

Konselo App: The Future of Distance Counselling and Therapy Applications Based on Android Technology

Zadrian Ardi^a, Neviyarni^b, Daharnis^c, Universitas Negeri Padang, Indonesia^{a,b,c}, Email: adzadrian@fip.unp.ac.id

The internet is one of the main drivers in the development of technological innovation and the industrial revolution, which tends to play important roles in various sectors of human life. One implication of this technology is the development of a mobile operating systems such as Android and iOS. However, its use in mental health interventions is still limited. This research, therefore, aims to develop an Android-based platform that can be used to connect counsellors with clients in the context of mental health interventions, irrespective of their distances. Data was obtained from 10 counsellors and clients which included 174 respondents in the preliminary study regarding the application content. The data obtained was then analysed by using the Rasch Analysis, Kendall's Concordance Analysis, and Network Psychometrics Analysis. The results of the study showed that the developed application fulfilled the requirements and was widely accepted by respondents.

Keywords: *Android software development, mental health intervention, counselling approach, technology*

Introduction

The physical, mental, and social well-being of an individual is determined by certain healthy measures (Ardi, Sukmawati, et al., 2018; Dong, Lee, Park, & Youn, 2018; Lopuszanska-Dawid, 2018). This means that physical condition is not the only parameter used to measure an individuals' health, rather, it also involves a persons' mental, social and spiritual state (Ardi, Febriani, Ifdil, & Afdal, 2019; Hidayat, Ardi, Yuliana, & Herawati, 2019). These parameters are necessary for maintaining a healthy balance, which leads to a productive lifestyle. Mental health awareness contributes immensely to individuals' activities and significantly influences productivity (Aurizki, Efendi, & Indarwati, 2019; Brooks et al., 2019;

Kurniati, Chen, Efendi, & Berliana, 2018; Marthoenis, Aichberger, & Schouler-Ocak, 2016). It also plays an important role in ensuring quality life and increases the life expectancy of a community.

Generally, people believe that the most important element of the body is physical health. However, the psychological condition is instrumental and has a significant influence on a person's physical state (Brzykcy, Boehm, & Baldrige, 2019; Freese & Baer-Bositis, 2019; Morton, 2019). Additionally, the results from Basic Health Research conducted by the Ministry of Health in Indonesia stated that in 2015, the condition of mental-emotional disorders experienced by indigenes aged over 15 years is equivalent to 6% of the total population, which is approximately 15.7 million people (prevalence data are recent reports from the Government of Indonesia) (Ardi, Putra, & Ifdil, 2017; Ardi, Viola, & Sukmawati, 2018; Ifdil et al., 2018; Rangka et al., 2018). A preeminent issue in mental health intervention is the gap between its service providers and the number of individuals that need these services. However, various professionalization efforts, such as increasing the number of experienced counsellors and psychology graduates, have not been able to narrow this gap.

A new counselling modality service is needed to provide solutions to the gap between service providers and users (Ardi, 2019). This modality tends to provide a new paradigm in the intervention process, however, this rationale employs effective media that precisely and optimally resolves these issues synchronously and in real-time patterns (Bloom & Dillman Taylor, 2020; Kit, Teo, Tan, & Park, 2019; Warren & Nash, 2019). The use of internet technology is one of the modalities in counselling services that provide opportunities to alleviate this gap. This assumption is in accordance with the significant development of internet technology in the past ten years. According to data from the Internet World Stats in 2015, there were 2.4 billion active internet users all over the world, and this led to a significant increase of 544% when compared to the statistics in 2000. The survey conducted by the Indonesian Internet Service Users Association (APJII) in 2019 stated that there are approximately 171.17 million users or 64.8% of the total population. About 93.2% of these users are connected through smartphone devices, 19.1% use social media, while 4.9% search for information concerning health (Ardi et al., 2019; Ardi & Sukmawati, 2019; Ardi, Sukmawati, et al., 2018). This prevalence creates opportunities for content and internet-based mental health interventions.

The development of internet technology, the use of smartphones, and the various demographics have a significant impact on the quality of life. Internet technology is a strategic modality in the counselling service intervention (Ali & Bloom, 2019; Bird, Chow, Meir, & Freeman, 2019; Bloom & Dillman Taylor, 2020; Paterson, Laajala, & Lehtelä, 2019; Warren & Nash, 2019). Furthermore, these opportunities and modalities are efforts to alleviate the problem of a lack of optimal counselling services and the availability of

professionals in mental health services such as counsellors (Alizamar et al., 2018; Ardi et al., 2019; Ardi & Sukmawati, 2019).

The internet provides opportunities for people that need personal or mental health information through counselling services (Chen, Zhu, & Pan, 2019; Dear et al., 2019; Kit et al., 2019). Therefore, online counselling services have experienced significant developments in accordance with the growth of digital platforms with potential users throughout the world. Most of these users are 30 years and below, which is a productive age because numerous individuals spend more time on certain activities such as work and education. To accommodate the requirements of long-distance counselling services for mental health interventions, especially in Indonesia, it is necessary to develop a media or a model that tends to withstand the demographic characteristics of the users. This is achievable through the prevalence or tendencies of using smartphones to obtain information and mental health services. The online media uses an android platform as its technology base. Conversely, this research focuses on the development, validation, and testing of an online counselling application called *Konselo*.

Methods

Participant

This study involved 174 respondents from all over Indonesia. It aims to determine the conditions and acceptance (testing) of the product. The samples were obtained from dynamic and diverse demographics, which were grouped according to gender, age, occupation, marital status, and domicile. The samples were randomly showed, thereby leading to a dominance of the female specimen by 73.56%, while 25.86% of the male model was obtained, with the largest age range from 18 to 24 years. The demographic conditions of the first sample are stated in Table 1, with the approval of data collection carried out before filling out the agreement sheet. The validity and quality of the product was tested by utilising samples from ten licensed counselling experts. The purposive sampling method was employed for validation of the product based on the criteria that the counsellors have been practicing for over five years with prior experience.

Table 1. Sample Demographics

Respondent Demography	Samples	%	
Gender	Male	45	25.86
	Female	128	73.56
Age	Under 18	1	0.57
	18-24	118	67.82
	25-34	32	18.39
	35-44	13	7.47
	45-54	4	2.30
	Over 55	6	3.45
Occupation	Employed	55	31.61
	Unemployed	119	68.39
Marital Status	Married	42	24.14
	Single	132	75.86
Domicile	City	141	81.03
	Suburb	19	10.92
	Rural	14	8.05

The first sample size of 174 people was in accordance with the measurement of the power to avoid α and β errors (Chi, Glueck, & Muller, 2019; Ramos-Guajardo, González-Rodríguez, & Colubi, 2020). According to the obtained measurements, the minimum number of samples had an actual power of 0.95, while the size of its effect was 0.82 in 95 respondents. Therefore, the samples used met the minimum requirements.

Measurements

The Acceptability of Mental-Health Mobile App Survey (AMMS) (Sukmawati, Ardi, Ifdil, & Zikra, 2019) was used to determine respondents acceptance of the application. The Rasch Model approach was used to validate the measuring instruments due to its advantages such as analysing the conditions of missing data, accuracy in measuring items, ability to evaluate the state of data outliers, and provision of reliable tools for the studied parameters. The AMMS instrument is dependent on the Cronbach Alpha-KR20 and an achievement value of 0.92. The application's validity was measured using a unidimensionality value that produced an explained variance unit of 50.7%, with a total of 11.1%. Unexplained variance. The validity and reliability measurement show the minimum requirements needed to calculate the level of respondents' acceptance of the developed product. Subsequently, the Online Counselling Application Assessment Inventory with a reliability value of 0.90 was used to measure agreement and suitability levels of counselling experts in assessing the applications and the possibility of its future usage.

Data Analysis

The obtained data was analysed by interpreting the characteristics of the measuring instruments and samples. The Rasch model was used to determine respondents' level of acceptance of the developed product. This procedure was carried out by considering the analysis accuracy while reducing its impact error. However, analysis of the product using the Rasch Model approach was performed with Winstep 3.72 software (Ardi et al., 2019; Syahniar et al., 2018). Kendall's Concordance Analysis was carried out to determine the counselling experts or counsellors' level of agreement towards the developed product. This analysis produces a coefficient and agreement index of experts that shows how to use this application. Furthermore, Network Psychometrics analysis was conducted to determine the relationship between application acceptance and the tendency to apply them during counselling service interventions.

Results and Discussion

This stage analyses the literature review with the assumption that the development of the system and its content tends to be effective and efficient in accordance with the knowledge of its initial conditions. It also observes the rules of face-to-face counselling that considers the client's safety and comfort during the process. Initial studies are also conducted to measure the potential use of the application in the future. This process produces a developed application with a certain level of data security in the form of encryption, thereby presenting a system capable of creating online counselling processes synchronously and in real-time patterns. It also consists of features that can represent clients' emotions in the form of emojis, with a scheduling system that enables clients to communicate with counsellors easily. This study is also based on various ethical and confidential issues that serve as credentials in counselling services through the media. The rules of the counselling profession in different countries do not provide clear guidelines on the level and certification of the security of the online counselling system or services.

This is followed by the design stage which was achieved by using several software development tools, such as Android Studio (Golhar, Vyawahare, Borghare, & Manusmare, 2016; Kajornkasirat, Chanapai, & Hnusuwan, 2018; Mu, Tan, & Zhu, 2018) and the GoLang framework (Dilley & Lange, 2019; Whitehead II, 2011). This development process led to the application name "Konselo" (Figure 1 and Figure 2).

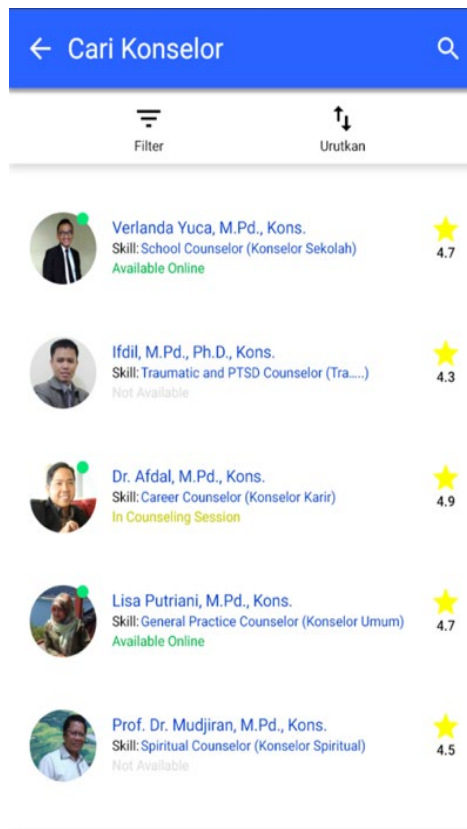


Figure 1. Counsellor list feature on "Konselo"

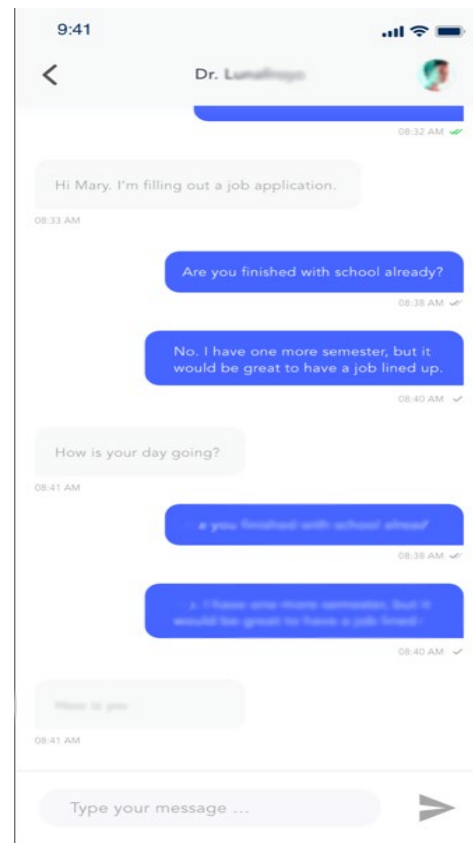


Figure 2. The Counselling chat session on "Konselo"

The application utilises a Graphical User Interface commonly used in regular chat platforms to facilitate the client's understanding of the system being built. However, this app also provides a list of counsellors with different statuses, such as accessible, in a session, and not available. It also adapted the synchronous and online real-time principles in its sessions, thereby making it easy for clients to connect with counsellors directly.

To obtain data related to users' experience and level of acceptance of the application, testing is conducted through AMMS by employing the Rasch Model analysis. According to the summarized statistics results in Table 2, the achievement of an average person is above the logit scale of 50 on the rescaling scale, which is interpreted by the tendency to receive positive online counselling services. However, when analysed from the separation index (2.55 logit), the value is explained by the consistency and diversification of answers among respondents. In addition, it is considered quite good when it can distinguish the answers of each individual.

Table 2. Acceptability of Mobile-app Counselling Intervention by AMMS using Rasch Analysis.					
No	Items	Construct	Logit Value	Rescaling Logit Value (0-100)	Code
1	If I feel uncomfortable (mentally), I choose to access mental health services through the application	Behavioural Intention	-0.94	41.63	A1
2	I want to use the counselling service application via smartphone	Behavioural Intention	-0.01	48.76	A2
3	I am more comfortable talking about problems experienced through an online counselling application (Konselo)	Substitutive	1.06	56.97	A3
4	I feel my secret is safer through an online counselling application (Konselo) on a smartphone	Substitutive	0.99	56.46	A4
5	Before meeting face to face, I chose to meet with the counsellor via online first	Complementary	0.18	50.19	A5
6	I want the counsellor to be able to monitor my psychological condition through the application (Konselo)	Complementary	0.53	52.9	A6
7	I want to find information about mental health through a smartphone	Complementary	-0.51	44.91	A7
8	Some of my problems can be handled through an online counselling application	Substitutive	0.48	52.51	A8
9	If available, I won't always to contact my counsellor via a smartphone	Personal Innovativeness	-0.54	44.64	A9
10	I tend to like trying the latest applications on smartphones	Personal Innovativeness	-0.25	46.92	A10
11	I am adaptable to the latest development of applications on smartphones	Personal Innovativeness	-0.99	41.21	A11

Analysis of empirical results from the AMMS shows that respondents tend to provide positive feedback on the developed application. This is shown in Table 3 on the acquisition of logit in item A5 using 56.97, which is interpreted as the tendency of respondents to be comfortable in expressing feelings and problems through the Konselo application.

Table 3. Summary Statistic of Acceptability of Mental-Health Mobile-App Survey (AMMS)

Estimation	Logit Value	Rescaling Logit Value (0-100)
Mean Person	.12	53.49
SD Person	1.72	13.05
Max Measure	5.87	92.23
Min Measure	-4.10	15.21
Separation Index Person	2.55	-
Person Reliability (Cronbach Alpha-KR20)		.89

The tendency to use this application is also shown from the complementary aspects of items A5 and A8, which indicates that prospective clients are more likely to use the application first before meeting face-to-face with their counsellors. This tendency further strengthens the role of the counsellor as a provider of mental health counselling and intervention services that provides comfort and intention for prospective clients. Additionally, this is in accordance with the basic functions of the online counselling approach that makes it easy for clients that experience limitations and obstacles to meet with counsellors in the first session, as well as for new users (Ali & Bloom, 2019; Ardi, 2019; Ardi et al., 2017; Ardi, Sukmawati, et al., 2018; L. Chen et al., 2019).

Conversely, considering the credentials and basic principles of counselling services in the form of data obtained from client confidence when using the application, appeared to be good on item A9 with a logit value of 56.46. This achievement proves that the belief that clients lack confidence in the security of online counselling services tends to be overcome by an integrated and encrypted application system. Substitutive sub-variables, which are the basis for exploring the comfort and confidentiality level of clients during the counselling process, are an important starting point in the development of its online presence in the future. However, as an alternative to the counselling approach, it has an important modality that provides crucial interventions, particularly in the case of clients that are not able to meet the counsellor quickly or due to various technical and geographical constraints (Chen, Lan, Chang, & Chang, 2019; Lazuras & Dokou, 2016; Navarro, Bambling, Sheffield, & Edirippulige, 2019).

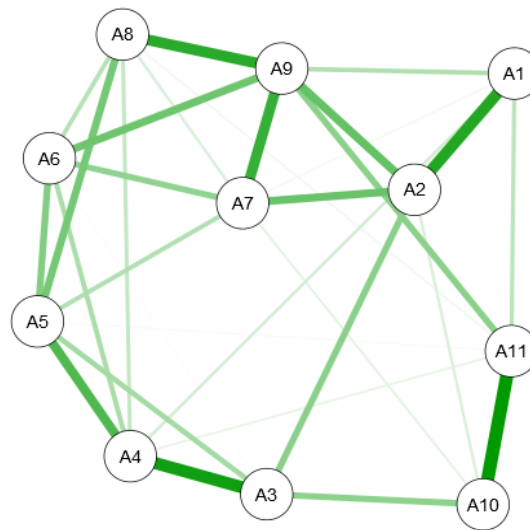


Figure 3. The network model structure of acceptability of Konselo for counselling intervention using mobile app

The strength of the correlation between items explains the respondent's acceptance of the developed application and is showed in Figure 3. However, exploration of the correlation is interpreted by the relationships between items that are quite strong and clearly illustrate the respondents' acceptance of the application being developed. Furthermore, the relationship between A3 and A4 shows that the tendency to accept the applications is more prominent in the level of confidentiality and comfort in expressing problems experienced through online counselling. Another condition that shows the tendency of respondents to use this application is the availability of counsellors that are contacted through the application, this is evident in the strength of the relationship between items A8 and A9.

Therefore, the Kendall concordance analysis is carried out to detect the conditions of the agreement between counselling service experts and counsellors in assessing this application and its possible uses in the future. This is showed in Table 4.

Table 4. Counselling services expert agreement index for the Konselo application using the Kendall Concordance Test

No	Number of Validators	Number of Statement Items	Kendall's W	Df	Asymp. Sig.
1	10	16	0.331	9	0.002

The results from statistical analysis showed that Kendall's W coefficient value is 0.331 with a P-value (significance level at 0.01) at point 0.002. This means that there is an agreement among counsellors on the possible use and effectiveness of counselling services using the

products which were developed. The coefficient value also means that all counselling experts agree that counselling services using a developed product (Konselo) is a targeted alternative considering the wide use of Android technology and varying client's problems. According to a statement on the instrument given to experts regarding the possibility of using a contemporary approach that integrates the counselling application obtained a mean of 4.33. This means that 86.7% of the experts that used the instrument gave a positive assessment of the development and use of the Konselo application in counselling service interventions.

The application's strength is analysed by experts to increase the legitimacy and test the efficiency of the application. This shows that the use of the application is an alternative counselling service intervention that provides a maximum contribution in a short time. The positive views of counselling service experts and the results from testing the application under remote conditions create easy access to users. The format and distance of the media are achieved by the demographic characteristics and demands of the industrial revolution 4.0, which is intended to accelerate counselling and intervention services. Additionally, the increasing dominance of mobile technology users, especially at a productive age, is a strong basis in the development and use of this application.

Conclusions

Technology provides convenience and opportunities in the development of various aspects of life, both materially and psychologically. This facility is also used to deliver mental health and long-distance counselling services. Its model and format have been in existence for 10 years, either through the telephone (synchronous) or mail/email (asynchronous). However, because of the explosion of technological developments in the past 10 years, new models and approaches that utilise the internet as a medium for delivering these services have emerged. This is known as online counselling. Therefore, it is necessary to have a special platform that makes it easy for counsellors and clients to interact with each other.

This study shows the results from the development of an online counselling application known as Konselo. This application showed positive responses from users in limited groups (testing) and counselling experts. Additionally, this research also stated that the demographic conditions of users at a productive age are more likely to use applications that make it easier to deal with counsellors in a synchronous or real-time manner. However, the tendency to use this application also shows that the client needs an app that monitors psychological condition, can easily contact the counsellor, and provides alternative solutions quickly and accurately. Counselling experts predict long-term effectiveness through testing agreements, which show that this application is easily used for future service interventions. However, there is a need for in-depth testing of the efficiency and long-term impact of counselling services through this application and other psychological aspects obtained after using it within a certain timeframe.

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