learning influencing factors. Kamali et al.<sup>25</sup> made the conclusion that the help of electronic devices and resources on learning and education is limited. In order to give better effect, the priority should be given to provide a network environment that students can adapt. Tawafak et al.<sup>26</sup> found that the continuance intention depends on the type of technology. Roca et al.<sup>27</sup> verified that users' continuance intention is determined by satisfaction, which in turn is jointly determined by perceived usefulness, information quality, confirmation, service quality, system quality, ease of use and cognitive absorption. Kravvaris et al.<sup>28</sup> and Mackness et al.<sup>29</sup> found that learners' autonomy played an important role in learning through the empirical study of MOOC. Ayşenur et al.<sup>30</sup> took the following factors into consideration: perceived usefulness, flexibility, reliability, active participation, instructor response time and consultation. Asarbakhsh and Sardars<sup>31</sup> made the conclusion that system stuck and failed video connection affect user satisfaction through analyzing learning demand, technological design and intervention content. Roth et al.<sup>32</sup> verified that students receiving the course through video conference had lower final grades and were less satisfied with the course and the instructor. Perceval and Tejedor<sup>33</sup> portrayed an overview of the five degrees of communication in education: oral gestural, writing, audio, audiovisual, and digital, which highlighted the changes introduced by the online scenario in the educational process, reflecting on the character of the student, the teacher and the relationship between them. Chen et al.<sup>34</sup> used a questionnaire survey and web crawler to collect comment data of online and offline users, constructed a customer satisfaction index

system by analyzing emotion and the existing literature for quantitative analysis, and then forecasted user satisfaction. Most of the above researches focus on platform satisfaction or curriculum setting without evaluating and analyzing the teaching content combined with platform technology. However, they still have reference value for the establishment of an online education platform evaluation system in this paper.

To sum up, there are still some problems in the research on the evaluation system of online education platforms, such as the lack of specific indicators, unclear evaluation objects, and unreasonable weight distribution. The indicators in existing evaluation systems mainly focus on the two aspects of online education curriculum and platform function; that is, setting fixed evaluation indicators from the aspects of course quality, teaching effect, teaching technology, system quality, etc., and realizing the evaluation through qualitative or quantitative methods. However, few people evaluate the level of online education platforms from the perspective of user experience, and they do not consider COVID-19 and the possible impact of the outbreak. Based on this, we expect to realize the evaluation of user experience before and after the outbreak of COVID-19 from the perspective of user evaluation. However, user experience is mostly used in the research of business platforms. Considering that many research results from the factors affecting online education satisfaction can be used as evaluation indicators that impact user experience, this paper will refer to the results of these articles to establish our indicators. Additionally, in the analysis of user satisfaction and experience, more and more researches focus on users' comments and feedback, so as to score and evaluate the platform and courses. By using the methods of processing and capturing these comments, the index system of online education platforms can be built more accurately and more perfect.

### 3. Perspectives

Following suggestions are expected to improve the user experience of the online education platform during COVID-19:

#### (1) Improving support service

Providing comprehensive, timely, convenient and fast support services for learners is conducive to the maintenance of learners' positive learning attitude. In online education courses, there are several problems: untimely video information transmission, slow platform access, and untimely response to questions in class, students' hope to get corresponding guidance after class, and teachers' opinions in a timely manner so as to improve their learning effect. Therefore, the delay of feedback should be shortened and the variety of feedback forms should be ensured. In addition, in the online class, there will be more accidents, such as the failure of voice connection, the teachers' unfamiliarity with the software interface, unable to skillfully operate the software, and diagnosis problems. Moreover, the hardware problems cannot be solved. For example, the microphone cannot be heard or spoken, and even lead to classroom suspension, which wastes a lot of time. Therefore, the platform should simplify the software design and configuration, and provide corresponding customer service to solve user problems at any time. On the other side, the network problem of the platform needs to improve its own technology.

#### (2) Improving the convenience of interactive communication

While conducting online classroom teaching on the platform, sometimes it is not convenient for learners to interact and communicate with teachers. It is suggested that the platform should be designed in a split screen so that users can simultaneously interact with the platform, thus timely and effectively share and interact with information resources.

### (3) Optimizing ease of use

For the problems regarding stability, security and compatibility of the platform, and the invisibility for homework assignment and submission for mobile learning, as well as the block of pop-up questions for video learning, it is suggested that the platform should continue to be optimized.

### (4) Enriching platform resource

It is suggested that the platform should provide extended learning resources for users to ensure that the resources cover all disciplines. In addition, more course activities can be added to the platform to continuously improve the enthusiasm of learners.

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