

User Experience Study on Self-Ticketing Machine in Cinema (Case Study: CGV Cinema)

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Abstract: Self-ticketing machines have been implemented in cinemas to alleviate long queues during ticket purchases. However, their adoption has highlighted significant usability challenges for many users. This study aims to identify these obstacles and assess user experiences with self-ticketing machines to inform design improvements. This research employed a mixed-method approach involving usability testing and the administration of a User Experience Questionnaire (UEQ) among 125 respondents familiar with self-ticketing machines. Participants were tasked with purchasing tickets, printing them, and accessing transaction history through the machines. The findings revealed that interface complexities significantly impacted task completion times. Moreover, low scores in the stimulation domain of the UEQ indicated a lack of attractiveness and motivation for users. Based on these insights, recommendations include enhancing the interface design to improve intuitiveness, visual appeal, and user-friendliness. Such improvements aim to enhance user satisfaction and streamline the ticketing process, ultimately benefiting both cinemas and patrons.

Keywords: Usability, User Experience, Self-Ticketing Machine, User Experience Questionnaire

INTRODUCTION

The digital era has brought significant changes in various aspects of human life, including people's behavior. Advances in information and communication technology have facilitated the emergence of digital tools that focus on automation and ease of service for users (Nikijuluw et al., 2020). One of the manifestations of this phenomenon is the emergence of self-ticketing machine (STM), a self-contained ticket machine that allows users to make ticket purchase transactions without the need to interact directly with officers. The existence of STM provides speed, efficiency, and convenience for users (Redyref, 2020).

Self-ticketing machine are now being applied in various public service and business sectors. At airports, these machines are used for self-check-in, allowing for reduced check-in times, cost savings, and improved passenger experience (Chris Wilson, 2020). At train stations, STM improves efficiency and passenger experience. With this system, passengers can buy tickets and access train services more easily and quickly (Shan et al., 2023). Amusement rides such as playgrounds have also adopted this technology to speed up the process of purchasing admission tickets. Cinema is no exception, which allows self-purchase of tickets without having to queue at the counter, reducing the time to buy tickets to less than one minute. In addition, this machine can also be used to purchase food and beverages, which increases efficiency and convenience for cinema goers (Saviq Bachdar, 2018).



Figure 1. Self-Ticketing Machine at the High Speed Train Station
(Source: Author's Documentation)

In its application in cinemas, the user experience (UX) when using self-ticketing machine is an important factor that can affect overall customer satisfaction. These machines generally offer an intuitive graphical interface with a touch screen, allowing users to select movies, showtimes, and seat numbers with ease. However, not all of these experiences are smooth. This makes the user experience (UX) a complex aspect, involving more than just the main function of the machine as an automated ticket seller when a user purchases a ticket.

Research on user experience (UX) in various digital media has been carried out a lot, such as digital libraries (Kuhar & Merčun, 2022), mobile applications (Syukron et al., 2023), and user experience research on games (Takatalo et al., 2010). While these studies provide important insights into UX across digital platforms, no one has specifically examined user experience on self-ticketing machine in the cinema environment. Therefore, this research is designed to add to this treasure of knowledge and provide a deeper understanding of UX in the context of self-ticketing machine in the entertainment industry.

Self-Ticketing Machine CGV Cinema

The increasing number of cinema visitors throughout 2023 in Indonesia, which reached 114.5 million viewers (Asep Syaifullah, 2024), has a direct impact on the increasing use of ticket automation systems in various cinemas, including CGV Cinema (PT Graha Layar Prima Tbk, 2022). Self-ticketing machine This CGV has a function for visitors to be able to buy and print tickets independently. Some of the features contained in self-ticketing machine These CGVs are as follows:

1. Buy Ticket: allows visitors to buy tickets independently without having to queue at the ticket counter. Visitors can purchase tickets based on the showtime, movie title, showtime, and seat number.
2. Collect Ticket: allows visitors to print cinema tickets by entering a booking code and pass key. Tickets will be printed automatically after the visitor presses the "Collect" button.
3. Membership: allows visitors to view various information regarding CGV membership. Visitors can change their PIN, view the balance amount, change profile information, and view transaction history.



Figure 2. Self-Ticketing Machine CGV Cinema

(Source: Author's Documentation)

User Experience

User experience is associated with the user's perception and response to the results of his interaction with the system (Rauschenberger et al., 2013; Santoso et al., 2016). It is a dynamic feeling of the user experience during and after interacting with a system (Hassenzahl, 2008). Because it is a perception, UX sees the entire interaction of an individual with things, as well as thoughts, feelings, resulting from that interaction (Albert & Tullis, 2023b). ISO 9241-210 views UX as a form of human ergonomics when interacting with a system. According to him, UX is a person's perception and response when using a product, system, or service (ISO 9241-210:2019 - 2019). These perceptions and responses include emotions, beliefs, preferences, perceptions, physical and psychological responses, as well as behaviors and adjustments before, during, and after use.

Usability

According to Tullis and Albert (2023a), the measurement of usability often involves three main variables, namely the completeness of the task, the time it takes to complete the task, and the errors that occur during the task. The three variables are described as follows:

1. Completeness can be expressed in two categories, namely binary and stratified. In binary completeness, the assessment uses the numbers 0 and 1, where 0 indicates that the task is incomplete and 1 indicates that the task has been completed. Meanwhile, graded completeness can be measured in the form of percentages or numbers. The determination of the completeness value can take into account the factors of time, errors, and/or the ability of the respondent.
2. Measuring task completion time can be done in a variety of ways, such as manual note-taking, the use of clocks, stopwatches, recording devices, or specialized software. Recording devices are considered more recommended, with time calculation done through marking on recording devices to provide a more positive psychological impact for respondents.
3. In general, an error can be interpreted as a mistake made by the respondent while carrying out a task. Errors can vary depending on the object of the usability test, such as errors in pressing buttons or errors in reading information.

User Experience Questionnaire (UEQ)

UEQ is rooted in the concept that UX can be measured by paying attention to the intended use and user experience. This questionnaire was developed empirically, resulting in 6 scales that reflect the most crucial aspects of UX for various products (Laugwitz et al., 2008).

UEQ consists of 26 question items and is very effective in measuring user experience. This method is designed to assess various important aspects of the user experience, including attractiveness, perspicuity, efficiency, dependability, stimulation, and novelty (Schrepp &

Thomaschewski, 2019). The tool consists of a series of questions packaged using seven scales likert. UEQ's main advantage is its ability to capture different dimensions of the user experience, both positive and negative aspects, in a broad yet detailed way. In addition to the format that has been standardized and is already in Indonesian (Santoso et al., 2016), UEQ is also very easy to apply, making it easy to collect large amounts of data.

Data from UEQ can be analyzed using UEQ tool analysis. To understand the significance of the values generated by each UEQ scale, a comparison was made between the calculated values of each scale and the value reference in Table 1 below (Schrepp & Thomaschewski, 2019).

Table 1. Interval Benchmarks for UEQ Scale

	Attractiveness	Perspicuity	Efficiency	Dependability	Stimulation	Novelty
<i>Excellent</i>	≥1,75	≥1,9	≥1,78	≥1,65	≥1,55	≥1,4
<i>Good</i>	≥1,52	≥1,56	≥1,47	≥1,48	≥1,31	≥1,05
	<1,75	<1,9	<1,78	<1,65	<1,55	<1,4
<i>Above Average</i>	≥1,17	≥1,08	≥0,98	≥1,14	≥0,99	≥0,71
	<1,52	<1,56	<1,47	<1,48	<1,31	<1,05
<i>Below Average</i>	≥0,7	≥0,64	≥0,54	≥0,78	≥0,5	≥0,3
	<1,17	<1,08	<0,98	<1,14	<0,99	<0,71
<i>Bad</i>	<0,7	<0,64	<0,54	<0,78	<0,5	<0,3

System Usability Scale (SUS)

Self-ticketing machine, as a technological solution in overcoming long queues at cinema counters, ideally accommodates the needs of users to buy and print tickets easily. However, in its implementation, not all visitors are able to use self-ticketing machine smoothly, resulting in visitors often experiencing problems and asking for help from cinema staff to operate the machine.

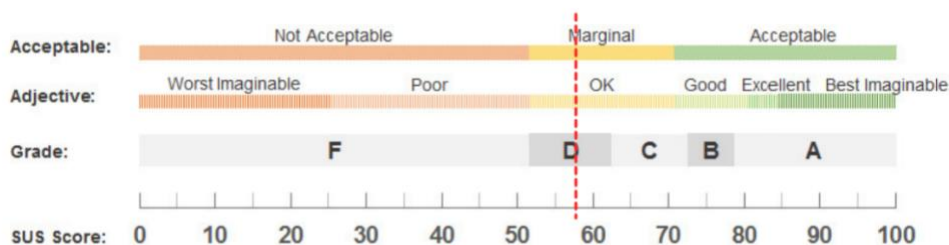


Figure 3. SUS Score on Self-Ticketing Machine CGV Cinema

Through the measurement of the System Usability Scale (SUS) on the self-ticketing machine at CGV Cinema, it was carried out for 10 days (October 7-17, 2023), involving 25 respondents as research participants. The measurement results showed a final SUS score of 57.9, which was grouped in the grade D or marginal category. These results indicate that CGV Cinema's self-ticketing machine system is not fully able to accommodate a good UX when users interact with the STM. Based on these problems, this study seeks to identify the user experience (UX) when interacting with the self-ticketing machine interface in cinemas.

RESEARCH METHOD

Studies to measure user experience (UX) Self-Ticketing Machine (STM) in cinemas is based on a quantitative approach. This is because the user experience (UX) measurement process is based on data metrics that are used to measure aspects of satisfaction, convenience, efficiency and preferences using numerical scales (Kate Moran, 2018). This approach allows for the collection of data from a larger

sample, provides a broader representation of the STM user population, as well as facilitates statistical analysis that can uncover significant patterns and trends.

To get the best results in knowing the usability problem, usability testing can be carried out with a minimum of five respondents (Jacob Nielsen, 2012). A number of respondents were recruited in this usability test which focused on cinema visitors who had used self-ticketing machine to purchase or print tickets in advance. Based on the results of an interview with the supervisor of CGV Cinema BEC Mall Bandung, usability testing can involve cinema visitors with an age range of 17-35 years which will be carried out remote and face-to-face. By using the self-ticketing machine CGV Cinema that has been replicated, respondents carry out the following tasks: (1) buy tickets; (2) printing tickets; and (3) view the transaction history page. The findings to be captured in this study are the extent to which the respondents succeeded in completing each task, the click error and the time it takes to complete each task.

In accordance with the UEQ guidelines, there must be at least 20-30 respondents for the results to be reliable (Schrepp et al., 2014). The filling out of the UEQ questionnaire in this study is by asking respondents for their willingness to provide an assessment of the user experience of self-ticketing machine After the respondents completed the usability test. A total of 125 UEQ questionnaire response data were collected after cleaning by deleting duplicate data, and data that did not comply with the criteria provisions. This data collection was carried out from December 28, 2023 to February 11, 2024.

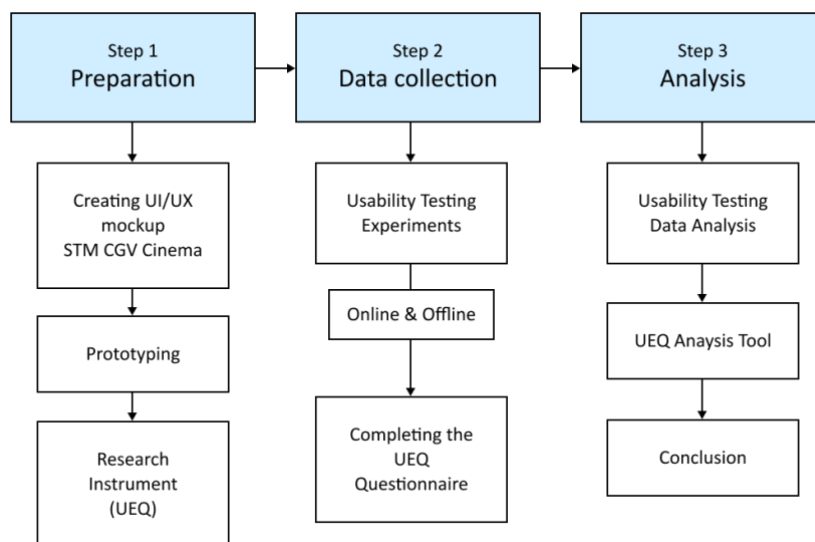


Figure 4. Research Stages

After the data is collected, analysis is carried out using analysis tool which is available on UEQ. The data collected will be processed so that score findings appear in each aspect measured, namely attractiveness, perspicuity, efficiency, dependability, stimulation, and novelty. This analysis can also describe user experience assessments that focus on aesthetics (design beauty) and/or utility (function). So that from this finding it can be considered to make improvements that are directly related to the user experience.

RESULT AND DISCUSSION

Results and Usability Analysis

The results of measuring metrics (completeness, click errors, and mean time) in this usability test involved 125 respondents consisting of 57 men and 68 women, aged 17-35 years. The devices

used for usability testing were 83 laptops (66%), 37 PCs (29%) and 5 tablets (4%). This test uses Maze.co – a commonly used software for usability testing. The following is the data that was successfully collected in the testing process that ran for 46 days:

Table 2. Usability Test Results

	Success Rate	Misclick Rate	Average Duration
Buying tickets	74,1%	41,3%	68.4 seconds
Printing tickets	55,9%	43,2%	89.4 seconds
Access transaction history	57,0%	27,6%	84.1 seconds

The task of buying tickets is the task that has the highest level of completeness (74.1%). This is because the process or stages of completing tasks are systematic and clear. This task has the following flow: select the "Buy Ticket" menu → select the title of the film → select the showtime → select the seat number → make the payment. The level of completeness is also influenced by the interface design which is dominated by images that help users get information effectively and efficiently.



Figure 5. Buy Ticket Interface

Despite having a fairly good completeness score, the ticket purchase process has a 41.3% click error rate and the average duration required to complete this task is 68.4 seconds. This is a bad record because the click error is affected by a visual element that distracts the main purpose of the ticket purchase task. So users need longer time to complete this ticket purchase task.

Meanwhile, the ticket printing task has a fairly low level of completeness, namely 55.9%. Even though when viewed from the ticket printing process is quite simple. This task has the following flow: select the "Collect Ticket" menu → enter the booking code and pass key → click the "Collect" button. The low level of completeness and the average time it takes is quite long (89.4 seconds) is greatly influenced by the step of entering the booking code and pass key which consists of many numbers. Although it only takes a few steps to print tickets, the click error rate is still quite high (43.2%). This is a serious concern to improve the design in the ticket printing process.



Figure 6. Collect Ticket Interface

The task of viewing transaction history also does not have a good score record. Of the three metrics measured, it was rated as a completeness rate of 57.0%, a click error rate of 27.6%, and an

average duration of 84.1 seconds. Only the click error rate metric is quite good, because the steps taken are quite simple, namely click the "Membership" menu → select the "Transaction History" menu → enter the membership number and PIN. However, the time it takes is quite long because users have to enter a membership number of 16 digits. This step is the longest step.

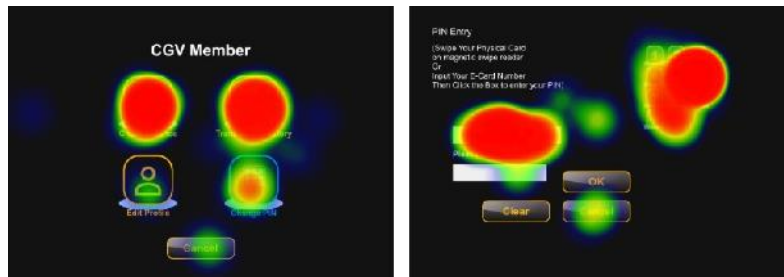


Figure 7. Transaction History Access Interface

Results and Analysis of User Experience Using UEQ

From the user experience questionnaire (UEQ) that has been conducted after undergoing a series of usability tests on self-ticketing machines, a total of 125 respondents participated. In Table 3, the total respondents consisted of 57 male respondents, and 68 female respondents. If divided by age group, there were 12 respondents under 17 years old, 39 respondents in the age range of 17-22 years, 48 respondents in the age range of 23-28 years, and as many as 26 respondents in the age range of 29 to 34 years.

Tabel 3. User Experience Questionnaire Respondents

	< 17 y.o	18-22 y.o	23-28 y.o	29-34 y.o	Total
Male	4	15	24	14	57
Female	8	24	24	12	68
Total	12	39	48	26	125

User experience (UX) measurement on self-ticking machines was carried out by distributing questionnaires through Google Forms to respondents. The information collected from the questionnaire is entered into the UEQ data analysis table, after which changes are made by reducing the score obtained from the UEQ questionnaire by 4, so that a positive or negative score is obtained for each UEQ item. A value of +3 indicates the highest positive level and -3 indicates the lowest negative level. The altered data is then processed to get an average score for each aspect of the UEQ. The results of UEQ data analysis can be seen in Table 4.

Table 4. UEQ Calculation Results

	Average Score	UEQ Scale (Mean and Variance)			
Attractiveness	1,049	Attractiveness	↑	1,049	2,45
Pragmatic Quality	0,982	Perspicuity	↑	0,986	2,62
		Efficiency	↑	0,936	2,76
		Dependability	↑	1,024	2,42
		Stimulation	→	0,728	2,97
Hedonic Quality	0,881	Novelty	↑	1,034	1,51

Based on the results of the calculation in Table 4, the highest value is the attractiveness aspect which is 1.049. This means that this self-ticketing machine is considered by users as a user-friendly, convenient, fun, and encouraging system. Although it has a positive impression, users consider this system not attractive enough.

Perspicuity, efficiency, and precision are aspects that are incorporated into pragmatic quality. Although the pragmatic quality aspect on average received a positive impression 0.982, the score was still slightly above the limit of 0.8. The calculation results for the perspicuity and efficiency aspects are 0.986 and 0.936. This shows that self-ticketing machines are quite easy to understand, simple, efficient and practical. Dependability is the aspect with a higher score, which is 1,024. This positive impression signifies that the user feels safe, supports the goal, and meets expectations when using this system.

In the aspect of hedonic quality, there is a scale of stimulation and novelty. Both have different gains, namely stimulation of 0.728 and novelty of 1.034. The stimulation aspect has a low value or normal impression, which indicates that users are less motivated to use self-ticketing machines. Users also find this system confusing and less useful. Meanwhile, in terms of novelty, this system received a positive impression of 1,034 from users. Users consider this system to be inventive, leading, innovative and creative.

The results of this study show that the evaluation for most aspects shows positive values, where five out of six aspects of UX get a score above 0.8. These results are consistent with Rauschenberger's findings (Rauschenberger et al., 2013), which indicate that an average value between -0.8 and 0.8 is considered a normal evaluation, a value of >0.8 is considered a positive evaluation, and a < value of -0.8 is considered a negative evaluation. Of all aspects, the average score for the stimulation aspect was lower than that of other aspects (less than 0.8). This is due to the user's perception that this self-ticketing machine is still less useful, boring, uninteresting and unmotivating to use. These findings are in line with the results of usability testing which shows that the click error factor and the average duration required when executing each task. So it is necessary to make efforts to increase this value by developing designs that are more exciting, attractive and useful for users. The average measurement results for each variable from the stimulation aspect of UEQ can be seen in Table 5.

Table 5. Results of Measurement of Stimulation Scale

Mean	Variance	Std. Dev.	Left	Right	Scale
↑ 0,9	4,0	2,0	Valueable	Inferior	Stimulation
→ 0,7	3,5	1,9	Boring	Exciting	Stimulation
→ 0,6	3,4	1,9	Not interesting	Interesting	Stimulation
→ 0,7	4,0	2,0	Motivating	Demotivating	Stimulation

The overall results of the UEQ scale of the CGV Cinema self-ticketing machine are depicted in Figures 9 and 10. The value of each UEQ item can be seen in Figure 9, where the average on the Attractiveness scale is 1.049; Perspicuity 0.986; Efficiency 0.936; Dependability 1,024; Stimulation 0.728; and Novelty 1,034.

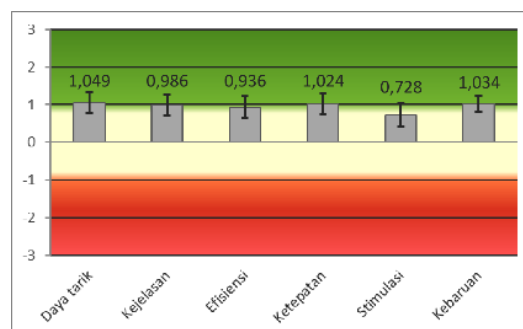


Figure 8. Average Scale Value of UEQ Self-Ticketing Machine CGV Cinema

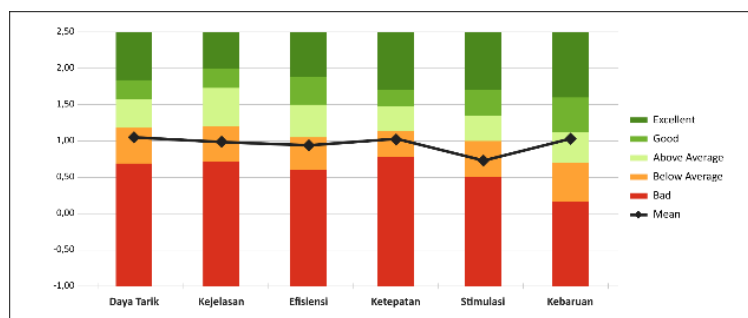


Figure 9. UEQ Benchmark Diagram

CONCLUSION

The results of the usability test showed an average completion rate of 62.3%, an error rate of 37.3%, and an average time required of 80.6 seconds. This result illustrates that the performance of this STM is not good enough, considering that the completion rate is below 80%. The rate of click errors is affected by the arrangement and complexity of the information displayed, thus confusing the user when operating the STM. While the average duration is quite long, it is mostly influenced when users input booking codes, pass keys, membership numbers and PINs.

The results of the analysis using the UEQ method obtained an average value of Attractiveness 1.049, perspicuity 0.986, Efficiency 0.936, Dependability 1.024, Stimulation 0.728, and Novelty 1.034. These results explain that the CGV Cinema self-ticketing machine according to the UEQ scale is quite innovative, but it has not attracted enough attention from users when interacting with this system. It is necessary to improve the interface design to be more intuitive, attractive and simple to make it easier for users to operate STM.

Based on usability and UEQ testing, it is recommended to make improvements to aspects related to the STM interface. The need for an attractive STM interface design, so that users feel happy and comfortable when operating STM. Perspicuity and efficiency are also a serious concern. This is intended so that the process of purchasing and/or printing tickets can be easier and faster. Based on the conclusions obtained from the usability and user experience study on the CGV Cinema self-ticketing machine, several improvements can be made both in terms of interface appearance, and overall to improve the user experience.

1. Design a simple self-ticketing machine interface and not too much information displayed on a screen. This can increase the user's focus on the operation of the self-ticketing machine.
2. Make it a practical step by simplifying step by step when users print tickets. This will have an impact on the efficiency of time use, thus making the self-ticketing machine relatively easier and faster for users to use.

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