



AUTOMATED COUNSELING SESSION: A PRODUCT OF POSITIVE COMPUTING

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KeyWords

computerize system, counseling, psychometric test, mental health, youth behavior.

ABSTRACT

The rates of mental illness amongst Malaysian youth have been noted to be quite high. Subsequently, majority were reported among school and university students. Thus, it causes urgency in deriving the solution in various platform. However, the number of cases is yet to be reduced with regard to many conventional counseling services. On the other hand, the government were urge to provide solution which is preferably in a form of preventive rather than cure. Techniques such as meeting counselors at schools is impractical due to sensitivity of problems faced by students. Thus, this paper takes a new look at preventing this problem from occur with the help of computer-based applications known as My Pocket Counselor. This mobile based application offers an assessment services which used for guidance purpose. Counselors from six universities were interviewed as part of requirement gathering. The traceability matrix was used to map the proposed system's functionality with those user requirements. The product was constructed using responsive design to increase the operability of the system. This web-based system represents an innovative alternative to counseling service providers especially those who are from universities.

1. INTRODUCTION

Globally, depression is one of the leading causes of illness and disability among adolescents. The upshots of not addressing adolescent mental health conditions extend to adulthood, harming both physical and mental health. This would directly limiting opportunities to lead fulfilling lives as adults [1]. The similar situation had faced by Malaysia in recent years. Study using DASS-21 scoring as reported in Malaysia health and morbidity survey, the 1 of 5 adolescent is depress and 1 in 10 adolescent is in stressed condition [2]. Notably, the percentage is largely contributed by Selangor state which indicate the place where the research was conducted. Besides that, fast and uncertain mental illness also influence in determining mitigation plan to overcome it.

In Malaysia there are two ways of identifying the mental health status, they are traditional counseling session, and recording data through paper based psychometric. The various environmental factors while consulting the adults lead to potential wrong data. This is a pretty serious problem regarding the validity and accuracy of consultation service provided. The psychometric data commonly used as a basis for a counseling session. If the data gathered are not fully represent the real situation of an adult, then it became unusable.

As a solution for this, positive computing concept has been adopted. A notion of positive computing could benefit human computer interaction research by bringing together a number of related emerging fields of study. As an initial definition, positive computing could be described as the study and development of technologies designed to support well-being, wisdom, and human potential [3]. Positive computing can be integrated with many fields include health science, psychological, education and human well-being. So, this research took a step forward to provide a solution for counseling field in detecting youth mental health status.

Based on these problems, the solution that can be given is to a website-based computer application platform to carry out the process of taking mental health status in stages by way of conducting automated psychometric test. The application has a responsive design which offers two different counseling types: (1) Assess Yourself, (2) Talk to Me. Having this technologized counseling system, we expect that the schools will be aided to reduce the number of discipline problems. We also expect the students' negative perception and attitude toward counseling will shift to be more positive. This application will also handle the lack of counselors and resources that the schools suffer.

2. RELATED WORKS

a) Mental Health

The vast development of Malaysia comes with an increase numbers of social issues. Newspapers headlines recently are filled with incidents of gangsterism, drug abuses, and disciplinary problems in schools. More recently, there have been multiple reports about violence in schools. Most of the reported incidents involved secondary school students. The factors responsible for problematic students in schools include low family socio-economic status, peer influence, neighborhood socio-economic status, lack of school support system, and the limited of school counseling services [4][5][6]. The proportions of mood disorders and suicide-related outcomes have increased significantly over the last decade among young adults in Malaysia. This shows, students facing such problems are in need of help and guidance from a third party who is not the cause of the problem and is not directly involved with the problem. The schools usually assigned counselors to assist the students. The facts happening in schools are that the students tend to not opening up or are hesitant to talk to the counselors[7]. In addition, due to peer influence and perceptions, problematic students are also not comfortable to share their problems with their friends. Schools in Malaysia have a dedicated department known as Guidance and Counseling Department in schools, specifically intended to handle and rehabilitate students with problems, and to identify the problems early to ensure formulation of accurate and on-time solutions. Yet, students with severe discipline problems and violence are increasing in numbers. Hence, the effectiveness of the department is questionable. On the other hand, rumors in schools among students revolve around their reluctance to go to the department to seek help. The students have a negative perception and attitude toward the department that those who are sent to the department are labeled as problematic students and hence they suffer the negative judgment from their peers. Therefore, the main question needs to be addressed is why the students are not utilizing the department and why they do not seek help from the department.

b) Counseling Session

Counseling can be defined as a method to help someone in trouble or have executed an action resulted in a problem. According to Krumboltz (1965), counseling is any activity that incorporated ethics in order to help the clients to solve their problems. Zainal Abidin (2002) suggested that counseling is a discussion between a trained counselor and an individual or a small group of people which have a difficulty or confusion that needs help. In the one of the study among gifted and talented students in Malaysia, issues such as psycho-emotional and social has been shared as a secondary option only instead of as first option [8].

A report from the Pullias Center for Higher Education [9] claimed that the lack of counseling and support structures are the ones responsible for the many of high school students who do not go to college despite their eligibility to continue their education. The students traced by the researchers reported that they did not received sufficient guidance from the school counselors. The insufficient help could be due to the lack of supports, resources, and the limited number of counselors that the school possess. These particular problems could be easily resolved by utilizing technology where the processing in handling the students could be maximized.

Due to the lack of students' utilization of the conventional counseling department in schools, there is a need for the education sector to innovatively transform the way to conduct counseling. The two definitions above do not specify the way the counseling or discussion is conducted. Therefore, one way to innovate counseling is by incorporating technology into counseling.

c) Positive Computing

Apart from ethical principles, technology makers need actionable methods that fit into their meaningful life. This can be achieved by combining wellbeing-supportive design with methods for ethical analysis is a powerful way forward toward achieving more responsible and humane technology[3]. Companies are force to think digitally enabled technologies to help human healthy living.

Accordingly, recent research has exposed new ways to make psychologically align technologies achievable. As far as we know there are lot of product available to support physical wellness. Similarly, it is possible to design product which can support psychological health. The most significant product that can ensure the psychological health is to automate the counseling session.

d) Automate the Counseling Session

In the field of industrial psychology and health care providers, the use of technology in counseling is expanding [10]. Numerous

counseling websites and applications are openly available in the market. However, the automated counseling session which is specifically dedicated to school environment still not extensively available. In most of the countries, ICT has aided the counseling process are still a limited in numbers [11]. On the other hand, Dahir and Stone (2009) suggested that technology is an important component within the counseling profession [12]. Importantly, the youth today lives in a technology-driven society. It is now relevant, more than ever to transform the conventional way of counseling to using technology.

In addition, counseling applications can also enable self-counseling mode in which the students do not need to see the counselor face-to-face but they can communicate remotely by utilizing the counseling app. This paper is aim to explain the product of positive computing in the perspective of counseling services.

3. RESEARCH METHODOLOGY

The dataset used in this study is the data set collected from university counselors. Besides that, the psychometric test was automated with reference to manual psychometric test which commonly used for counseling purpose. Figure 1 shows the research activities for this project. The research activities follow the phases in the research. There are number of university counselors were interviewed to get the requirement for the system. Upon the successful requirement gathering, the system has been designed and developed using web-based programming language.

The system was divided into small and manageable clusters to allow the effective system development. The divided modules were then classified into two major clusters; chatting function and psychometric test function. The development and unit testing performed in accordance to the cluster management.

The system was then released to user for the user acceptance testing. The system user acceptance testing is needed to know the acceptance level of the system.

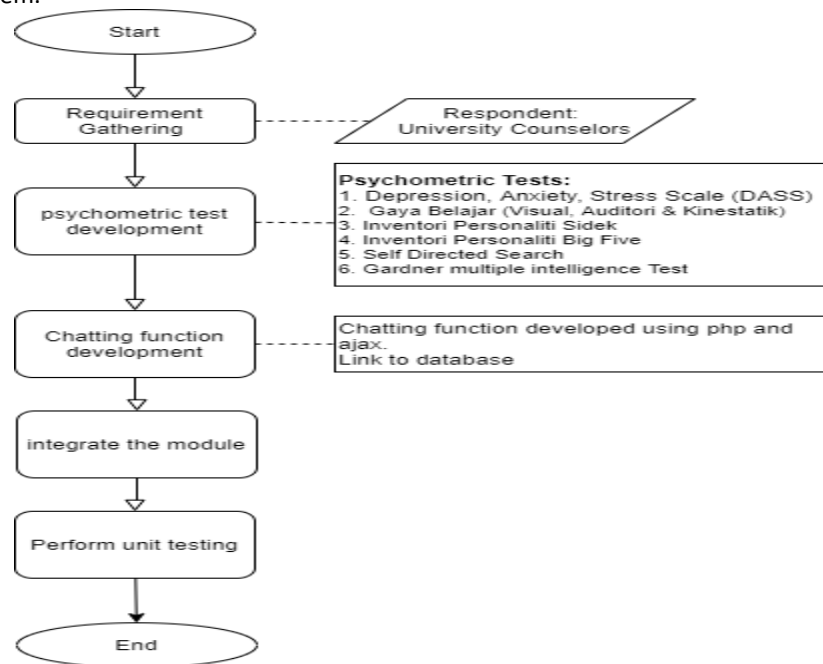


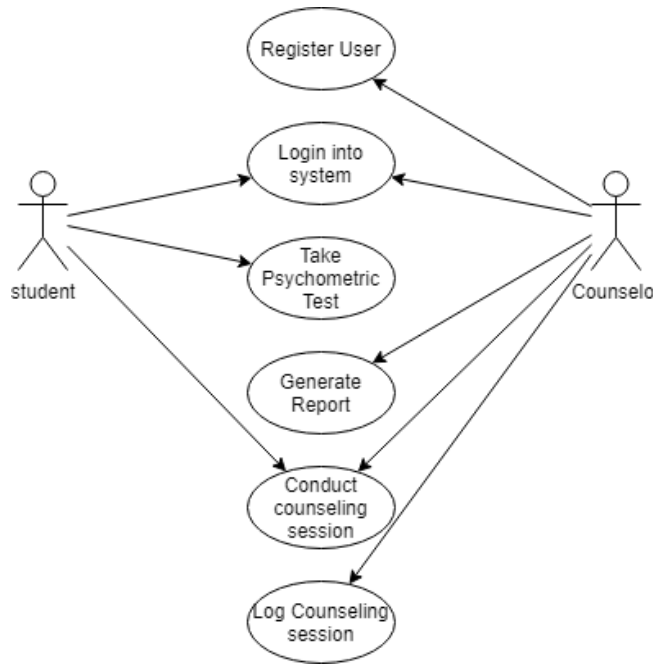
Figure 1: Research Activities

4. MODEL OF THE SYSTEM

Pocket counselor is an application which can be downloaded via smartphones and computers which expected to give the students the ability to reach the counselor anywhere without meeting the counselor. Most of the students have their own problems and most of them also afraid to voice out their problems to others because sometimes the problems are too personal for them. Thus, with this application, they can ask any question privately between them and the counselor at their own convenience. With this application, the counselor also can upload any activities and advice every day for the students to do or sign up for during their free time. The everyday advice can be a motivational catalyst for the students to avoid negative doings and upholding their performances. This application consists of two main menus which will be 'Talk to me', 'assess yourself'.

The first main menu is 'Talk to me', this menu is designated for the students to contact the counselor and talk about their problems or something that they do not understand regarding to personal and academic issues. This menu solely depends on chatting with counselors. The chat menu can let the students to contact the counselor via text which will be conveyed in chat form between the

counselor and the students. The they are not comfortable enough but still need to consult the coun-
The students can use this menu wait for the counselor to reply to
Chatting function was included in programming language with the enable the read data from a web data) even after a web page has played without reloading a web data to a web server in the back-scripting language. So, the chat-real time manner. In order to use and counselor need to sign up



students can use this menu when to talk to the counselor directly
selor to overcome their problems. anytime including at home and them.
the system by integrating web ajax. Ajax is a language which server (in this case is chatting
loaded. The chatting data is dis-page. The system also sending a ground unlike any other web
ting data can be delivered in a this chatting function, the student their details into the system.

Figure 2: System Use Case Diagram

The second menu is 'Assess Yourself', this menu is designed to help the students to identify their current psychological state by taking the available psychometric test. For each psychometric test, the questions were build using web scripting language. Two type of scale were used for the assess yourself function as illustrate in the Figure 3.

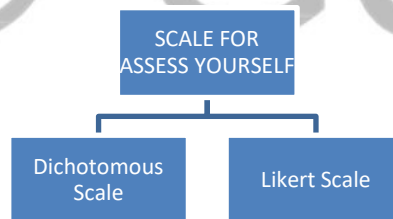


Figure 3: Type of Scale

The both scales were programmed by getting value from online form and process the value. The value was processed based on the psychometric test result interpretation table. The psychometric test result interpretation shows the needs of providing counseling session for those students who took the psychometric test. It leads to the usage of chatting function into the system.

One of the psychometric tests guide the students about 'What I'm good at' section and tell the counselor what are their specialties and capabilities. The students can tell the counselor about their interest and they can enhance their interest by consulting the counselor and their own personal interest enhancement program can be scheduled by the counselor by consulting the administrative personnel including the principal. The students' interest can be handled in more manageable manner. Thus, the students whom are capable to performing well in the sports and co-curricular activities can proceed to improving their skills and capabilities during their school year and a particular selection season for the sports and co-curricular activities can be held by the school for these talented students to have a chance to be selected into the sports and co-curricular industries.

5. RESULT AND DISCUSSION

The "MyPocket Counselor" was designed such that the mental health status of student can be known from anywhere as long as they using the application.

The My Pocket Counselor (MyPC) application represents a viable alternative to traditional counseling session and taking psychometric test. The system divides into 2 different menus. The sitemap of "Assess Yourself" menu as illustrated below: The psychometric test contains questions which need to be answered by students.

Table- I: Description on Use Case and System Functionality

Use Case	System Functionality
Register User	System able to register new students who are identified as person who seeking for counseling session
Log into the system	System allow registered user to log into the system
Take Psychometric Test	Student able to answer selected psychometric test to know their health status Function Name: Assess Yourself
Generate Report	Counselor able to generate report regarding the student who seeking for counseling session after they take the psychometric tests.
Conduct Counseling session	The Chatting function which allow counselor to chat personally with the student who need their guidance. Function Name: Talk to me
Log Counseling session	Counselors able to log the counseling session outcome by follow the rule of counseling session.

The most significant psychometric test is DASS test which also known as Depression. Anxiety. Stress Scale test. The DASS test was reflected in the My Pocket counselor as illustrated in Figure 4.

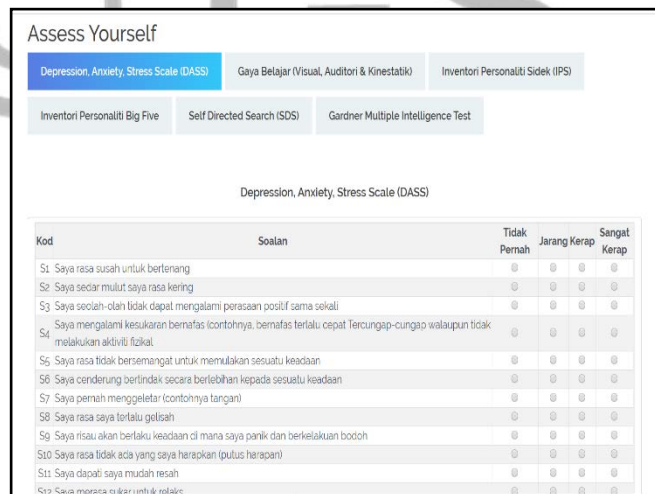
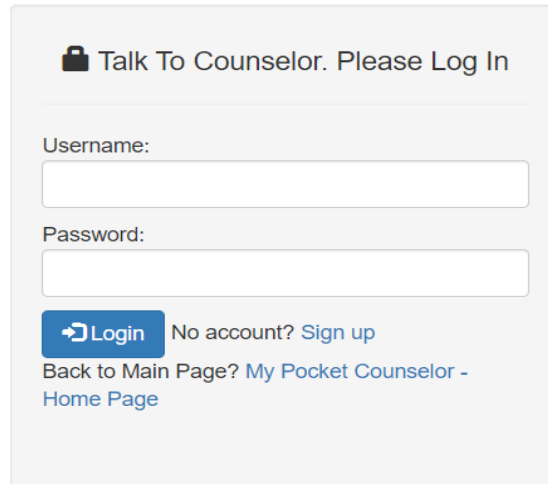


Figure 4: DASS Test

As for the talk to me function, the student who would like to chat with the counselor need to log in into the system as For the 'Talk to Me' function, user are required to log into the system as depicted in Figure 5. There are two type of login access provided. Student and Counselors. The limitation for access as follows:

- Students are able to start the chatting with the counselor of their choice.
- Student can manage the chatting.
- The counselor has a different login access to monitor the students who are chatting with them.



The screenshot shows a login form with the following elements:

- Title: Talk To Counselor. Please Log In
- Username: [input field]
- Password: [input field]
- Login button (blue with white arrow icon)
- Links: No account? Sign up
- Link: Back to Main Page? My Pocket Counselor - Home Page

Figure 5: Log into System

Upon successful login, the student can view the list of chatting with counselor as illustrated in the Figure 6. The data were extracted from database which was developed using MySQL.



Figure 6: Student Page

The similar kind of function is viewed by counselors to show the list of students who have chat with them. Each time the user seeks for counseling, student and counselor required to create room and can start the conversation as depicted in Figure 7.

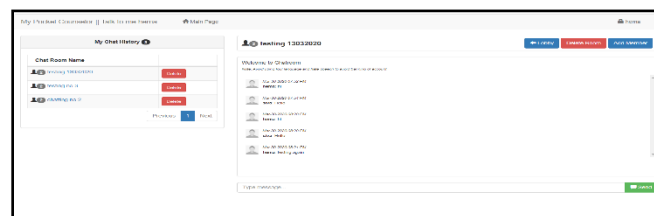


Figure 7: Chatting room

6. CONCLUSION AND FUTURE WORK

From this study, My Pocket Counselor able to provide guidance to students who needing help. The application is also intended to help shift the students' perception and attitude toward counseling services. As for the future work, the system needs to be upgraded to be able to analyses the online social networking data to know the mental state of a younger adults.

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