ABSTRACT

Prototype To Support Working Productivity With Pomodoro Method As A Culture Improvement Safety

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Abstract. As time goes by technology in the world is growing, even now many schools and jobs have been boldly implemented. However, the form of ease of access as a result of these technological advances has resulted in the blurring of the boundaries between personal time and time. According to an article from the Ministry of Finance of the Republic of Indonesia in 2021, it states that working time is not limited by the term working hours or place of work, because it can be carried out anywhere and anytime. The balance between personal life and work (work life balance) becomes unbalanced and can lead to work stress or ergonomic problems, so good arrangements are needed in managing work time. The Pomodoro technique is a learning technique using time management. Pomodoro works to increase focus on what is being done, so that work productivity will increase. Therefore, this research is aimed at creating a digital platform to increase work productivity and safety through the Pomodoro technique. The research method used is observation and literature study with a design thinking approach. The design thinking approach consists of empathize, define, ideation, prototype and test. Features in this platform are to-do lists, Pomodoro timer, stretching, and relaxation music. This prototype test aims to get feedback from users using UEQ and SUS to assess usability testing. The UEQ test results are at the excellent level. while the scale is at a good level. The results of the SUS test obtained a score of 81.1, this value is at the "Grade B" level. Can Key that this prototype has a positive user experience.

Keywords: *Pomodoro, Productivity, Safety Culture*

INTRODUCTION

As time goes by technology in the world is growing, even today many schools and jobs have implemented the use of technology, such as working from home with an online system. However, the form of ease of access due to technological advances has resulted in the blurring of the boundaries between personal time and time. According to an article from the Ministry of Finance of the Republic of Indonesia in 2021, it is stated that working time is not limited by the term working hours or work place, because it can be done anywhere and anytime. The balance between personal life and work (work life balance) becomes unbalanced and can cause work stress or ergonomic problems, so good arrangements are needed in managing work time. Therefore we need a Pomodoro technique. Pomodoro technique is a learning technique using time management. Pomodoro works to increase focus on what is being done, so that work productivity will increase. Therefore, this study aims to create a digital platform to increase productivity and work safety through the Pomodoro technique. The research method used is observation and literature study with a design thinking approach. The design thinking approach consists of empathize, define, ideation, prototype and test. This research aims to create a digital platform to increase productivity and work safety through the Pomodoro technique. The research method used is observation and literature study with a design thinking approach. The design thinking approach consists of empathize, define, ideation, prototype and test. This research aims to create a digital platform to increase productivity and work safety through the Pomodoro technique. The research method used is observation and literature study with a design thinking approach. The design thinking approach consists of empathize, define, ideation, prototype and test.

1. Background of The Problem

In an increasingly modern era, the development of technology is something that cannot be avoided so that technology has also become a human need. Because of the convenience provided by technology in aspects of life such as in the fields of communication, transportation, military, medicine, education. For today, a technology called computers and smartphones has also been presented, but at this time computers and smartphones have various features and capabilities in various fields that have been well developed such as making various kinds of supporting applications in their use and of course there are also various kinds of applications. support to make work easier.

For productive people such as students and workers, of course their effectiveness is an important part in achieving the targets they want. However, it is often found that their study or work performance declines over time. This decreased performance is due to their lack of focus in studying or working or their way of learning and working is not effective so they do not meet targets. The average study and work time for students and workers is eight hours. However, it is not uncommon for students or workers to force their work to be completed, even though this is inefficient and will have a negative impact on physical and psychological health.

It is undeniable that with the easier access to technology, it can also distract and even divert the focus of students and workers. An example is when a student or worker is working on an assignment, they will be distracted by a notification from a device or laptop so that the initial goal of doing the task cannot be achieved properly. Unfavorable workplace conditions can also reduce work and study productivity.

In addition to problems due to work focus, an illness and fatigue due to working too long are also a major focus. Workers and students who work not ergonomically can cause various Occupational Diseases, such as Musculoskeletal Disorders and fatigue. This is caused by an wrong body position when studying or working too long and forcing when the body is too tired.

The Pomodoro Technique is a time management tool that originally intended to optimize work and personal study. Awareness of this technique is growing among the wider international community. This technique is named after the use of a common kitchen timer in the shape of a tomato. The essence of the Pomodoro Technique is 25 minutes of focus, uninterrupted work on one or more tasks, then 5 minutes of rest. There are also rules for maintaining the integrity of the pomodoro, and tactics for dealing with internal and external disturbances. The Pomodoro technique looks simple but very powerful.

Based on this observation, the purpose of this research is to give a better understanding of Pomodoro technique application, especially when it's work in a context distributed through the P0EM (Pomodoro Zero Ergonomic) application. This is expected to solve problems that occur especially among students and office workers.

2. The Probelm's Formulation

Based on this background, the problems in the preparation of this paper can be formulated as follows:

1. How is the level of respondents' participation in seeing the development of the P0EM application?
2. What are the user's obstacles in seeing the development of the P0EM application?
3. What solutions can be given to deal with problems in developing P0EM applications?
4. What are the features offered to answer problems in the development of the P0EM application prototype?
5. Is the solution provided still lacking or has it given satisfaction to the respondents in trying the P0EM application prototype?

3. The Paper's Purpose

Based on the formulation of the problem, the purpose of making this paper is as follows:

1. To find out the level of participation of respondents in seeing the development of the P0EM application;
2. To find out the user's obstacles in seeing the development of the P0EM application;
3. To find out the solutions that can be given to deal with constraints in the development of the P0EM application;
4. To find out the features offered to answer problems in the development of the P0EM application prototype;
5. To ensure that the solution provided is still lacking or has given satisfaction to respondents in trying the P0EM application prototype; and
6. Making the P0EM application a solution to ergonomic problems to increase productivity and work safety.

LITERATURE REVIEW

The Pomodoro technique according to (Wigmore, 2015)[19] is a time management method based on 25-minute stretches of focused work broken by 3-to-5 minute breaks and 15-to-30 minute breaks following the completion of four work periods. Developer and entrepreneur Francesco Cirillo created the pomodoro technique in the late 1980s, when he began to use his tomato-shaped kitchen timer to organize his work schedule. Each working interval is called a pomodoro, the Italian word for tomato (plural: pomodori). The pomodoro technique basically trains people to focus on tasks better by limiting the length of time they attempt to maintain that focus and ensure restorative breaks from the effort. The method is designed to overcome the tendencies to procrastinate and to multitask -- both of which have been found to impair productivity -- and to help users develop more efficient work habits. Effective time management allows people to get more done in less time, while also fostering a sense of accomplishment and reducing the potential for burnout. This method was carried out continuously, and as a result the learning process carried out by Francesco became effective. Since then, Francesco introduced this technique to the public called the Pomodoro Technique. From the change in the time interval, Francesco Cirillo was able to study better and did not interfere with his physical and psychological condition. Cirillo (2013)[2] explains that the Pomodoro Technique is based on three assumptions, namely different points of view in seeing time, reducing anxiety, and increasing personal effectiveness. Awareness of users to have higher awareness, sharper focus, and facilitation of learning. Use tools that are easy to use, don't complicate their use, support continuity, and concentrate efforts on the activity you want to target. The basic techniques you need to know in Pomodoro are: determine the topic to be studied or the task to be done and focus on only one thing, set the timer to 25 minutes of work and 5 minutes of rest, make 1 repetition (equal to 4 sessions) focus and avoid distractions from around us, make notes when the timer goes off, it can be the progress of work that has been completed.

Strong culture can help business, because workers will be motivated to work. Values and behavior brought together often make workers feel comfortable working in the company. With the practice and culture that happens in the company will make workers feel appreciated. Involve others in decision-making and in recognition of their role, and they are a common example. Habib, S., et al (1992)[9] said that a strong culture can help performance because it can provide the necessary structure and control without having to rely on formal bureaucracy that can prevent its growth motivation and innovation. The Cooper study (2004) on occupational health and safety culture focuses on employee perception, trust in the right priorities on the safety performance given to the organisation, and is measured as a warning of the possibility of failure in the K3 system. Agreed with Cooper (2004) that Richter and Koch (2004) stated that the culture of health and safety at work was a way of safeguarding safety at work, which stated the attitude, belief, perception and value that was used with the employees in relation to health and safety at work, It must monitor the process continuously in three domains: en[152]vironment, personal, and behavior. It can be concluded from that that health and safety culture is a core value of the company, because health and safety are very important.Design Thinking is a software development method that focuses on user possibilities. This technique is mainly concerned with finding the wants and needs of users with the help of technology and how much profit is obtained before the next production process (De et al., 2019). This can be seen from the method which consists of five steps, namely empathize, define, ideation, prototype, and test where 3 of the 5 processes are in the form of determining user needs to obtain system requirements.

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Design Thinking is a software development method that focuses on user possibilities. This technique is mainly concerned with finding the wants and needs of users with the help of technology and how much profit is obtained before the next production process (De et al., 2019). This can be seen from the method which consists of five steps, namely empathize, define, ideation, prototype, and test where 3 of the 5 processes are in the form of determining user needs to obtain system requirements. To do list is a list of tasks that must be sorted, done, and completed based on a priority scale and a predetermined time target. To do lists are intended so that tasks can be planned well and do not collide with each other. To do lists can help people in doing their tasks, especially for those who have a lot of tasks and must be done according to priorities and deadlines. Music according to (Emeka, 2015) is an organized sound that flows in a room. Music itself has a creative side where in addition to being identical with the learning process in general, music is also used as a tool in improving and developing personal abilities. Personal development includes aspects of cognitive competence, reasoning, intelligence, creativity, reading, language, social behavior and social interaction.

Design Thinking is a software development method that focuses on user possibilities. This technique is mainly concerned with finding the wants and needs of users with the help of technology and how much profit is obtained before the next production process (De et al., 2019)[4]. This can be seen from the method which consists of five steps, namely empathize, define, ideation, prototype, and test where 3 of the 5 processes are in the form of determining user needs to obtain system requirements. Design thinking is generally defined as an analytical and creative process that engages a person in opportunities to experiment, create and prototype models, gather feedback, and redesign. Design thinking is an iterative process in which the aim is to understand the user, challenge assumptions, and reframe challenges to identify new strategies and answers that may not be obvious at first. Simultaneously, design thinking provides a solution-based approach to problem resolution. It is a simple and straightforward approach to thinking about and implementing a set of procedures (Razzouk, 2012)[17].

Fig. 1. Stages of the Design Thinking Method

Design thinking is a human-centered innovation process that uses design tools to combine people's desires, technological possibilities and commercial success criteria (Iskander, 2018)[10]. Some complex problems can be solved through design thinking. The design team fosters a collaborative environment that often leads to breakthroughs in solving today's difficulties. When design teams gather all stakeholders from various organizations, they often get appointments from various company departments to s[153]eek fresh ideas for solutions. It is worth mentioning that design thinking is not the only way to generate collaboration and solve all challenges.

Johne Brooke developed the System Usability Scale (SUS) questionnaire in 1986. The SUS questionnaire has 10 statements that will provide insight into the usability of a product. According to (Brooke, 2013)[1], this SUS questionnaire aims to offer users' perspectives on the usefulness of a product and

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does not require much time because the SUS questionnaire can be completed quickly. This SUS questionnaire uses a Likert scale which has five scale indicators. The Likert scale is an assessment measure for attitudes and views (Dickson Kho, 2019). A rating scale of one indicates that the respondent feels strongly disagree, while a rating range of five indicates that the respondent feels strongly agree. According to (Brooke, 1996), The assessment of the SUS questionnaire has stages that can be used to calculate the results of the questionnaire that the author has made. The following are the steps in processing the results of the SUS questionnaire.

- First, each statement has a value between 0 to 4;
- Questions with odd numbers such as (1,3,5,7,9) the value contribution is done by means of the scale obtained minus 1 ;
- Even-numbered questions such as (2,4,6,8,10) value contributions are made by subtracting the value of 5 from the scale obtained.;
- The total number of odd and even questions that have been obtained is multiplied by 2.5 to get the value of the SUS questionnaire;
- Finally, the score of the SUS questionnaire should be between 0 to 100.

The value of the SUS questionnaire that has been obtained will represent the level of usability of the product. The final score of the SUS questionnaire is divided into three, among others: Values between 0 - 50.9 are included in the Not Acceptable category; Values between 51 - 70.9 are included in the Marginal category; and Values between 71 - 100 are included in the Acceptable category.

User Experience Questionnaire (UEQ) is a questionnaire that can offer an assessment in a short time. Questionnaires can provide a quick and easy way for users to communicate their views, impressions, and attitudes about a product (Laughwitz, et al., 2008)[21]. The UEQ questionnaire has six measurement scales, that is attractiveness, efficiency, perspicuity, dependability, stimulation, novelty and a total of 26 items from that scale. UEQ questions can be seen in appendix 2.

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METHODS, DATA, AND ANALYSIS

In the process of making this paper, the author uses the method of observation and literature study with a design thinking approach. Observations were made to obtain the data needed in making prototypes to support work productivity with the Pomodoro Method as a Culture of Safety Improvement, while design thinking focused on developing applications based on the user's perspective.

1. Research Stages

The research stage implies the whole research process, from start to finish. These processes will be discussed in more depth in the figure below in the form of a flow chart.

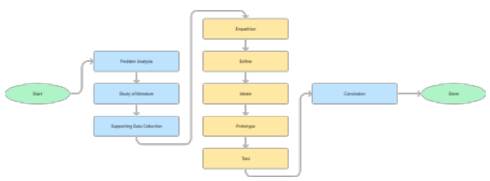

Fig. 2. Flowchart of Research Stages

2. **Problem Analysis**

   This activity consists of several activities. These actions are in the form of differentiation, specification, and classification to be included in certain groups or categorized according to certain criteria.

3. **Study of literature**

   The literature study conducted to obtain a theoretical basis is the second stage in this research. The theoretical basis is collected from journals and the internet to get a solid understanding of the analysis of the problems studied.

4. **Supporting Data Collection**

   Data were obtained to fulfill research objectives by distributing questionnaires to users or users to obtain information needed by the author. Data collection lasts for two days, starting from April 20-21, 2022.

5. **Empathize**

   The empathy stage of the design thinking method approach is used to capture any difficulties that arise in the object of research. This stage also encourages researchers to examine the problem from the perspective of the user being studied. An observational approach was used in this study to collect data at the empathy stage.

6. **Define**

   After collecting data from the previous step called the empathize stage, then proceed to the define stage. At this stage the author discusses to find the dominant needs and constraints of application users. The method used at this stage is brainstorming.

7. **Ideate**

   In the ideate stage, brainstorming is continued to describe the demands of application users. These aspects are carried out in depth by taking into account the various parameters that have been found in the define stage. This stage is carried out in the hope of producing an output as a solution to user problems.

8. **Prototype**

   At the prototype stage, the author begins to execute based on the outputs produced in the previous stage. This stage begins with making a use case diagram on the designed application system, then developing an application in the form of a prototype for testing to users.

9. **Test**

   This stage is the final series of the design thinking method approach which aims to evaluate the application. The assessment is given by the user by distributing usability testing questionnaires. There are two assessments that the author makes, namely using the User Experience Questionnaire and the System Usability Scale. Testing and assessment of this application on users is carried out for one day which is April 27, 2022.

10. **Conclusion**

    This research ends by drawing conclusions from the research process that has been carried out.

RESULTS AND DISCUSSION

1. Emphatize

At this empathize stage, it is a stage to be able to know and understand directly what problems are faced by respondents. At this stage the authors conducted a survey by distributing forms to 30 respondents to obtain some information which later the data would be used as the basis for developing this P0EM application.

The results obtained are the most respondents aged 17-23 years with a total of 21 people (70%) while 6 people (20%) are respondents under 17 years.

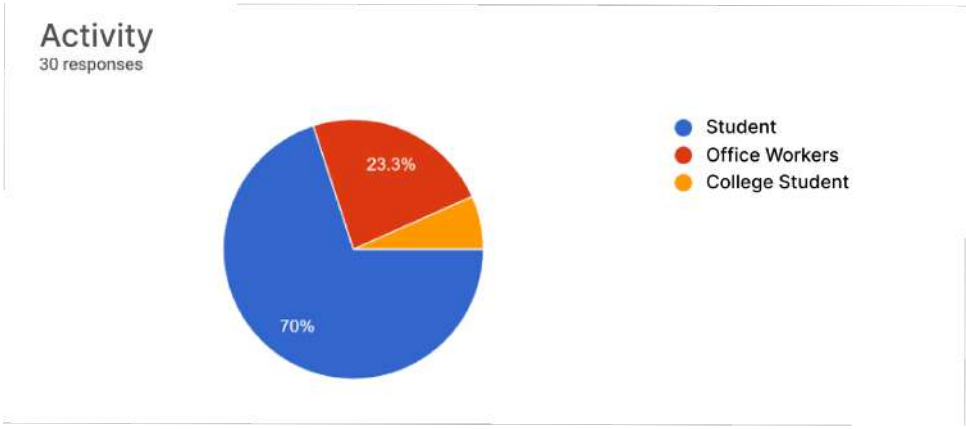

Fig. 3. Respondent Activities

Respondents in general are students with the percentage of students as many as 21 people (70%). The duration of working or studying for the respondents is 5-6 hours with the number of respondents being 12 people (40%) while 10 people (33.3%) working or studying under 4 hours. The duration of the respondent's sitting while studying or working is more than 1 hour as many as 10 people (33.3%) and 1-2 hours as many as 9 people (30%). Respondents stated that 16 people (60%) did not feel comfortable when sitting too long, while 12 people (40%) answered comfortable. Respondents who did stretching frequently were 14 people (46.7%) while 10 people (33.3%) answered sometimes and the remaining 6 people (20%) answered never. The frequency of respondents' focus when working or studying is 21 people (70%) answering often while 9 people (30%) answering rarely.

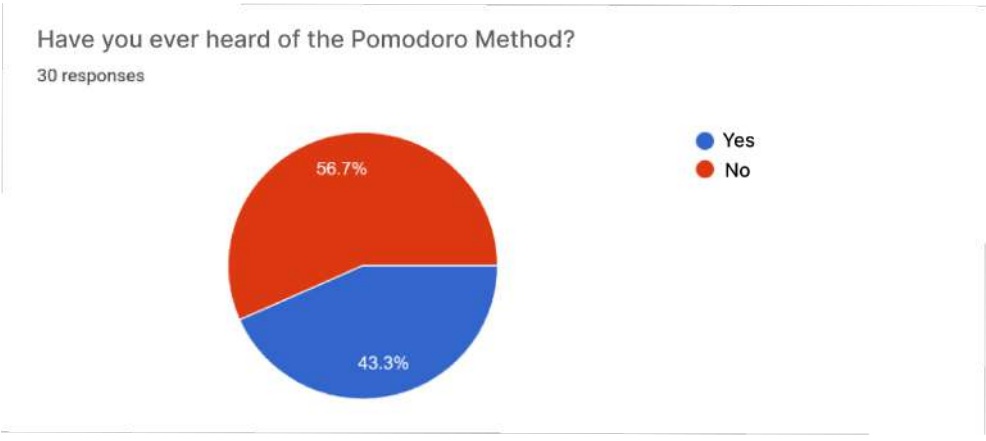

Fig. 4. Respondents' Knowledge Level of the Pomodoro Method

Respondents who did not know there was a Pomodoro method were 17 people (56.7%). The level of dependence of respondents on gadgets is quite a lot, of which 19 people (63.3%) have a high level of dependence.

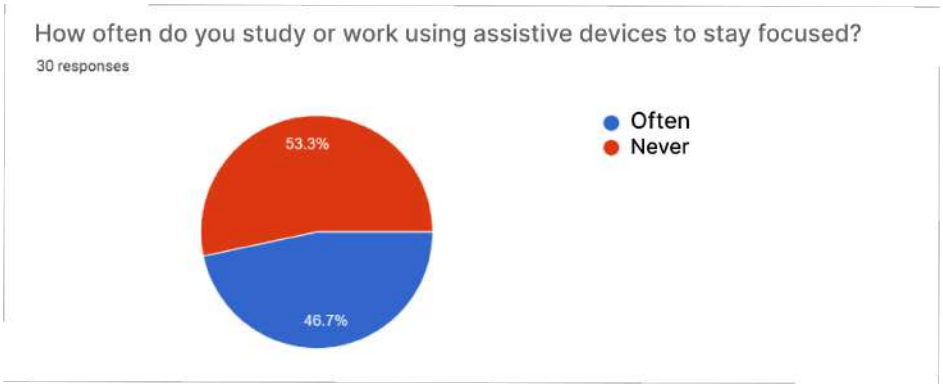

Fig. 5. Respondents' Use of Tools

The use of assistive devices to help focus on studying or working respondents stated that 16 people (53.3%) had never used these tools. In terms of planning at work or study, 15 people (50%) stated that they never used planning while the other 15 people (50%) made plans when working or studying. A total of 18 respondents (60%) stated that they had difficulty in making plans for studying or working. Then there are 23 respondents who feel comfortable listening to music while working or studying (76.7%).

2. Define

After passing the empathize stage, the author then began to identify the problems and needs of respondents at the define stage. Of the 30 respondents who have filled out the questionnaire, the author can determine what problems and needs are needed in order to develop a P0EM application prototype. Analysis of the problems and needs of respondents from the data that has been collected is as follows.

2.1 Problem Analysis

Respondents stated in the questionnaire that they experienced several problems and difficulties related to focusing on studying or working. It was found that there were 18 respondents (60%) who had difficulty in making a study or work plan. Then, there are 19 respondents (63.3%). And finally, there are 16 respondents (53.3%) who feel uncomfortable when they sit too long at work or study.

2.2 Needs Analysis

At this stage, ideas were obtained from filling out forms as many as 30 resource persons as a support in creating a P0EM application. After mapping ideas at the ideate stage, the author analyzes the existing ideas and then connects them with the respondent's problems and respondents' needs.

3. Ideate

At this stage, ideas were obtained from filling out forms as many as 30 resource persons as a support in creating a P0EM application. After mapping ideas at the ideate stage, the author analyzes the existing ideas and then connects them with the respondent's problems and respondents' needs.

Based on the pr[154]oblems of respondents related to how often they make a schedule list when learning or working (50%), the author adds to the To Do List feature on the P0EM application. The benefit of making a schedule before doing a work activity is to help in managing time rather than helping people in the work because making a schedule records any tasks that have to be done first on a priority scale and on a time basis (Cirillo, 2018)[2]. Generally making a to do list is still made manually, which is to record the list of tasks that we're going to do on a paper. Therefore adding to do list features in the P0EM application that can provide management ease to do list such as writing ease on a paper.

Then the respondent's problems related to knowledge of the Pomodoro technique (56.7%), dependence in the use of gadgets (63.3%), often not focusing on work (70%), and how often respondents in studying or working use assistive devices to stay focused (53.3%). The author tries to express ideas by making a prototype using the Pomodoro method. The benefit of the Pomodoro technique is that it can keep one's focus on work based on the time they have (Cirillo, 2018)[2]. In addition, the concept of pomodoro is very effective in avoiding distractions. The advantage of using the pomodoro technique is that it can help train the brain to focus on what is being done so that over time because the brain has been trained to focus on something, any work can be done perfectly and quickly without being much distracted (Cirillo, 2018)[2].

Furthermore, the respondent's problems related to discomfort when sitting for too long (60%) and not stretching when sitting for too long (53.3%). So the author added a stretching feature to the P0EM (Pomodoro Zero Ergonomic) application. The benefit of stretching itself is to make the muscles more relaxed and flexible because of the elongated muscles. In addition, the benefit of stretching is to relax physically and mentally, so that it does not become tense or stressed. Colon, B. A. (2021)[3]. Based on research by Jhamb (2008) stated that stretching has a significant relationship with decreasing levels of muscle fatigue. The benefits of stretching include increasing fitness, optimizing grasping power, increasing mental and physical relaxation, increasing the development of body awareness, reducing muscle tension (cramps), and reducing muscle pain.

Next is the respondent's problem related to comfort in studying or working while listening to music (76.7%). So the author adds classical music features to the P0EM application. The benefit of classical music when listened to while studying or working is that it can balance brain waves, where these brain waves function to reduce negative thoughts in the brain (Madathil, 2016)[14]. In addition, music can reduce a person's stress. One of Dolegu's research (2013) proves the relationship between music and reading ability in two groups of subjects. The first group was given treatment (music activity using the Kodaly method) and the other as the control group. The control group is the subject who has been equalized in terms of age, IQ, and socioeconomic status.

4. Prototype

Based on the stage of the idea, the writer packages the concept with the P0EM application flow diagram and creates a prototype of the P0EM application. The picture below is a P0EM application flow diagram.

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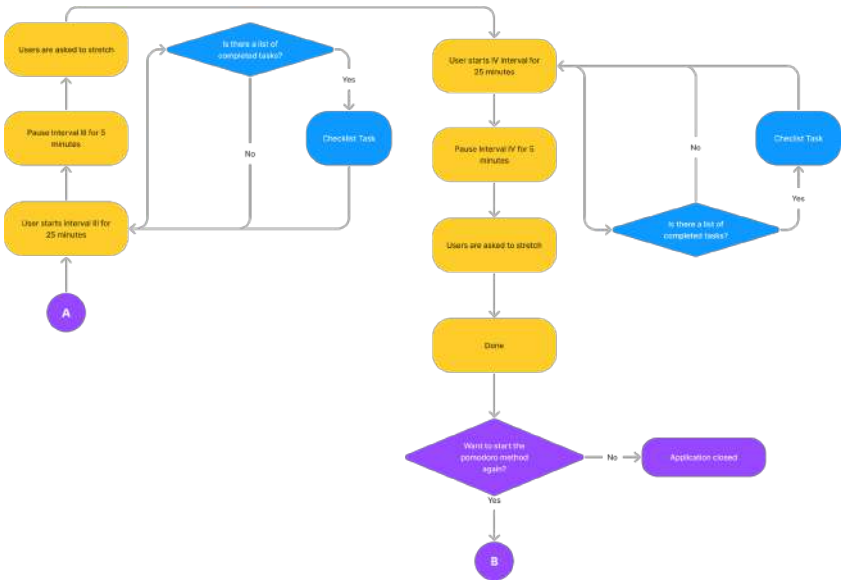

Fig. 6. P0EM Application Usage Flowchart

That flowchart explains the usage plot of P0EM Application. The user can do various activities such as add to do list, do pomodoro session, play the relactation music, and get the warning to do stretching in every pause interval.

4.1 Main Page View

Fig. 7. P0EM Application Homepage

The figure above is a homepage of P0EM Application. At this homepage, the user can add to do list and/or start pomodoro session. Beside that, at this homepage there is a date of the day. The color display on the P0EM application prototype is blue. Blue has a calming function, relieves anxiety, triggers a relaxation response, and improves focus. Because the purpose of making this P0EM application prototype is to increase the focus of learning and work.

4.2 Task List View

Below is a view of the task list. This list of tasks must be organized, performed and completed on a priority scale. Can be seen in the view below, the user can see the list of tasks to be completed. In addition, the user can add a list of tasks to be completed.

Fig. 8. The Appearance of To Do List of P0EM Application

4.3 Pomodoro

P0EM App users can start a pomodoro session by pressing the play button on the main page, then the pomodoro session will last for 25 minutes of focus time and every 5 minutes of rest to rest. This activity lasts for 4 times the time interval. This means that in one cycle the pomodoro lasts for 120 minutes.

Fig. 9. Pomodoro Session View

4.4 Relaxing Music Display

During the pomodoro session, the user can turn on/off relaxation music. Relaxation music can be turned on/off during the pomodoro session.

Fig. 10. Relaxation Music

4.5 Stretch Display

During a 5 minute pause, the user is asked to stretch for 1 minute. In this stretch there are six movements, namely; tilt the head left and right; nod and look up; rotate the shoulders clockwise; wrap the upper arm clockwise and anticlockwise; standing leg stretch.

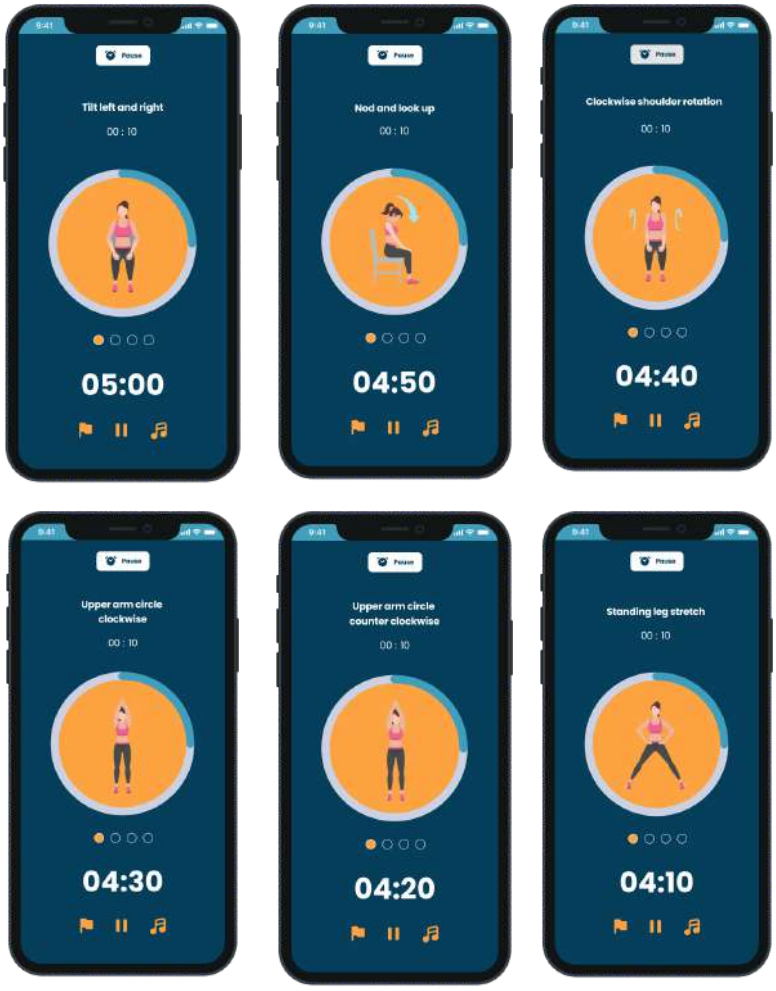

Fig. 11. Stretch Display

5. Test

Testing a new product in this case a prototype application is a critical procedure that tries to offer a more complete evaluation of the likelihood of a new product's success and to identify the final adjustments needed for user enssssjoyment. Of course, supporting components such as surveys are needed to get user views on new items during testing. Testing the P0EM Application Prototype uses two questionnaires in conducting the assessment, namely: User Experience Questionnaire and System Usability Scale.

5.1 User Experience Questionnaire (UEQ)

UEQ assesses user experience interactively in a short amount of time. UEQ measures attractiveness, clarity, efficiency, accuracy, stimulation, and novelty. The data entered into the UEQ is the result of a questionnaire filled out by the respondent. There are 30 respondents who took part in this questionnaire survey. The User Experience Questionnaire (UEQ) questions are contained in appendix 5.

Table 1. Table Of Overall Score Scale

UEQ Scales (Mean and Variance)		
Attractiveness	2,000	0,62
Clarity	1,908	0,77
Efficiency	2,017	0,90
Accuracy	1,783	0,78
Stimulation	2,075	0,97
Novelty	1,867	0,91

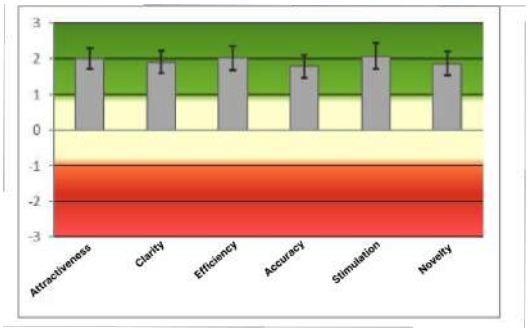

Fig. 12. Graphs of Overall Score Scale

Based on the picture above, the results obtained from the average value of the six scales of the User Experience Questionnaire, namely: attractiveness, clarity, efficiency, accuracy, stimulation, and novelty. In the figure above, the value of the six scales on the User Experience Question[155]naire is sufficient to describe the user experience of this P0EM application. The highest mean result is found on the stimulation scale of 2.075. Then followed by the efficiency of 2.017, the attractiveness scale of 2,000, the clarity scale of 1,908, the novelty scale of 1,867, and finally the accuracy scale of 1,783. It can be said that prototype applications made according to the UEQ scale have a positive user experience because all scales are above 0.8 (Brooke, 2013)[1].

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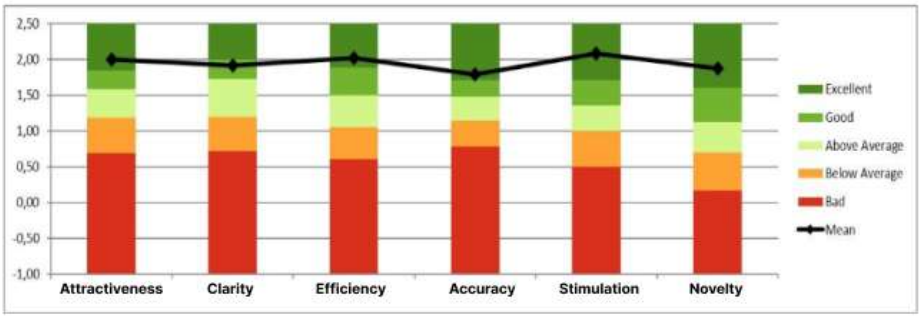

Fig. 13. User Experience Questionnaire Benchmark Grap

The picture above is the result of the User Experience Questionnaire benchmark on the P0EM Application. Based on the figure, it can be concluded that the attractiveness, efficiency, accuracy, stimulation, and novelty scales are at the Excellent level. While the clarity scale is at the Good level.

Table 2. Overall Table of User Experience Questionnaire Benchmark Values

Scale	Mean	Comparisson to benchmark
Attractiveness	2,00	**Excellent**
Clarity	1,91	**Good**
Efficiency	2,02	**Excellent**
Accuracy	1,78	**Excellent**
Stimulation	2,08	**Excellent**
Novelty	1,87	**Excellent**

5.2 System Usability Test (SUS)

The System Usability Scale (SUS) is a questionnaire that can be used to assess the usability of a computer system from the user's perspective. In the questionnaire to conduct the SUS assessment, the author gave ten questions to each respondent. There are 30 respondents who are willing to take part in this survey. The ten questions on the System Usability Scale can be found in appendix 6.

Then after the results of the questionnaire are obtained, the authors perform calculations to conduct an assessment. Each question with an odd number is deducted by 1 from the score, while the question with an even number is subtracted from 5. The following formula can be seen in the image below (1).

$$\left[\sum_{i=\text{Odd numbers}}^{n} x_i - 1\right] + \left[\sum_{i=\text{Even number}}^{n} 5 - x_i\right] = \text{SUS value} \quad (1)$$

Fig. 14. The SUS Formula

After the SUS value is obtained, the author performs the final calculation of the SUS value by multiplying 2.5 to get the final result of the SUS value. The SUS calculation table is in appendix 7.

After the SUS value is obtained, the author performs the final calculation of the SUS value by multiplying 2.5 to get the final result of the SUS value. The SUS calculation table is in appendix 7

Finally, after the results of the final score calculation are released, the authors calculate the average of the final SUS scores by adding up the final SUS scores and then dividing by the number of respondents, the result obtained is 81.1. That way this value is included in grade B or can be said to be good. The interpretation of the SUS results can be seen in the image below.

Fig. 15. System Usability Scale Interpretation

CONCLUSION

Based on the results of research on the P0EM (Pomodoro Zero Ergonomic) application prototype, it was concluded that:

1. The level of respondents' participation in the development of the P0EM application prototype is still very high, this is evidenced by the number of respondents who fill out user questionnaires with usability tests are still the same;
2. Problems and constraints experienced by users are difficult to focus on studying and working, including because of dependence on gadgets and feeling uncomfortable when they sit too long at work or study;
3. The solutions given are given to overcome obstacles in the development of the P0EM application, namely the use of the Pomodoro technique to focus on learning, the addition of a To Do List feature for time management, a stretching feature to reduce fatigue due to sitting too long, and a classical music feature to increase work focus;
4. The features offered to answer problems in the development of the P0EM (Pomodoro Zero Ergonomic) application prototype are the pomodoro technique feature, the stretching feature between breaks, the To Do List feature, and the classical music feature; and
5. Based on the Usability Test on UEQ, it is concluded that the attractiveness, efficiency, accuracy, stimulation, and novelty scales get the benchmarks at the excellent level. While the clarity scale is at the Good and SUS levels with the results obtained are 81.1. This means that this value is included in grade B or can be said to be good.

IMPLICATION/LIMITATION AND SUGGESTIONS

The limitations of the realization of this application are also due to the technical process. The author knows that making this application requires a large amount of money and takes a long time to optimize. In addition, the beta test problem requires several times of testing until this application can actually be launched. Other obstacles will be overcome over time, but to be a perfect application, P0EM applications need to go through several stages of public demo. This process will take considerable time and cost.

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Appendix 1 Questionnaire User Experience Questionnaire

	1	2	3	4	5	6	7		
menyusahkan	○	○	○	○	○	○	○	menyenangkan	1
tak dapat dipahami	○	○	○	○	○	○	○	dapat dipahami	2
kreatif	○	○	○	○	○	○	○	monoton	3
mudah dipelajari	○	○	○	○	○	○	○	sulit dipelajari	4
bermanfaat	○	○	○	○	○	○	○	kurang bermanfaat	5
membosankan	○	○	○	○	○	○	○	mengasyikkan	6
tidak menarik	○	○	○	○	○	○	○	menarik	7
tak dapat diprediksi	○	○	○	○	○	○	○	dapat diprediksi	8
cepat	○	○	○	○	○	○	○	lambat	9
berdaya cipta	○	○	○	○	○	○	○	konvensional	10
menghalangi	○	○	○	○	○	○	○	mendukung	11
baik	○	○	○	○	○	○	○	buruk	12
rumit	○	○	○	○	○	○	○	sederhana	13
tidak disukai	○	○	○	○	○	○	○	menggembirakan	14
lazim	○	○	○	○	○	○	○	terdepan	15
tidak nyaman	○	○	○	○	○	○	○	nyaman	16
aman	○	○	○	○	○	○	○	tidak aman	17
memotivasi	○	○	○	○	○	○	○	tidak memotivasi	18
memenuhi ekspektasi	○	○	○	○	○	○	○	tidak memenuhi ekspektasi	19
tidak efisien	○	○	○	○	○	○	○	efisien	20
jelas	○	○	○	○	○	○	○	membingungkan	21
tidak praktis	○	○	○	○	○	○	○	praktis	22
terorganisasi	○	○	○	○	○	○	○	berantakan	23
atraktif	○	○	○	○	○	○	○	tidak atraktif	24
ramah pengguna	○	○	○	○	○	○	○	tidak ramah pengguna	25
konservatif	○	○	○	○	○	○	○	inovatif	26

Appendix 2 Questionnaire *System Usability Scale*

	STS	TS	RG	ST	SS
1. Saya berpikir akan menggunakan sistem ini lagi.	1	2	3	4	5
2. Saya merasa sistem ini rumit untuk digunakan.	1	2	3	4	5
3. Saya merasa sistem ini mudah digunakan.	1	2	3	4	5
4. Saya membutuhkan bantuan dari orang lain atau teknisi dalam menggunakan sistem ini.	1	2	3	4	5
5. Saya merasa fitur-fitur sistem ini berjalan dengan semestinya.	1	2	3	4	5
6. Saya merasa ada banyak hal yang tidak konsisten (tidak serasi pada sistem ini).	1	2	3	4	5
7. Saya merasa orang lain akan memahami cara menggunakan sistem ini dengan cepat.	1	2	3	4	5
8. Saya merasa sistem ini membingungkan.	1	2	3	4	5
9. Saya merasa tidak ada hambatan dalam menggunakan sistem ini.	1	2	3	4	5
10. Saya perlu membiasakan diri terlebih dahulu sebelum menggunakan sistem ini.	1	2	3	4	5

Appendix 3 System Usability Scale Calculation Table

System Usability Scale												
P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	Jumlah SUS Raw Score	Hasil Akhir SUS	Grade
5	2	5	3	5	1	5	1	4	2	35	87,5	A
5	1	5	1	5	1	5	1	5	2	39	97,5	A
4	2	4	2	4	2	4	1	4	2	31	77,5	B
5	1	5	2	5	1	4	2	5	1	37	92,5	A
3	1	5	1	5	2	4	2	4	1	34	85	A
4	2	4	2	4	2	4	2	4	2	30	75	B
4	2	2	4	4	1	5	1	5	2	30	75	B
5	1	5	2	5	2	5	2	5	2	36	90	A
5	2	5	5	5	1	5	1	4	5	30	75	B
5	3	5	4	5	1	4	1	4	5	29	72,5	B
5	1	5	5	5	1	5	1	5	5	32	80	B
5	1	5	3	5	1	5	1	5	3	36	90	A
5	1	5	2	5	1	5	1	5	3	37	92,5	A
4	2	5	3	4	2	4	2	4	4	28	70	B
5	4	1	5	2	5	1	5	1	4	7	17,5	F
4	2	4	3	4	3	4	2	5	4	27	67,5	D
5	2	5	3	5	1	4	2	5	1	35	87,5	A
3	2	5	3	4	3	3	2	4	3	26	65	D
5	1	5	2	5	1	5	2	5	3	36	90	A
5	1	5	1	5	1	5	2	5	1	39	97,5	A
5	1	5	1	5	1	5	1	5	1	40	100	A
5	2	5	1	4	1	5	2	5	1	37	92,5	A
4	2	4	2	4	2	4	2	4	4	28	70	B
5	2	5	1	5	2	5	2	5	1	37	92,5	A
4	2	4	2	4	2	4	2	4	2	30	75	B
5	1	5	1	5	1	5	1	5	1	40	100	A
2	2	5	2	4	2	4	3	5	1	30	75	B
4	2	5	1	4	2	5	2	4	2	33	82,5	A
5	2	5	1	3	4	5	2	5	2	32	80	B
4	2	4	2	5	2	5	2	4	2	32	80	B
Mean											81,1	B

Appendix 4 Other supporting files

Number	File Name	Link
1	Google P0EM user survey form	Click here
2	Google Usability Test P0EM survey form	Click here
3	Calculation of UEQ P0EM	Click here
4	Calculation of UEQ P0EM	Click here