

# The Current Issues and Factor Determinants of User Experience (UX) using Learning Tools

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## Abstract

During the current Covid-19 pandemic, digital developments are indispensable. And what about the interaction between humans and computers? User Experience (UX) is beneficial these days because it can help people gain information quickly within their application. With the Increasing new apps developed and various apps is being used. This research used a systematic literature review approach to gain information about “What kind of learning tools have been used for User Experience (UX)” With the systematic literature review approach used for this paper, there are plenty of variables found for the Learning tools that are qualified to be used for User Experience (UX), From 51 Article Papers, There are 3 top variables that qualify the learning tools for User Experience (UX) are Usability, Ease of Use, and User Satisfaction.

## Keywords

User Experience, Learning Tools, Issue, key success factors, usability

## I. Introduction

Digital transformation is becoming indispensable. Prior to the Covid-19 pandemic, all countries in the world have been trying to achieve digital transformation in every aspect to increase economic growth in every country in the world with the aim of being more effective and efficient. However, when the Covid-19 pandemic hits the world, digital transformation becomes an obligation and a driving force for creating digital transformation in every aspect of human life, especially so that business processes in companies and everywhere can continue to run during the Covid -19 pandemic we already know. Together (Iivari et al. 2020).

With the growth of digital transformation in today's world, the interaction between human and digital technology requires a user experience capable of creating a comfortable feeling when people use digital technology currently under development. One aspect of the increasing digital transformation lies in the education world. The education world during the Covid-19 pandemic requires digital technology that can adapt to the capabilities of each user. With the digital transformation in the education world, teaching materials are beginning to be used in schools through to higher education (Trinugroho et al. 2021). Learning resources, of course, really need user experience. User Experience (UX) is how users interact with each other and experience a product, system or service. It also includes user perceptions, User Experience (UX) emerged as promising research within the domain and combines aspects such as usability, usability and emotion. To cultivate the desired user experience (UX), a designer is supposed to act like a qualified gardener who would influence the growth of the tree by fertilizing, pruning and otherwise caring for it (Gómez-López et al. 2019). User Experience (UX) is used to convey information about the effectiveness and efficiency of a product and user satisfaction. User Experience (UX) metrics provide software development teams or services with deep insights into the drawbacks and potential for improvement to better align product development with users' needs and goals (Handayani et al. 2020).

To gain a better understanding of User Experience (UX)-qualified learning tools, this systematic literature review is designed to gain a better understanding of User Experience (UX) learning tools where this research will be evaluated. The research questions in this study are 1) what are the important user experience problems when using existing learning resources? 2) What are the determinants of user experience (UX) when using learning resources? By conducting qualitative research in the form of a systematic literature review, it is expected that answers will be obtained from the research questions for this study.

## 2. Literature Review

### 2.1. Learning Tools

During the current covid19 pandemic, the education world is of course faced with several problems to increase creativity in learning. One of these is the use of learning resources as online learning media. In addition, educational resources can be used to find out how students understand a material taught by the teacher. So, there are many things that can be accepted when using teaching aids in learning. Learning aids are certainly expected to make it easier for students to learn material with aids that are easy to understand, so that students using learning aids do not become anxious and concerned if mistakes are made using learning aids provided by the teacher (Fischel and Halskov, 2018). Learning resources during the Covid-19 pandemic are currently one of the things teachers rely on to provide materials and experience in teaching and learning, both in school and higher education. There are currently many learning tools available in the world namely Google Classroom, Microsoft Teams, Padlet, Miro, Mural, JamBoard and others. This tool is not only for learning, but also can be used for the public. However, in the education world, these tools are very useful for educators to provide effective online teaching materials.

### 2.2. User Experience

User Experience (UX) is one of the important things in using digital interaction media between people and the tools used by people, including computer technology. Because each person's experience is different, it becomes interesting to know how the capabilities and behavior of users when using existing technology. User experience should always be observed and considered when creating a comfortable environment between the user and the tools or technology used so that the user feels comfortable and able to use the tool as part of the business process needed during a journey for the user while undergoing the process (Getto and Moore 2017).

## 3. Methodology

This Research method use Systematic Literature review to find the answer of research question. Begins with a search for article papers that has been published by several other researchers from various data resources : 1) Science Direct ([www.sciencedirect.com](http://www.sciencedirect.com)), 2) ACM ([www.dl.acm.org](http://www.dl.acm.org)), 3) SAGE Journal ([www.journals.sagepub.com](http://www.journals.sagepub.com)), 4) Emerald Insight ([www.emerald.com](http://www.emerald.com)), 5) Taylor & Francis ([www.tandfonline.com](http://www.tandfonline.com)), and 6) IEEE Xplore (<https://ieeexplore.ieee.org>).

To get the article paper needed for this research the keywords used in the data sources are “user experience learning tool”, “ux tools”, “ux learning tools” and “ui and ux learning tools”. By using these keywords on the data sources, the data sources will display the most related article paper to the keyword used. After article papers were found, these papers are processed through sorting and filtering in which there are 3 phases, namely “Studies Found”, “Candidate Studies”, and “Selected Studies”. There will be 3 processes for this research paper that has been found before. First filtering process is reading all the article title, if the title matches with our research content it will be included in “Studies Found”. Next step is the second process that is reading all the article paper abstracts within “Studies Found” if the abstract matches with our research content it will be included in “Candidate Studies”. Lastly, the final process which is reading all the content inside the article papers that in “Candidate Studies” and if the papers can be used and related to the ongoing research, they will be included in the “Selected Studies”.

There is requirements need to be fulfilled in the research when searching for the article paper used, namely the requirements need to be met when searching the article paper such as:

- Latest Paper Published is 5 Years from 2021 (2017-2021)
- Article that is not related to User Experience and learning tools will not be used in this Research

## 4. Result and Discussion

There are 71 Studies Found using predetermined keywords that meet the criteria, and there are 57 candidate studies collected after the first filtering process and 51 Selected Studies can be used after the final process of filtering (Table 1).

Table 1. Sources of Literature Review

Sources	Studies Found	Candidate Studies	Selected Studies
Science Direct	27	15	13
Emerald	2	2	0
IEEE Xplore	9	9	9
SAGE	8	8	8
ACM	9	9	9
Taylor & Francis	16	14	12
Total	71 articles	57 articles	51 articles

### A. List of Publication Papers

From the Data Filtering process from above there are 51 selected studies were used in this research, and these are the list of paper used (table 2)

Table 2. List of Publication

Sources	Year	Paper Title
ACM	2017	Dynamic UX...(Nimkoompai and Paireekreng, 2017)
ACM	2018	Multi-Display...(Seshadri and Wilson, 2018)
ACM	2019	Analyzing the UX...(Gómez-López, Simarro and Bonal, 2019)
ACM	2019	Evaluating Children...(Mispa, Mansor and Kamaruddin, 2019)
ACM	2019	Towards Including...(Roubi, 2019)
ACM	2019	Improving MBSE...(Savary-Leblanc, 2019)
ACM	2019	ML-Process...(Zhou <i>et al.</i> , 2019)
ACM	2020	The UX of...(Ghajargar <i>et al.</i> , 2020)
ACM	2021	Use of Tools...(Green, Hargood and Charles, 2021)
IEEE Xplore	2017	User Experience...(Corrêa <i>et al.</i> , 2017)
IEEE Xplore	2018	AUX and UX...(Sanchez-Adame <i>et al.</i> , 2019)
IEEE Xplore	2018	Evaluating an...(Yee <i>et al.</i> , 2018)
IEEE Xplore	2019	Enriching Tourist...(Cauchi and Scerri, 2019)
IEEE Xplore	2019	UXMood...(Da Silva Franco <i>et al.</i> , 2019)
IEEE Xplore	2019	User Experience...(Pinandito <i>et al.</i> , 2019)
IEEE Xplore	2019	User Experience...(Souza <i>et al.</i> , 2019)
IEEE Xplore	2020	Gamified...(Handayani <i>et al.</i> , 2020)
IEEE Xplore	2021	Design and...(Cuadros <i>et al.</i> , 2021)
SAGE	2017	Mapping use...(Bacha, 2018)
SAGE	2017	Improvement of...(Song <i>et al.</i> , 2018)
SAGE	2018	Evaluating Mobile...(Hu, 2019)
SAGE	2019	Assessing the...(Shelstad, Chaparro and Keebler, 2019)
SAGE	2019	Postural Risk...(Sun <i>et al.</i> , 2019)
SAGE	2020	A Qualitative...(Kabeza <i>et al.</i> , 2020)
SAGE	2020	Using Game...(Kelleci and Aksoy, 2021)
SAGE	2020	mHealth Apps...(Kirkscey, 2021)
Science Direct	2017	Mapping Personas...(Getto and Moore, 2017)
Science Direct	2017	Benchmarking of...(Peruzzini, Grandi and Pellicciari, 2017)
Science Direct	2017	Design and...(Witteveen <i>et al.</i> , 2017)
Science Direct	2020	Is the LITE...(Borsci, Buckle and Walne, 2020)
Science Direct	2020	IoT4Fun Rapid...(de Albuquerque Wheler <i>et al.</i> , 2020)
Science Direct	2020	The Patterns...(Gardner, Blackwell and Church, 2020)
Science Direct	2020	A User Interface...(Alomari <i>et al.</i> , 2020)
Science Direct	2020	Evaluation Of...(Kuo <i>et al.</i> , 2020)
Science Direct	2020	Mobile Application...(Frederico <i>et al.</i> , 2021)
Science Direct	2021	Research Forum...(Bingaman <i>et al.</i> , 2021)
Science Direct	2021	Toy User Interface...(de Albuquerque Wheler <i>et al.</i> , 2021)
Science Direct	2021	How to Include...(Prati <i>et al.</i> , 2021)

Sources	Year	Paper Title
Science Direct	2021	On-Road...(Zou <i>et al.</i> , 2021)
Taylor & Francis	2017	Design for...(Shin <i>et al.</i> , 2017)
Taylor & Francis	2018	Language Learning...(Wilken, Taljard and de Wet, 2018)
Taylor & Francis	2020	Usability, User...(Sauer, Sonderegger and Schmutz, 2020)
Taylor & Francis	2020	Feasibility...(Spreij <i>et al.</i> , 2020)
Taylor & Francis	2020	ML Lifecycle...(Zhou <i>et al.</i> , 2020)
Taylor & Francis	2020	User Experience...(Liapis <i>et al.</i> , 2021)
Taylor & Francis	2020	Design And...(Tremblay <i>et al.</i> , 2020)
Taylor & Francis	2020	Bridging the...(Wilkinson and Breneman, 2020)
Taylor & Francis	2021	Interface and...(Englund, Moosvi and Roll, 2021)
Taylor & Francis	2021	Mobile UX...(Loeffler <i>et al.</i> , 2021)
Taylor & Francis	2021	A Usability...(Tang <i>et al.</i> , 2021)
Taylor & Francis	2021	Mobile Application...(Richardson, Campbell-Yeo and Smit, 2021)

The table above shows that 51 articles were used to find problems that occurred from 2017 to 2021. They will find out how the effects of the Covid-19 pandemic problem that occurred, whether there were significant changes or not. Thus, the research was conducted using a systematic literature review to see the determinants of outcome factors in user experience using learning tools.

### B. Author Countries

From the 51 Selected Studies used, 186 Authors collaborated in creating the article paper used in this research. And from 27 Countries the most contribution is from United States of America (USA) with 34 Authors contributed (Table 3).

Table 3. Country of Authors

Country	Total Authors
United States of America (USA)	34
Brazil	22
Canada	16
Australia	13
China	12
Italy	11
Netherlands	10
United Kingdom (UK)	8
Spain	7
Indonesia	6
Finland	5
Greece	5
Mexico	5
Germany	4
Sweden	4
Florida	3
Malaysia	3
South Africa	3
Japan	2
Singapore	2
Thailand	2
Turkey	2
France	1
Hong Kong	1
Israel	1
Morocco	1
Saudi Arabia	1

Country	Total Authors
Taiwan	1

### C. Total Authors from Institution

The Total number of institutions of the research paper used is up to 186 Institutions, and Federal University of Para has the most authors in publishing article paper used in this research, In total of 9 authors from Federal University of Para.

### D. List of Issues

There are 14 Problems in Totals from 51 Selected Studies, and this can be counted as not effective learning tools for User Experience (UX) (Table 4)

Table 4. List of Issues

Issues	Total	List Paper	Category
Skills Required	13	(Bacha, 2018)(Zhou <i>et al.</i> , 2019)(Pinandito <i>et al.</i> , 2019)(Souza <i>et al.</i> , 2019)(Kabeza <i>et al.</i> , 2020)(Alomari <i>et al.</i> , 2020)(Spreij <i>et al.</i> , 2020)(Green, Hargood and Charles, 2021)(Englund, Moosvi and Roll, 2021)(Loeffler <i>et al.</i> , 2021)(Tang <i>et al.</i> , 2021)(Song <i>et al.</i> , 2018)(Zhou <i>et al.</i> , 2020)	People
System Issues	12	(Nimkoompai and Paireekreng, 2017)(Corrêa <i>et al.</i> , 2017)(Bacha, 2018)(Peruzzini, Grandi and Pellicciari, 2017)(Shin <i>et al.</i> , 2017)(Savary-Leblanc, 2019)(Ghajargar <i>et al.</i> , 2020)(Seshadri and Wilson, 2018)(Yee <i>et al.</i> , 2018)(Cauchi and Scerri, 2019)(Handayani <i>et al.</i> , 2020)	Technology
High Expectation	9	(Mispa, Mansor and Kamaruddin, 2019)(Yee <i>et al.</i> , 2018)(Zhou <i>et al.</i> , 2020)(Bacha, 2018)(Getto and Moore, 2017)(Pinandito <i>et al.</i> , 2019)(Kabeza <i>et al.</i> , 2020)(Prati <i>et al.</i> , 2021)(Loeffler <i>et al.</i> , 2021)	People
User not Satisfied	9	(Witteveen <i>et al.</i> , 2017)(Seshadri and Wilson, 2018)(Hu, 2019)(Shelstad, Chaparro and Keebler, 2019)(Handayani <i>et al.</i> , 2020)(Kirkscey, 2021)(Borsci, Buckle and Walne, 2020)(Richardson, Campbell-Yeo and Smit, 2021)(Alomari <i>et al.</i> , 2020)	People
Expensive Technology	5	(de Albuquerque Wheler <i>et al.</i> , 2020)(Prati <i>et al.</i> , 2021)(Zou <i>et al.</i> , 2021)(Da Silva Franco <i>et al.</i> , 2019)(Sun <i>et al.</i> , 2019)	Technology
User Problem	4	(Peruzzini, Grandi and Pellicciari, 2017)(Wilken, Taljard and de Wet, 2018)(Sauer, Sonderegger and Schmutz, 2020)(Liapis <i>et al.</i> , 2021)	People
Not Supported	4	(Sanchez-Adame <i>et al.</i> , 2019)(Gómez-López, Simarro and Bonal, 2019)(Roubi, 2019)(Da Silva Franco <i>et al.</i> , 2019)	Technology
Not Effective for User	4	(Borsci, Buckle and Walne, 2020)(Englund, Moosvi and Roll, 2021)(Tang <i>et al.</i> , 2021)(Richardson, Campbell-Yeo and Smit, 2021)	People
Lack of Compatible Application	2	(Song <i>et al.</i> , 2018)(Tremblay <i>et al.</i> , 2020)	Technology
Interface Problem	2	(de Albuquerque Wheler <i>et al.</i> , 2021)(Ghajargar <i>et al.</i> , 2020)	Technology
Harmful Potential	2	(Sun <i>et al.</i> , 2019)(Souza <i>et al.</i> , 2019)	Technology
Poor Understanding	1	(Spreij <i>et al.</i> , 2020)	People
User Error	1	(Bingaman <i>et al.</i> , 2021)	People
Communication Issue	1	(Cauchi and Scerri, 2019)	People

From table 4 above, these are the results found that there are 2 main categories occurring on the human and technology side. From the human side there are 8 (eight) cases. In terms of technology, there are 6 (six) issues. Thus, the role of the problem is almost partly of people. This is in line with the condition that there are circumstances that have not yet adapted to the use of technology, making people-centered (People-Centrist) in the use of technology and therefore the user experience must understand this. It is necessary to understand that in every learning resource there must be a guide to understand every reason for creating learning resources so the most important thing that is fundamental is the need for skills that can adapt the needs of the learning resources needed. Because the stages of learning resources are different, the skills needed are also central. Thus, the developer should help the user to better understand each of the existing learning resources. If there is a new function, provide a pop-up display for people to learn the function easily and comfortably, so that people can understand how to master the learning tools.

Since learning aids are still in the development process, in addition to user issues, which require skills to use learning aids, there is also a factor in technological conditions that must always be developed. Obviously, many of the issues that occur are system glitches. This requires care from developers so that they should pay attention to maximum testing before giving it to users.

Other issues that also usually arise are how expectations are too exaggerated on the part of the developer who thinks the user can use learning resources. Developers sometimes understand from the developer's point of view that the user is capable, in fact, the user has yet to learn because he just adapts to the existing learning resources. This can eventually lead to the most common problem because the user is not satisfied with the existing learning resources. It makes the user uncomfortable when using the learning resources. In addition, the problem that arises may be due to the user's ability to use learning resources that are quite expensive, such as the use of augmented reality, so that it requires additional technology that is not cheap and causes the user to struggle. must accomplish with the acquisition of technology, so you may need to think about how to do it. to get learning facilities that are cheaper and more flexible for every user.

Apart from the things discussed above, the problems in people like ineffective for users, poor understanding, user errors and communication problems are due to the problem of how users want to learn the guidelines given by the learning tools application. Unfortunately, many users make direct use of learning resources without first studying the guidelines given by application developers. This makes the user less understanding and the occurrence of communication problems.

In terms of technology, such as lack of compatible applications, interface issues, and malicious potential, this problem can occur because it reverts to users who don't read the manual first when preparing to use learning tools. On the other hand, application developers also have expectations when using technology that is too high-end, while users do not necessarily have advanced technology. So, in this case, the developer of the learning tools application needs to do research or surveys first, or clustering can be done on the user so that they can understand the target user who will use the learning tools application.

#### E. Variables of User Experience (UX) Learning Tools

These are the key factors in User Experience (UX) Learning tools, where this variable determined is the Learning Tools is effective to be used as designing User Experience (UX) in the future (Table 5).

Table 5. Key Success Factors of User Experience in Learning Tools

Number	Variables	Total	List Paper
1	Usability	17	(Cuadros <i>et al.</i> , 2021)(Bacha, 2018)(Borsci, Buckle and Walne, 2020)(Englund, Moosvi and Roll, 2021)(Getto and Moore, 2017)(Mäkinen <i>et al.</i> , 2020)(Kabeza <i>et al.</i> , 2020)(Kelleci and Aksoy, 2021)(Prati <i>et al.</i> , 2021)(Frederico <i>et al.</i> , 2021)(Seshadri and Wilson, 2018)(Song <i>et al.</i> , 2018)(Tang <i>et al.</i> , 2021)(Wilken, Taljard and de Wet, 2018)(Shelstad, Chaparro and Keebler, 2019) (Yee <i>et al.</i> , 2018)(Sauer, Sonderegger and Schmutz, 2020)
2	Ease of Use	14	(Handayani <i>et al.</i> , 2020)(Kabeza <i>et al.</i> , 2020)(Kirksey, 2021)(Mispa, Mansor and Kamaruddin, 2019)(Nimkoopai and Paireekreng,

Number	Variables	Total	List Paper
			2017)(Roubi, 2019)(Savary-Leblanc, 2019)(Seshadri and Wilson, 2018)(Englund, Moosvi and Roll, 2021)(Song <i>et al.</i> , 2018)(Spreij <i>et al.</i> , 2020)(Yee <i>et al.</i> , 2018)(Sun <i>et al.</i> , 2019)(Zhou <i>et al.</i> , 2020)
3	User Satisfaction	10	(Cuadros <i>et al.</i> , 2021)(Borsci, Buckle and Walne, 2020)(Corrêa <i>et al.</i> , 2017)(Da Silva Franco <i>et al.</i> , 2019)(de Albuquerque Wheler <i>et al.</i> , 2020)(Hu, 2019)(Kuo <i>et al.</i> , 2020)(Nimkoompai and Paireekreng, 2017)(Peruzzini, Grandi and Pellicciari, 2017)(Yee <i>et al.</i> , 2018)
4	Effectiveness	9	(Gardner, Blackwell and Church, 2020)(Gómez-López, Simarro and Bonal, 2019)(Peruzzini, Grandi and Pellicciari, 2017)(Prati <i>et al.</i> , 2021)(Tang <i>et al.</i> , 2021)(Wilken, Taljard and de Wet, 2018)(Yee <i>et al.</i> , 2018)(Zhou <i>et al.</i> , 2019)(Zou <i>et al.</i> , 2021)
5	Attractiveness	8	(Cauchi and Scerri, 2019)(Handayani <i>et al.</i> , 2020)(Mispa, Mansor and Kamaruddin, 2019)(Sanchez-Adame <i>et al.</i> , 2019)(Song <i>et al.</i> , 2018)(Spreij <i>et al.</i> , 2020)(Witteveen <i>et al.</i> , 2017)(Wilkinson and Breneman, 2020)
6	Visualization	8	(Da Silva Franco <i>et al.</i> , 2019)(Kuo <i>et al.</i> , 2020)(Loeffler <i>et al.</i> , 2021)(Song <i>et al.</i> , 2018)(Souza <i>et al.</i> , 2019)(Witteveen <i>et al.</i> , 2017)(Zhou <i>et al.</i> , 2019)(Tremblay <i>et al.</i> , 2020)
7	Quality	6	(Cuadros <i>et al.</i> , 2021)(Mäkinen <i>et al.</i> , 2020)(Peruzzini, Grandi and Pellicciari, 2017)(Pinandito <i>et al.</i> , 2019)(Sanchez-Adame <i>et al.</i> , 2019)(Zou <i>et al.</i> , 2021)
8	Efficiency	6	(Cuadros <i>et al.</i> , 2021)(Corrêa <i>et al.</i> , 2017)(Alomari <i>et al.</i> , 2020)(Hu, 2019)(Mispa, Mansor and Kamaruddin, 2019)(Yee <i>et al.</i> , 2018)
9	Transparency	5	(Green, Hargood and Charles, 2021)(Kabeza <i>et al.</i> , 2020)(Loeffler <i>et al.</i> , 2021)(Seshadri and Wilson, 2018)(Souza <i>et al.</i> , 2019)
10	Visibility	4	(Alomari <i>et al.</i> , 2020)(Handayani <i>et al.</i> , 2020)(Kelleci and Aksoy, 2021)(Richardson, Campbell-Yeo and Smit, 2021)
11	Information Usefulness	3	(Cuadros <i>et al.</i> , 2021)(Cauchi and Scerri, 2019)(Bacha, 2018)
12	Reliability	3	(Mäkinen <i>et al.</i> , 2020)(Liapis <i>et al.</i> , 2021)(Richardson, Campbell-Yeo and Smit, 2021)
13	Inspiration	2	(de Albuquerque Wheler <i>et al.</i> , 2021)(Ghajargar <i>et al.</i> , 2020)
14	Ideation	2	(de Albuquerque Wheler <i>et al.</i> , 2021)(Ghajargar <i>et al.</i> , 2020)
15	Perceived Intensity	2	(Kuo <i>et al.</i> , 2020)(Savary-Leblanc, 2019)
16	Interactivity	1	(Bingaman <i>et al.</i> , 2021)
17	Interpretable Science	1	(Bingaman <i>et al.</i> , 2021)
18	Clear Imagery	1	(Bingaman <i>et al.</i> , 2021)
19	Reliable Tool	1	(Borsci, Buckle and Walne, 2020)
20	Readiness	1	(Cauchi and Scerri, 2019)
21	Cost-Effectiveness	1	(Cauchi and Scerri, 2019)
22	Efficacy	1	(Corrêa <i>et al.</i> , 2017)
23	User Friendly	1	(de Albuquerque Wheler <i>et al.</i> , 2020)
24	Improvements	1	(de Albuquerque Wheler <i>et al.</i> , 2020)
25	Implementations	1	(de Albuquerque Wheler <i>et al.</i> , 2021)
26	Suitability	1	(de Albuquerque Wheler <i>et al.</i> , 2021)
27	Awareness	1	(Englund, Moosvi and Roll, 2021)
28	Perceived Affordance	1	(Englund, Moosvi and Roll, 2021)
29	Validation	1	(Getto and Moore, 2017)

Number	Variables	Total	List Paper
30	Emotions	1	(Gómez-López, Simarro and Bonal, 2019)
31	Affordability	1	(Alomari <i>et al.</i> , 2020)
32	Creativity	1	(Zhou <i>et al.</i> , 2020)
33	Process	1	(Zhou <i>et al.</i> , 2020)
34	Perceived Credibility	1	(Richardson, Campbell-Yeo and Smit, 2021)

Of the 51 articles obtained, Table 5 lists 34 key success factors that are important to use in learning resources, especially to create an effective and efficient user experience. 5 (five) things that become important success factors are:

1. Usability, becomes a very influential thing as each user will take measurements based on the user's experience and emotionality to see how the learning resources can be used optimally or not. Usability also allows developers to measure how appropriate or inappropriate the use of these learning resources is.
2. Ease of use, this is indeed very important when using an application, especially with teaching aids. Since many users using this learning tool are only a few years old, the convenience required is very high to have an easy-to-reach impact.
3. User satisfaction, this is of course the main goal of user experience in learning resources. Students and teachers can be satisfied with the use of learning resources and can make learning the best in the learning process. This can affect the performance of students in the teaching and learning process at school.
4. Effectiveness, of course, with the factor of effectiveness, can influence the learning process and make it more effective in the use of learning resources.
5. Attractiveness, with the use of teaching resources, it is hoped that there will be an interesting learning process and mutual interaction between students and teachers. With an attractive user experience, it delivers a very interesting learning process.

Apart from the five factors mentioned above, according to Table 5, other factors must also be considered to produce a learning resource user experience that further enhances the learning process in schools, colleges, and universities or in higher education. By paying attention to Table V, developers and users can better understand how user experience can be a determinant of success in using learning resources. Because during the current Covid-19 pandemic, the learning process requires interesting learning tools and can be used by anyone in conducting studies for student success.

## 5. Conclusion

From this Research, it can be concluded that Learning Tools for User Experience (UX) need that variable above that has been told above to make sure that Learning Tools are qualified to make User Experience (UX) for user better than before. With the approach used in systematic literature review, there are key factors of the variable that makes Learning tool for User Experience (UX) better. In Addition, those variables that has been typed before need to be focused on since the Usability, Ease of Use, and User Satisfaction is 3 most factors that affect some of the Learning tool to be decent and can be used for designing User Experience (UX).

This Research can provide a better understanding and information for all users when it comes to Learning tool for User Experience (UX), There are tons of Learning tool out there that has been used as a tool to design User Experience (UX) for user. Therefore, it can help other user when it comes to designing UX, they will know what kind of User Experience (UX) that the other user will use in the future.

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