

A Technology-Driven Psychological Intervention: Development and Usability Testing for Emotion Regulation

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ABSTRACT

Emotion regulation is something that helps people understand and manage their emotions. A lot of college students have a time dealing with their emotions because they face many obstacles when trying to get traditional psychological help. These obstacles include the stigma associated with health the number of mental health professionals and the difficulty of scheduling appointments. Luckily we now have health technologies that can provide people with access to psychological support. This study was done to create and test the usability of EmoGuide, an application that helps people monitor and manage their emotions. EmoGuide does this by teaching people about emotions tracking their mood guiding them through breathing exercises and providing them with coping strategies. EmoGuide is

an application that is designed to help people with their emotions. The people who made EmoGuide used a framework to develop EmoGuide. This framework included phases: analyzing the problem designing EmoGuide, developing EmoGuide implementing EmoGuide and evaluating EmoGuide. They made sure to base EmoGuide on established theories of emotion regulation and recommendations from health professionals. EmoGuide is based on what health professionals think is best for people. After EmoGuide was developed the researchers tested EmoGuide with college students and psychology experts. They used a scale to measure how easy EmoGuide was to use. They also asked the users for their feedback. The results showed that EmoGuide is very easy to use and that people found EmoGuide helpful for managing their emotions. The users also liked the features and the interface of EmoGuide. EmoGuide is an application that people like to use. The researchers used the feedback they got to make some changes to EmoGuide. The study suggests that EmoGuide is a tool for supporting emotion regulation and that EmoGuide can be used as a supplement to traditional mental health resources. EmoGuide, the application is a way to support EmoGuide users in their emotional self-management. Future studies should look at how effective EmoGuide, the application is, in a setting. EmoGuide is something that can help people with their emotions.

Keywords: *emotion regulation, mobile intervention, usability testing, psychology, mental health technology, mobile application*

INTRODUCTION

Mental health is a problem that affects a lot of people around the world. The World Health Organization says that than one billion people are dealing with mental health issues. Mental health is a concern. It is still hard for people to get the mental health help they need. There are a lot of reasons for this including the fact that people often embarrassed to talk about their mental health and there are not enough

mental health resources available. Also it can be expensive to get health help. There are not people who are trained to provide mental health support and this is a big problem for mental health. Despite the increasing prevalence of mental health concerns, access to appropriate psychological support remains limited due to barriers such as stigma, inadequate mental health resources, financial constraints, and the shortage of qualified mental health professionals (Andary et al., 2023)

These problems often mean that people do not get the health help they need when they need it. This is why we need to find ways to make mental health support more available. Luckily technology is making it possible to do that. For example digital mental health platforms have been shown to be effective in reducing symptoms of depression and anxiety. People who have used these mental health platforms say that they are helpful and easy to use which is great for mental health. Furthermore, personalized digital interventions have been found to enhance user engagement, satisfaction, and adherence, making them promising tools for promoting emotional well-being (Andersson et al., 2019).

Being able to manage our emotions is a part of being mentally healthy. When we are able to recognize and understand our emotions we can deal with them in a way. Sometimes people have trouble managing their emotions. This can lead to problems like anxiety and depression which are big mental health issues. That is why it is so important to teach people how to manage their emotions and this is a part of mental health. Some researchers have found that digital interventions can be a way to do this and this is news for mental health.

That is why we created EmoGuide, a tool that is designed to help people manage their emotions and improve their mental health. EmoGuide is based on ideas from psychologists like Paul Ekman's Theory of Universal Emotions (1992) and James J. Gross's Process Model of Emotion Regulation (1998), who are experts in health. We used these ideas to create a tool that would be helpful and easy to use for health. EmoGuide is an application that people can use on their phones to help with health. It is meant to help people understand their emotions and find ways to deal with them which's an important part of mental health. We did not try to figure out if EmoGuide's a therapeutic tool for mental health. Instead we wanted to see if it is easy to use and if people like it which is important for health. We think that our findings will be helpful in adding to the research on health tools and this will be good for mental health. We also hope that our study will show that technology can be a tool for helping people manage their emotions for college students who may be struggling with mental health issues.

The EmoGuide application is designed to be user-friendly and engaging for people who need help with health. We tested EmoGuide with a group of users to see what they thought of it and how it could help with health. The results of our study will help us understand how to make EmoGuide even better for health. We hope that EmoGuide will be a tool for people who are struggling with health issues and need help. Mental health is just as important as health and we should do everything we can to support mental health. EmoGuide is one example of how technology can be used to improve health support and help people with mental health issues. We need to keep working to find ways to make mental health support more available, to everyone who needs it.

Literature Review

Mental health is an issue that affects people everywhere in the world. The World Health Organization says that than one billion people have mental health problems but they cannot get the help they need. This happens because of stigma a lack of health professionals, money issues and living in areas that are hard to reach. The World Health Organization thinks we need to improve health services and come up with ideas to help people who are not getting the support they need. Mental health should be a part of our health not something extra especially during emergencies and tough times. A lot of people are feeling stressed and anxious which shows how important it is to provide help that's easy to get and based on facts and that supports our emotional well-being. This is where technology can help by providing health support that everyone can access.

The idea behind this study is based on what Paul Ekman's said about emotions. He believed that some emotions are natural and understood by everyone no matter where they are from. These emotions are happiness, sadness, fear, anger, surprise and disgust. They help us react quickly to things that happen around us. Paul Ekman's also said that understanding our emotions is key to being aware of how we feel and dealing with our emotions. If we can recognize how we feel we can figure out why we feel that way and find ways to cope. This is the basis for tools that help us track our emotions and become more aware of how we feel. The EmoGuide application is based on this idea. It helps people understand their emotions and find ways to deal with them. Another idea that supports this study is what Gross said about emotion regulation. He believed that we can influence how we feel and how we express our emotions. Of trying to suppress our emotions we should try to understand them and find healthy ways to deal with them. Gross said that we can do this at stages like before we feel the emotion or after. The EmoGuide application uses these ideas to provide strategies that help people deal with their emotions.

Technology has changed the way we get health help. It is now easier to get help. We can get it from anywhere. Some studies have shown that digital mental health support can be just as effective as support. This is because it is easy to access, convenient and can be used by people. The EmoGuide application is an example of this. It uses ideas from psychology and technology to provide support that's easy to use and based on facts. The research we looked at shows that mental health's a big problem that needs new and innovative solutions. The World Health Organization thinks we need to make mental health services better. Paul Ekman's idea about emotions and Gross's idea about emotion regulation provide a basis, for the EmoGuide application. Other studies have also shown that digital mental health support can be effective. All of this supports the idea of developing and testing the EmoGuide application as a tool that can help people manage their emotions and develop coping strategies.

Theoretical Underpinnings

The first idea behind this study is Paul Ekman's Universal Emotions Theory (1992). He said that emotions are something we are born with and that people around the world experience them in the same way. Ekman's found six emotions. Happiness, sadness, fear, anger, surprise and disgust. These emotions are easy to recognize because people show them on their faces in the way no matter where they are from. Later Ekman's also said that there are emotions like contempt, which people can also recognize. According to Ekman's' these emotions help people survive by letting them react quickly to things that happen around them. Knowing and understanding how we feel is important for being aware of our emotions and controlling them. This theory is used in EmoGuide to help people identify and track their emotions. The application puts peoples emotions into categories based on emotions so they can see how they feel watch their emotions and think about them. By helping people understand their emotions better EmoGuide helps them choose ways to deal with their feelings.

The main idea behind EmoGuide is James Gross's Emotion Regulation Theory (1998). Gross said that emotion regulation is how people control their emotions when they happen and how they show them. His model says that people can control their emotions at stages. Gross found two ways to control emotions. The first way is to do something before we react emotionally. This can be done by choosing what we do changing the situation paying attention to something or thinking about things in a different way. The second way is to do something after we have already reacted emotionally like changing how we express our emotions or how our body reacts. EmoGuide is designed based on Gross's model. Uses proven ways to control emotions. Depending on how the user feels the application gives them help like breathing exercises grounding techniques, calming videos, music, journaling, quotes, aromatherapy and Bible verses. These features help people control their emotions in ways and react better to everyday challenges.

The third idea behind EmoGuide comes from research on Digital Emotion-Regulation Interventions (Reynard et al., 2022; Philippe et al., 2022) said that digital health technologies are useful for giving people access to health services that are easy to use can be used by many people and are based on

evidence. Reynard and others also found that digital interventions can help people control their emotions better know how they feel and use ways to cope with their emotions. These studies show that mobile applications can give people personalized help and overcome problems like stigma, distance and limited access to mental health professionals. Following these ideas EmoGuide was made as a platform that gives people emotional support based on evidence. The application lets people use emotion regulation strategies anytime and anywhere which helps them feel better emotionally and take care of their emotions. Although EmoGuide is not meant to diagnose or treat health problems it is a helpful tool that supports emotional awareness, healthy coping and controlling emotions.

The three ideas are combined to create a framework for EmoGuide. Ekman's Theory of Universal Emotions helps the application recognize and categorize emotions so people can. Understand how they feel. Gross's Process Model of Emotion Regulation informs the choice of proven coping strategies and personalized interventions that help people control their emotions. Finally the Digital Mental Health Intervention Framework supports using technology as a practical way to give people psychological help and promote emotional well-being. Together these ideas make sure that EmoGuide is based on established theories and incorporates contemporary digital mental health practices. They provide a foundation, for a mobile application that helps people know how they feel control their emotions and have good mental health through accessible and evidence-informed interventions. EmoGuide is based on Paul Ekman's Theory of Universal Emotions James Gross's Process Model of Emotion Regulation and Digital Mental Health Interventions which all work together to help people understand and control their emotions.

METHODS

Research Design

This study used a research plan to figure out how to make something. The main goal was to create EmoGuide. EmoGuide is a tool that helps people feel better by teaching them how to deal with their emotions. EmoGuide is a computer program that uses the internet to help EmoGuide users. It was made using computer languages like HTML and CSS and JavaScript so that EmoGuide can be used on different devices. After EmoGuide was made the people who created EmoGuide wanted to see if EmoGuide was easy to use. They used a test to check if people liked using EmoGuide and if EmoGuide was helpful, to them. The test showed how well EmoGuide worked for the people who were supposed to use EmoGuide.

Locale of the Study

The study was conducted at an autonomous university located in Region VI, Philippines. The institution was selected because it provides access to college students who served as the intended users and internal testers of the EmoGuide application. The university also offers an appropriate academic environment for conducting research related to digital psychological interventions and emotion regulation.

Respondents of the Study

The people in the study were seventy-six college students, from the university. They helped test the EmoGuide application. The students were chosen because they fit what the researchers were looking for. To be part of the study the students had to be going to college have a phone that could run the EmoGuide application and agree to help test it. They had to say it was okay for them to be part of the study.

Data Gathering Instrument

We used the Post-Study System Usability Questionnaire to see how easy the EmoGuide application is to use. This questionnaire is also known as the PSSUQ Version 3A. The EmoGuide application was tested with the PSSUQ. The PSSUQ is a known questionnaire that people use a lot to find out if people like the systems they use. The EmoGuide application and the PSSUQ work together to measure three things: how useful the EmoGuide application is, how good the information in the EmoGuide application is and how good the EmoGuide application interface is.

We asked people to answer some questions, about the EmoGuide application. They rated their answers using a scale. This scale is called a seven-point Likert scale. The EmoGuide application and the seven-point Likert scale help us understand what people think. If people give scores then they really like the EmoGuide application and think it is easy to use. The EmoGuide application is what we are trying to make. We want to know what people think about the EmoGuide application.

Instrument Validity and Reliability

The main tool we used in this study was the Post-Study System Usability Questionnaire Version 3A. This is a tool that was created by Lewis in 1992 and updated by Lewis in 1995 and 2002. The Post-Study System Usability Questionnaire is used a lot to see how happy people are with computer systems that they interact with. It is often used to study software, websites and mobile applications because it is a way to measure how people feel. The Post-Study System Usability Questionnaire Version 3A has been tested times before and it is a good tool for measuring the usability of digital systems. It looks at three things: how useful the system is, how good the information is and how good the interface is. This gives us a picture of what people think about a system. The Post-Study System Usability Questionnaire is also very reliable. Lewis found that it is consistent and gives results. Because the Post-Study System Usability Questionnaire is a tool that is used all over the world we did not need to test it again for our study. We used the Post-Study System Usability Questionnaire Version 3A to evaluate the EmoGuide application. This meant that our study was based on a tool that's valid and reliable which makes our results more believable and trustworthy. The Post-Study System Usability Questionnaire Version 3A is a tool for measuring usability and it helped us to get accurate results, for the EmoGuide application.

Data Gathering Procedure

The researchers did the data gathering in a way to make sure the study was done in an orderly manner. Before starting the research they wrote a letter to the College Dean of a university in Region VI, Philippines asking for permission to test how easy the EmoGuide application is to use. When they got the okay they showed the approved letter to the teachers and students who were going to take part. The researchers worked with the teachers to schedule the study. Told the participants what it was about what they wanted to achieve and how they were going to do it. Before anyone took part they had to agree to it. They were told that they did not have to take part if they did not want to and that anything they said would be kept secret. After that the researchers showed the EmoGuide application to the participants. Explained how it works. The participants had plenty of time to try out the applications features, such, as categorizing emotions getting help reading educational materials doing breathing exercises using grounding techniques keeping a journal reading motivational quotes and using other resources to manage their emotions. After they used the application the participants had to fill out a questionnaire to say what they thought about the application. The questionnaire was. Checked to make sure it was complete and correct. Then all the questionnaires were put into a computer organized and prepared for analysis. The data was analyzed to see what the participants thought about the EmoGuide application and to see if it was useful if the information was good and if the interface was easy to use. The results of the study were used to see if the EmoGuide application is a tool to help people manage their emotions and if people would be happy to use it. The EmoGuide application was tested to see if it is easy to use. If people like using it.

Research Ethics Protocol

The people doing the research made sure to follow the rules that govern studies with participants. Before they started collecting data they sent a letter to the College Dean of the university they chose in Region VI, Philippines to ask for permission to do the study. They did not start the study until they got the okay from the College Dean. The people who took part in the EmoGuide application study did so because they wanted to. Before they did the usability evaluation of the EmoGuide application the people doing the research told them what the EmoGuide application study was about, what they wanted to achieve what they

would have to do and how long it would take. They also told them about their rights like being able to say no or stop taking part in the EmoGuide application study at any time without getting in trouble. The people doing the research got permission from all the participants before they started the usability testing of the EmoGuide application. The people doing the research made sure that all the people who took part in the EmoGuide application study stayed anonymous and that their information was kept secret. They did not collect any information that could be used to identify the participants in the EmoGuide application study. They did not share any of that information in their reports about the EmoGuide application. The answers they got from the Post-Study System Usability Questionnaire were kept secret. Were only used for school and research about the EmoGuide application. All the data they collected about the EmoGuide application was stored in files that were protected by passwords and only the researchers could get to them. The EmoGuide application was only shown to the participants so they could say what they thought about how easy it was to use the EmoGuide application. The people doing the research told the participants that the EmoGuide application is a tool that uses technology to help people manage their emotions and feel better. The EmoGuide application is not meant to say if someone has a problem or to treat those problems and it is not a replacement for professional help. The researchers also made sure that using the EmoGuide application would not hurt the participants physically mentally or socially. The people doing the research were honest and transparent throughout the process of the EmoGuide application study. They collected, looked at understood and reported all the data about the EmoGuide application accurately without making anything up or changing it. They also made sure to give credit to all the people who helped them with the EmoGuide application study. They followed all the rules that are expected in research, about the EmoGuide application. The researchers did all of this to make sure that the EmoGuide application study was done in a way.

Analytical and Statistical Schemes

Objective No. 1 Aimed to find out what features the EmoGuide application needs to have. It used an analysis method called thematic analysis. This method helped. Organize the applications key features and functions based on what was found in the literature review and theoretical foundations. The review of literature and foundations provided relevant information that served as the basis for identifying and organizing the applications essential features and functionalities.

Objective No. 2 Focused on developing the EmoGuide application. It used an analytical scheme to document and describe how the application was designed and developed. The processes involved in designing and developing the EmoGuide application were. Described according to the developmental framework adopted in the study.

Objective No. 3 Tested how usable the EmoGuide application is. It looked at System Usefulness, Information Quality and Interface Quality. This objective used an analytical scheme with the mean and standard deviation. The mean showed how satisfied users were with the application. The standard deviation measured how varied the responses were. The results were interpreted based on the scoring guidelines of the Post-Study System Usability Questionnaire (PSSUQ) Version 3A.

Objective No. 4 Aimed to find areas for improvement of the EmoGuide application. It used an analytical scheme with thematic analysis. Responses and suggestions from users were analyzed. This helped determine enhancements for future development of the EmoGuide application. The study mainly used statistics. This is because its primary goal was to develop and evaluate the usability of the EmoGuide application. The study did not aim to find relationships or significant differences among variables. The findings from both qualitative analyses helped evaluate the usability and acceptability of EmoGuide. EmoGuide is a technology-driven intervention, for emotion regulation.

RESULTS AND DISCUSSION

Table 1. *Usability Evaluation of EmoGuide Using the Post-Study System Usability Questionnaire (PSSUQ Version 3)*

Dimension	Mean Score	Interpretation
System Usefulness	6.70	Very High User Satisfaction
Information Quality	6.56	Very High User Satisfaction
Interface Quality	6.73	Very High User Satisfaction
Overall PSSUQ Score	6.66	Very High User Satisfaction

The EmoGuide application was tested by 76 people who work inside the company. They used a questionnaire to see how easy the EmoGuide application is to use. This questionnaire looks at how happy people're with the EmoGuide application. The results showed that the EmoGuide application got a score of 6.66 out of 7.00. This is a score. The people who tested the EmoGuide application were very happy with how easy it's to use. They thought the EmoGuide application is easy to use and it works well. The EmoGuide application helps people manage their emotions. When it comes to how useful the EmoGuide application's it got a score of 6.70. The people who tested the EmoGuide application thought it does what it is supposed to do. The EmoGuide application gives people the tools they need to monitor their emotions and deal with problems. The EmoGuide application also got a score for the information it gives. It got a score of 6.56. The people who tested the EmoGuide application thought the information is relevant and easy to understand. They liked the information about emotions. The guidance it gives. The EmoGuide application got a score, for the interface. It got a score of 6.73. The people who tested the EmoGuide application thought the interface is nice to look at and easy to use. They liked how the EmoGuide application is designed. Overall the EmoGuide application did well in the test. The EmoGuide application got scores in all areas. The EmoGuide application is a tool that people can use to manage their emotions. The EmoGuide application is easy to use. It works well. The EmoGuide application is a tool that can help people manage their emotions.

CONCLUSION

The results of this study show that EmoGuide is a tool that helps people deal with their emotions. It uses ideas from known theories like Ekman's Theory of Universal Emotions and Gross's Process Model of Emotion Regulation.

The EmoGuide application is designed to help people become more aware of their emotions and find ways to cope with their emotions using EmoGuide. People who used EmoGuide were very happy with EmoGuide. They thought EmoGuide was useful and easy to use.

They liked the information that EmoGuide provided and the way EmoGuide looked. This means that EmoGuide is a tool that people can actually use to help them with their emotions using EmoGuide. This study did not look at whether EmoGuide can help people with problems.

The results suggest that EmoGuide could be a tool, for people who have trouble dealing with their emotions. EmoGuide has some features, like tracking your mood, guided breathing exercises and a journal to write in. It also has information and strategies to help people cope with their emotions using EmoGuide.

The fact that EmoGuide is easy to use and helpful means that it could be used in studies to see if it can really help people deal with their emotions and improve their health using EmoGuide. EmoGuide could be a tool for many people to help them with their emotions. The EmoGuide application has a lot of potential to help people with the help of EmoGuide and its features to deal with emotions using EmoGuide.

Recommendations

We need to see how well EmoGuide works over a time. This means we should track how users are doing and see if EmoGuide really helps people deal with their emotions be strong and feel good about themselves.

EmoGuide should be changed so it fits cultures. This way it will be more helpful to people around the world.

It would be great if EmoGuide worked with health professionals. They could use EmoGuide with the people they are helping. It would make their jobs easier.

We should ask users what they think of EmoGuide. Use their ideas to make it better. It would be nice to have people to talk to away or to be able to talk to other users or to get help from people who care about mental health.

EmoGuide could do more to help people by giving them phone numbers to call when they need help. This way people, around the world can get help from volunteers who care about mental health.

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