

# **KausAPP: A Booking Mobile Application for Easier Access of Filipino Students to University Teleconsultation Services**

**Clark Edelaine Almerol**

Industrial Engineering Department, College of Engineering  
Adamson University  
[clark.edelaine.almerol@adamson.edu.ph](mailto:clark.edelaine.almerol@adamson.edu.ph)

**John Griffin Faculin**

Industrial Engineering Department, College of Engineering  
Adamson University  
[john.griffin.faculin@adamson.edu.ph](mailto:john.griffin.faculin@adamson.edu.ph),

**Ms Anna Ramos**

Research Co-Adviser  
Head-ITSO  
Adamson University  
[anna.may.ramos@adamson.edu.ph](mailto:anna.may.ramos@adamson.edu.ph)

**Dr. Venusmar C. Quevedo, PIE, ASEAN Eng.**

Research Adviser  
Vice President for Administration  
Adamson University  
[vcquevedo@gmail.com](mailto:vcquevedo@gmail.com)

## **Abstract**

The study aimed to determine in what ways a proposed teleconsultation booking application can facilitate access to university teleconsultation services; identify significant factors to be considered in the development of such an application in terms of operational and functional requirements; and determine the strength of the relationship between the counselee demographic factors and the application requirements. A mixed method of research was used by gathering data from elicitation interviews and online surveys. 211 respondents who are currently enrolled students or employed faculty members, office staff, and administrators of Adamson University took a survey that aimed to determine their awareness on the Guidance Office's current teleconsultation service and problems encountered with it, and the importance of the 17 potential operational and functional requirements of the proposed application to them. The researchers identified problem areas that hinder access to university teleconsultation services and concluded that these could be mitigated or eliminated by the use of a booking mobile application. Welch's ANOVA and Games-Howell Test were used via Minitab software for data analysis towards determining which requirements are more important and less important for inclusion in the app. From the results, 15 of the 17 potential requirements warranted their inclusion in the app. Spearman's rho was used via SPSS Software to determine the relationship between particular counselee demographic factors and the app requirements. The researchers found a weak to nonexistent relationship between them.

## **Keywords**

University teleconsultation services, booking mobile application, Covid-19, Filipino university students, mental health needs

## **1. Introduction**

In the Philippines, most universities were still playing catch-up and had no telehealth services or teleconsultation services when the Covid-19 pandemic hit. They were caught off-guard with the restrictions imposed by the government during the pandemic and had to improvise with little time and resources to do so. This study focuses on one of the premier universities in Metro Manila, Adamson University, whose experiences may be seen as typical for universities in that area. While the university counselors were able to give effective guidance to counselees, scheduling a telecounseling appointment was a lengthy process for both sides. At a time when Montano and Acebes (2020) found that Filipino university students are highly vulnerable to stress induced by the Covid-19 pandemic, efficiency and capacity improvements to this system might benefit both counselors and counselees alike.

### **1.1 Objectives**

The research aims to develop a teleconsultation booking mobile app called “KausAPP”. The app will mitigate most of the reasons why Filipino university students are reluctant or unable to seek help on their mental health problems via university teleconsultation services. While prior research has been done on the mental health needs of Filipino university students and their difficulties in meeting those needs, new challenges posed by the Covid-19 pandemic and the unprecedented shift to remote consultation services warrant further information to account for these phenomena. The significant factors to be considered in the development of the proposed app, such as its operational and functional requirements, must also be determined. Furthermore, how counselee demographics affect the importance of these requirements should be known as counselees should be serviced equally and without bias regardless of demographic factors, per the goals of the Guidance Office. Specifically, the research has the following objectives:

1. To determine the ways a teleconsultation booking application can facilitate access to university teleconsultation services
2. To identify the significant factors to be considered in the development of such an application in terms of operational and functional requirements
3. To determine the strength of the relationship between the demographic factors of the counselees and the requirements of the application

## **2. Literature Review**

### *Telecounseling in Universities*

Novella et al. (2020) found that telehealth is viable for students with anxiety problems. It leads to better academic performance for student athletes, as Martin and North (2021) concluded. It also brought extensive health care benefits to university students during the Covid-19 pandemic (Reeves et. al., 2020). Despite evidence of the many benefits of telecounseling, in 2019, the vast majority of college counseling centers did not utilize telecounseling at all. Nobleza et al. (2019) lists small budgets of college counseling centers, high technology costs, and staff resistance as barriers to more widespread adoption. In Canada, most postsecondary institutions have some form of mental health promotion and programs for its students, although management considers them a waste of resources (Jaworska et. al., 2016). Kenyon (2020) also notes that the adoption of telemedicine among college students was low, despite improvements in health and academics among those students who did utilize telemedicine. Remarkably, a study by Blau and DiMino (2019) showed that a median of as few as 4 counseling sessions were enough to elicit its many benefits. Students displayed significantly higher levels of social connectedness, self-esteem, and life satisfaction after just a few counseling sessions. Considering the amount of benefits for so little effort, it is hard to argue that university counselors should ignore telecounseling and the optimization of the service so that the maximum number of students are reached given their resources. A study conducted by Bull et. al. (2016) found that an efficient telecounseling system and convenience are factors which encouraged students to adopt telehealth systems.

### *Covid-19 and the Demand for Telecounseling*

Zhai and Du (2020) found that the transition to remote learning brought acute stress to college students, increasing demand for mental health services. According to Chirikov et. al. (2020), in the United States during the Covid-19 pandemic, out of 30,725 undergraduate students and 15,346 graduate and professional students surveyed on nine public research universities, 32% of graduate and professional students and 35% of undergraduates screened positive for major depressive disorder, while 39% of each group of students screened positive for generalized anxiety disorder. The prevalence of major depressive disorder was twice as high in 2019, while prevalence for generalized anxiety disorder was 50% more compared to 2019. Low-income students and those unable to adapt to the “new normal” were among those disproportionately affected. To address current college mental health needs, the development of strategies

for ensuring mental health service access, and intentional outreach to college students with special circumstances were deemed urgent by Liu et. al. (2020).

#### *Telecounseling in The Philippines*

As there remains a lingering cultural stigma surrounding those who seek mental health care in many Asian countries like the Philippines (Wong et al., 2018), the poor quality of a university's counseling services might dissuade students from seeking the advice of university guidance counselors or other health professionals (Dantas et al., 2018) at a time when university students are suffering from increased mental health problems due to the ongoing global pandemic (Zhai and Du, 2020). Filipinos are reluctant to seek formal help on mental health problems, despite exhibiting high rates of distress. Puyat et. al. (2021) found using CES-D scores that 8.9% of Filipinos aged 15-24 have depression. Valdeavilla et. al. (2019) conducted a survey among Filipino college students in Manila aged 15-23 and concluded that 52.7% of respondents experienced all six indicators of depression weekly. A similar number was reached by Montano and Acebes (2020) who found that 53.1% of their survey respondents had moderate to severe depression, although the age bracket of the respondents was from 15-65 years old. They also concluded that Filipino students are highly vulnerable to Covid-19 induced stress, with all its mental health implications. These numbers are alarming, and underlines the importance of easy access to teleconsultation services. In another study concerning a college of a major university in Luzon, only 13% of the respondents have either a laptop or a desktop, although 98% of them had their own mobile device, and 75.6% of the respondents' primary mode of access to the internet was via mobile data (De Guzman & Pastor, 2020). The dearth of laptop and desktop availability and the universal availability of mobile devices among students could encourage adoption of any mobile app-based teleconsultation appointment system.

### **3. Methods**

A mixed method research design is employed to achieve the research objectives. This research design is chosen because it permits the researchers to employ robust statistical analysis tools to critically analyze and interpret data from a large number of respondents to determine which operational and functional requirements of the teleconsultation booking application are deemed important by counselees while enabling the use of elicitation interviews and the AIDA model to identify potential problem areas in the current teleconsultation service. Potential operational and functional requirements were identified based on literature of other mobile health apps, questionnaires pertaining to those apps (Zhou et al., 2019; Rasche et al., 2018), and interviews from the Guidance Office. The requirements deemed important by counselees are determined by analysis of the gathered data via Welch's ANOVA and Games-Howell statistical procedures. These methods were chosen because the data gathered is Likert-scale ordinal data, the data distribution is non-normal, and the means do not have equal variances. Through the use of Spearman's rho, the strength of the relationship between the demographic factors of the counselees and the requirements of the application can be determined.

### **4. Data Collection**

To elicit operational and functional requirements from counselors, interviews were held with important representatives of the Guidance Office, who are the main stakeholders of the proposed app. To elicit requirements from counselees, an online survey was made using Google Forms. It was disseminated mainly using social media platforms such as Facebook and Twitter. This survey method was chosen due to its conveniences and the restrictions brought about by the ongoing Covid-19 pandemic. The survey questionnaire is composed of closed-ended, multiple-choice, checkbox, and four-point Likert scale questions (Strongly Agree - Agree - Disagree - Strongly Disagree), the latter of which is used to indicate the importance of the particular requirement to the proposed booking mobile application. The target population from which survey respondents are gathered are currently enrolled students (including Graduate Students but not including Senior High School students), and currently employed university faculty, administrators, and staff of Adamson University. The size of the target population is estimated to be 14,467. The researchers used a 7% margin of error, so if Slovin's formula is used on this number, given a 95% confidence level, the minimum number of survey respondents is 194. The survey gathered the responses of 211 respondents during the survey period between March and April 2022.

### **5. Results and Discussion**

#### **5.1 Reliability Test**

Before widespread dissemination of the survey, the section of the questionnaire with Likert-scale items was pre-tested with 20 respondents from the target population and its Cronbach's Alpha was determined via the use of Minitab

software. This was done to ensure the internal consistency and reliability of the survey questionnaire. The Cronbach's Alpha value of the questionnaire obtained via Minitab was 0.9595 during pre-testing and 0.9401 with 211 respondents, which indicates strong reliability.

## **5.2 Problems Encountered When Accessing University Teleconsultation Services**

To identify problems with accessing university teleconsultation services, the researchers aimed to identify problem areas in the current form of the teleconsultation service by using the AIDA (awareness - interest - decision - action) model, a hierarchy framework proven effective at explaining human behavior from awareness to purchase of a product or usage of a service (Strong, 1925). The AIDA model can be thought of as a customer journey from awareness to purchase of a product or usage of a service, and at each stage of the model there are problem areas which must be resolved so that customers can proceed to the latter stages (Sapian & Vyshnevskaya, 2019). The researchers determined if there are potential issues in each stage of the AIDA model by measuring the target population's awareness, interest, decision (to avail of the teleconsultation service), and action (i.e. utilization) rates of those services. The researchers defined respondents having "Awareness" as those who were aware of the existence of the teleconsultation service; respondents having "Interest" as those who are interested in availing of the teleconsultation service; respondents having "Decision" as those who attempted to use the service; and respondents having "Action" as those who have actually used the service. The survey results are shown in Table 1.

Table 1. Stages of the AIDA Model and the Number of Respondents at Each Stage

<b>AIDA Stages</b>	<b>Number of Respondents</b>	<b>% of Previous Stage</b>	<b>% of All Respondents (n= 211)</b>
Awareness (those who are aware of the service)	94	44.5% (of 211)	44.5%
Interest (those who are interested in using the service)	87	92.6% (of 94)	41.2%
Decision (those who decided to use the service)	20	23% (of 87)	9.5%
Action (those who actually used the service)	16	80% (of 20)	7.6%

Since the majority of respondents are unaware of the existence of the service, it is very likely that the service has an awareness problem. Of the 94 respondents who are aware of the service's existence, 87 of them are interested in availing of the teleconsultation service. This suggests that the lack of interest in the service is most likely not a problem when it comes to accessing the service. 20 respondents have tried to use the service by attempting to set up an appointment with counselors using the current appointment process. Only 16 out of the 211 total respondents managed to successfully avail of the university telecounseling service. Thus, the utilization rate of the university teleconsultation service is 16/211 or 7.6%. Given that the majority of respondents are unaware of the service, it is likely that increased awareness would also lead to an increase in the utilization rate. Survey data revealed the problems encountered by the 20 respondents who attempted to use the telecounseling service are shown in Table 2.

Table 2. Problems Encountered of Respondents Who Attempted to Use University Teleconsultation Services

<b>Problems Encountered of Respondents Who Attempted To Use University Teleconsultation Services (n = 20)</b>	<b>Number of Responses</b>	<b>Percentage of Responses</b>
I don't know how to set an appointment	8	40%
Too many steps in setting up the appointment	1	5%

The schedules given to me by the counselors are inconvenient/in conflict with classes	5	25%
The guidance office is slow in responding to my emails and/or processing my appointment	5	25%
It takes too long for my assigned counselors to give me an initial appointment schedule	3	15%
The guidance office or counselors automatically cancels my appointment before I have a chance to respond to them	0	0%
No responses to my emails	2	10%
None	3	15%
Failed to avail the service	4	20%

### 5.3 Operational and Functional Requirements of the Proposed Mobile Application

The potential operational and functional requirements of the proposed mobile app “KausAPP” are listed in Table 3.

Table 3. Potential Operational and Functional Requirements of the Proposed Mobile App “KausAPP”

Code	Operational Requirements
O1	The app must be easy to use
O2	The app must be easy to learn how to use
O3	The app must have consistent navigation when moving through screens
O4	The app must allow me to correct my inputs whenever I make a mistake
O5	The app must have a likable and aesthetically pleasing interface
O6	The app must show information that would let me track the progress of my actions
O7	The app must not store any of my personal data (e.g. personal info, consultation history, etc.)
O8	The app must require a low storage size
O9	The app must require low memory usage

Code	Functional Requirements
F1	The app must contain a FAQ section
F2	The app must enable me to choose my own consultation schedule
F3	The app must enable me to choose my own counselor to have an appointment with
F4	The app must show me the confirmation or status of appointments

<b>F5</b>	The app must immediately notify me of developments regarding my appointments
<b>F6</b>	The app must automatically list the appointment in an online calendar
<b>F7</b>	The app must have the option to reschedule appointments
<b>F8</b>	The app must enable me to rate counselors and give feedback

The researchers constructed a 4-point Likert scale survey to determine the importance of the potential operational and functional requirements of the proposed teleconsultation booking mobile application. Welch’s ANOVA revealed the importance of the requirements are not equal, and the Games-Howell test found that requirements O1 and O2 are more important than the others, while requirements O7 and F3 are less important than the others. This can be visualized by the interval plot of the Games-Howell test produced using Minitab software in Figure 1.

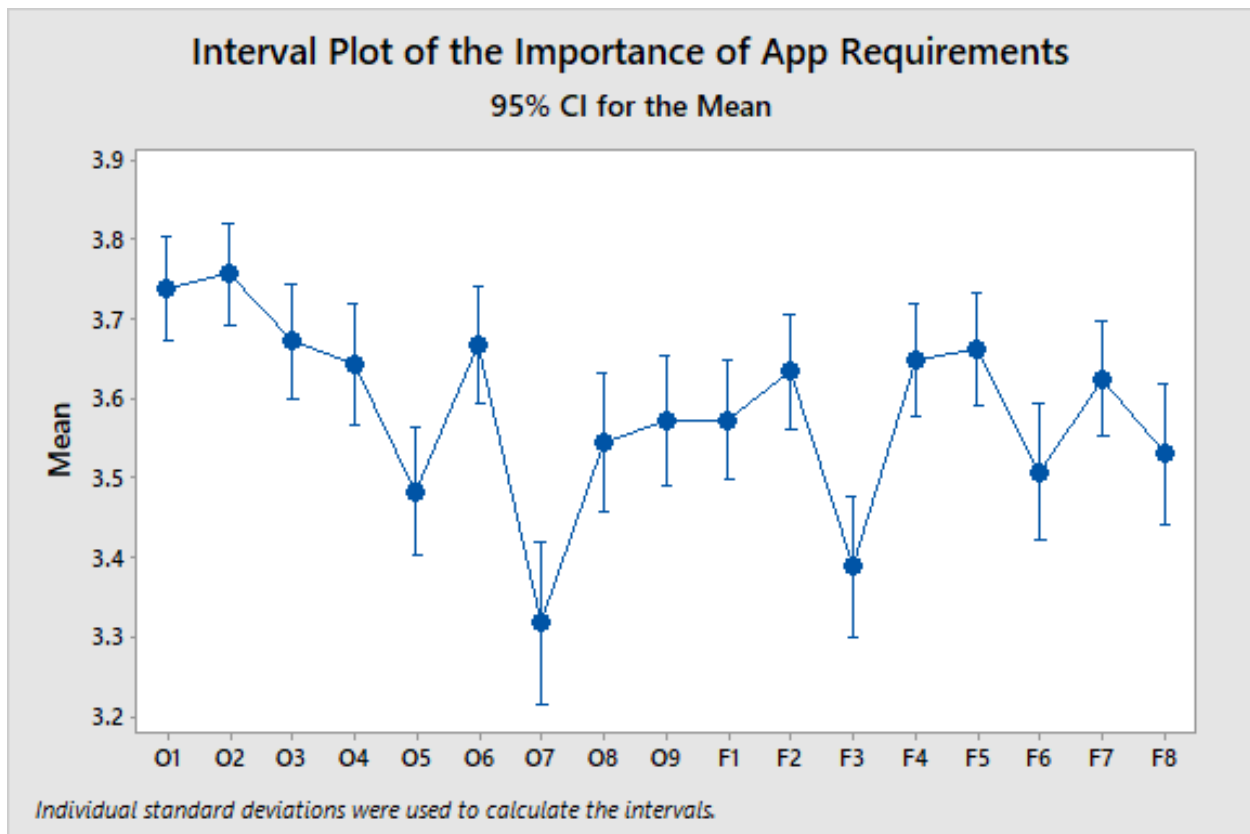


Figure 1. Interval Plot of the Importance of the Potential App Requirements

#### 5.4 Relationship Between Counselee Demographics and the Importance of the Operational and Functional Requirements

Table 4 shows the correlation between Counselee Status and the importance of the operational and functional requirements. The largest correlation coefficient obtained, that is, the farthest from zero, is the correlation between variables DF1 and O1, which is 0.140. Thus, there is a very weak to nonexistent correlation between counselee status and the individual operational and functional requirements. All of the correlations found are statistically insignificant with the exception of the correlation between variables DF1 and O1. Based on these results, and with a 95% confidence level, the researchers cannot reject the null hypothesis that there is no strong and significant relationship between the demographic factors of the counselees and the requirements of the application.

*Table 4. Correlation between Counselee Status and the importance of the operational and functional requirements*

<b>Variable</b>	<b>Correlation Coefficient</b>	<b>Sig. (2-tailed)</b>	<b>N</b>
<b>DF1</b>	1.000	.	211
<b>O1</b>	.140*	.042	211
<b>O2</b>	.133	.054	211
<b>O3</b>	.117	.089	211
<b>O4</b>	.125	.069	211
<b>O5</b>	.039	.576	211
<b>O6</b>	.076	.275	211
<b>O7</b>	.073	.290	211
<b>O8</b>	.060	.385	211
<b>O9</b>	.054	.432	211
<b>F1</b>	.079	.256	211
<b>F2</b>	-.037	.591	211
<b>F3</b>	-.014	.835	211
<b>F4</b>	.088	.204	211
<b>F5</b>	.123	.074	211
<b>F6</b>	.018	.797	211
<b>F7</b>	.014	.841	211
<b>F8</b>	.025	.716	211

Table 5 shows the correlation between Year Level and the importance of the operational and functional requirements. The largest correlation coefficient obtained, that is, the farthest from zero, is the correlation between variables DF2 and O2, which is 0.229. Thus, there is a very weak to nonexistent correlation between year level and the individual operational and functional requirements. Five (5) variables are found to have statistically significant correlations with the variable DF2: variables O1, O2, O3, F3, and F5. Despite the occurrence of statistically significant correlations with variable DF2, none of these variables have a strong or even moderate correlation. Based on these results, and with a 95% confidence level the researchers cannot reject the null hypothesis that there is no strong and significant relationship between the demographic factors of the counselees and the requirements of the application.

Table 5. Correlation of Year Level and The Requirements

Variable	Correlation Coefficient	Sig. (2-tailed)	N
<b>Year Level</b>	1.000	.	211
<b>O1</b>	.172*	.012	211
<b>O2</b>	.229**	.001	211
<b>O3</b>	.214**	.002	211
<b>O4</b>	.098	.156	211
<b>O5</b>	.096	.163	211
<b>O6</b>	.089	.199	211
<b>O7</b>	.116	.094	211
<b>O8</b>	.101	.145	211
<b>O9</b>	.072	.298	211
<b>F1</b>	.055	.427	211
<b>F2</b>	.102	.140	211
<b>F3</b>	.145*	.036	211
<b>F4</b>	.111	.108	211
<b>F5</b>	.142*	.039	211
<b>F6</b>	.037	.592	211
<b>F7</b>	.082	.233	211



## **6. Conclusion**

Through descriptive analysis of the data gathered from the online survey, the researchers conclude that a booking application can efficiently facilitate access to university teleconsultation services by addressing problem areas, which it can do by:

- Spreading awareness about university teleconsultation services
- Instructing counselees how to set a teleconsultation appointment
- Reducing the steps necessary to set a teleconsultation appointment
- Facilitating speedy agreement of a convenient appointment schedule between counselors and counselees
- Inducing the Guidance Office to get in touch with counselees quicker

The researchers conclude that all 17 of the potential operational and functional requirements for the proposed teleconsultation booking mobile application, except for requirement F3 that states the app must enable users to choose their own counselor to have an appointment with, should be included in the development of the app. The requirement that the app must not store any of the users' data (O7), despite being deemed as less important by survey respondents, was part of the Guidance Office requirements, so it is included in the development of the app. Requirements that the app must be easy to use (O1) and must be easy to learn how to use (O2), are to be prioritized in the development of the teleconsultation booking application.

Finally, the researchers conclude that there exists a weak to nonexistent relationship between the demographic factors of the counselees included in the study and the requirements of the application. Therefore, the Guidance Office can be sure that the requirements of the proposed teleconsultation booking mobile application will not hinder their important goal of giving counselees unbiased and equal quality of service, regardless of demographic factors.

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## **Biographies:**

**Clark Edelaine F. Almerol.** A graduate of Bachelor of Science in Industrial Engineering Batch 2022 in Adamson University, he lives in Bacoor City, Cavite. A recipient of the Kayan Chan Scholarship program handled by Adamson University. She is Certified Lean Six Sigma Yellow Belt since February 2022 and Certified Project Management Essentials.

**John Griffin A. Faculin.** A graduate of Bachelor of Science in Industrial Engineering Batch 2022 in Adamson University, he lives in Quezon City. He studied Chemical Engineering in UP Diliman before transferring to Adamson University. He took part in several inter-university quiz competitions and held the position of Research Director of the Philippine Institute of Industrial Engineers – Operations Research Society of the Philippines Adamson Chapter for A.Y. 2020-2021.

**Anna Ramos.** Head for Intellectual Property Development Unit of Adamson University

**Venusar Quevedo.** Dr. Venusmar is a Associate Professor of the Industrial Engineering Department at Adamson University, Manila, Philippines. Dr. Quevedo holds a Bachelor of Science degree in Industrial Engineering from Adamson University and both her Master's degree in Industrial Engineering and Doctor of Philosophy in Educational Evaluation and Research from University of the Philippines. She has been recognized as one of the Inspiring Woman Engineer by the Philippine Technological Council with her more than 35 years of experience and contribution in the industry. She has taught courses in management, feasibility and engineering research for engineers. She has published and presented research papers both local and international.