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Smartphone Usage and Communication Skills Among Higher Education Students: Structural Model

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Abstract: With the advent of smartphones, social communication has become much easier to enable than with previous generations of communication tools. Furthermore, it is essential to acknowledge the value of communication in assisting kids in developing relationships with their classmates. **Objective:** The primary purpose of this research was to examine the relationship between higher education students' smartphone usage and their deterioration in communication skills. **Method:** The data for this statistically designed study will be collected using a snapshot survey. Participating were 556 undergraduates, with the vast majority serving as pre-service teachers at Teacher Training and Education Faculty, Universitas Muhammadiyah Purwokerto, Indonesia. After that, AMOS version 24 was used to analyze the data even further. **Findings:** Students' communication skills were found to be positively correlated with their smartphone usage. The medium-sized association between effective communication skills and smartphone use. Extraordinary smartphone use among elementary school pupils may also affect their ability to communicate in real life, according to one reading of the results. **Conclusion:** Students who spend too much time on their phones are less likely to be good communicators, according to the research. Students should so exercise greater restraint when using their smartphone if we value effective communication abilities among them. Existing psychological theories from the era of information technology can benefit theoretically from this study.

Keywords: communication skills, higher education students, smartphone usage, and structural model.

▪ INTRODUCTION

Mobile technology gadgets like smartphones, tablet PCs, and iPads are examples of how technical progress has facilitated the expansion of communication beyond physical borders (Kitani et al., 2023). At any moment, from any location, and with only the touch of a button, information may be accessed, shared, and circulated (Yang et al., 2023). What follows is the era commonly referred to as the Information Age or Digital Age, where a wealth of knowledge is accessible for individuals to understand and apply as they see fit (Rodríguez et al., 2020). The number of mobile phone subscriptions in Indonesia increased from 16.2 million in 2005 to 42.3 million in 2021, according to data received from the Indonesian Communications and Multimedia Commission (Amaliah, 2022). The survey found that the possession of handheld devices, such as cell phones, has surged by nearly 200% in the last decade. The social and health effects of mobile phone use were also a source of concern for parents (Otto & Kruikemeier, 2023). Smartphones and other forms of innovative communication technology have changed people's social behaviors and the way they communicate (Okpara, 2023).

The smartphone has made it easier to facilitate social communication than earlier forms of communication technology, such as landline phones, because of its

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characteristics that encourage social interaction, such as providing the user with privacy or a sense of individuality, being context-sensitive, and being portable (Elsheikh et al., 2023). Additionally, it is critical to recognize the significance of communication in helping students form connections with their peers (Tanil & Yong, 2020). The use of smartphone apps like Whatsapp and SMS shows that communication nowadays does not entail face-to-face interaction but goes beyond physical proximity (Bhattacharjee & Begum, 2022).

There is a growing concern over the usage of smartphones by children, especially those who are given the sense by their parents that they can control their social behaviors (Li & Chan, 2021). This may not be the case, though, for all users of mobile technologies; this is especially true among preteens and teenagers, who are notoriously "turbulent and stressful" and prone to developing unstable relationships (Sela et al., 2022). Since youngsters acquire the majority of their social experience in interacting with others through mobile technological environments, they could struggle to adapt socially in the actual world. This is because, in contrast to social connection through smartphones, where it is difficult to tell how someone is feeling, a child's social development is aided by face-to-face communication and the ability to interpret facial expressions.

Consequently, students nowadays spend a lot of time on their smartphones, whether it's chatting with friends or strangers. They are more likely to feel at ease interacting with strangers online when they know someone would listen to them and engage with them without passing judgment (Metruk, 2022). In addition, it is worth noting that early adolescents may exhibit violent or inappropriate behavior due to the effects of their developmental phase, specifically the 'hormonal surge,' which can cause unpredictable mood swings (Daniyal et al., 2022).

Several issues have arisen throughout the teaching-learning process. A lot of students still have a hard time communicating effectively. Because they couldn't think of anything to say, the students remained silent. Many people have difficulty expressing themselves verbally due to lake of communication skills (Malik & Ubaidillah, 2021). They also require an unusually long time to form whole thoughts into sentences. Students lacked engagement and interest, making the class unmotivated to learn since the teacher did little more than ask questions and give simple answers (Sagar & Seman, 2023).

Smartphones and other mobile devices serve an important purpose in the classroom. Audiovisual resources such as YouTube, video, electronic dictionaries, etc., have many uses in the classroom. Alqahtani (2019) found that they can motivate students to improve their communication skills. Therefore, it is expected that students will have the ability to understand and enhance their technological competence in relation to the educational use of smartphones. There are benefits and drawbacks to using a smartphone. An internet-connected smartphone can sift through reams of web pages and provide surprisingly precise results. Although students' smartphones can be a valuable tool for research, not all parents or teachers will approve of their use in class (Francis et al., 2020).

Some schools throughout the world have instituted policies that students cannot use their smartphone in class or during regular learning hours (Ghofur, 2022). Overuse of smartphone devices may impair students' capacity to use creative cognitive talents such as memory and ideation in the classroom (Harkin & Kuss, 2021). Because information is readily available on students' mobile devices, they are beginning to doubt the necessity of retaining it in their minds. Students also use the memory cards in their smartphones to

save information rather than storing it all in their heads. Students may occasionally adopt a more lighthearted attitude rather than solely depending on textbooks. Smartphones have grown in popularity because to their useful features, which include access to email, biometrics, social media, and more (Amez & Baert, 2020).

Verduyn et al. (2021) suggest that students' communication skills is improved when they use smartphones. The researcher would use smartphones as a tool for instruction and learning rather than just giving a link to the website. They then followed the link to a relevant course video to learn more about the material. They would use Google Translate to find out the meaning or pronunciation of any difficult terms they came across in the text while studying. Amez and Baert (2020), motivating and assisting students by teaching them to communicate and express themselves through smartphones is a fantastic idea. The film is also viewable on mobile devices, allowing students to practise acting out the scenes. Using a smartphone can motivate and inspire a student's idea. Employing smartphones in this way, can help students improve their communication skills and find solutions to their challenges (Metruk, 2022).

Meanwhile, regarding structural equation model (SEM) is the method that is used in the study. Measurement model and structural model concepts are combined in SEM, which makes use of factor analysis and regression analysis, respectively. Findings from both the structural and measurement models show how the factors and measurement variables are related to one another. While statistics underpin the structural model, psychometrics is the backbone of the measurement model (Bauldry, 2019). To show how TPACK fits in with more complex types of information and thinking, this study employed a structural model. It might be a major factor or perhaps the root reason. A relationship between variables is shown when two arrows cross a line; an effect of a single variable is shown when one arrow appears. Therefore, the researcher set out to study how smartphone usage affects communication skills. Also, the researcher has developed alternate hypotheses based on the concerns previously discussed.

Hypotheses 1: The construct of smartphone usage is statistically significant.
Hypotheses 2: The construct of communication skills is statistically significant.
Hypotheses 3: Smartphone usage is positively affected by communication skills.

▪ METHOD

Research Design

A snapshot survey will supply the data needed for this statistically structured study. It is possible to measure and analyze causal links between variables using the quantitative research approach, which is the rationale for it (Creswell, 2009). Because it draws on modified questionnaires developed for use with other research instruments and literatures, this design is thought to be suitable for this study. According to Kline (2017), researchers can use survey data to describe and extrapolate to the larger population. The quantitative method has been employed in numerous prior studies on smartphone technology use (Daniyal et al., 2022; Kitani et al., 2023; Paiman et al., 2022).

Population and Sampling

Based on statistics from the Indonesian Communication and Multimedia Commission (Amalia, 2021), which shows that Central Java province has the most users, respectively, this study's population is calculated. This study relied on stratified random

sampling to minimize sample mistakes and guarantee efficient and systematic data gathering (Byrne, 2019). A total of 556 higher-education students were involved, with the majority being pre-service teachers in the Teacher Training and Education Faculty, Universitas Muhammadiyah Purwokerto, Indonesia. This study focuses on higher education students because of the common perception of this time as a difficult and unpredictable one. Various psychological and social changes, as well as significant developmental challenges, are experienced by early adolescents throughout this era (Metruk, 2022). The researcher is only authorized by the Ministry of Education to gather data from the university, therefore they will not be recruiting students in semesters 3, 5, and 7.

Procedure

The researcher began by obtaining a letter of authorization from the Ministry of Education, which allowed them to access the children at the designated schools. In preparation for that, we also gathered data on the student population in Universitas Muhammadiyah Purwokerto, Indonesia, as this was necessary for carrying out the sample. One ethical aspect for taking part in the study was filling out the informed consent form, which was included in the questionnaire. Tokens, such as a pen and file holder, were distributed with each survey completion. The collected data was subsequently entered into AMOS version 24 for additional analysis.

Instruments

The three measures that formed the basis of the questionnaire used were the Smartphone Use Scale (SUS), and the Communication Skills Scale (CSS). The original instruments were written in English and then back-translated into Bahasa Indonesia. We used a Likert scale for all of the questions, with 1 being very disagreeable and 5 being very agree. To make sure students fill out all the data with minimal expected missing values, neutral was selected as a descriptor of 3. Neutral answers are justified when the questions presented are novel to the samples or respondents, allowing us to infer the information from their perceptions, even if academics have argued that they will skew the data (Bittner et al., 2021). The questionnaire consists of 29 items that are based on closed-ended questions. Gender, age, and racial/ethnic background questions were also included.

Smartphone Use Scale

It was shortened from the original Smartphone Use Scale (SUS-27) created by Paiman et al. (2022), which comprises ten items. It was created for a questionnaire and was not meant to be used as a test. Having just 20 items does not diminish its validity as a tool for research with preteens and teens. The six components were as follows: regular intensity (4 items), social media (3 items), video (3 items), music (4 items), games (3 items), and performance (three items) on smartphones. To make the questions more understandable and suitable for the respondents' ages, we revised their wording. Excessive smartphone use among students can be measured and contrasted with other types of technology dependence. There is some evidence that smartphone use has an indirect effect on academic achievement beyond only increasing efficiency when it comes to tasks directly relevant to school (Amez & Baert, 2020). Students use their smartphones for gaming as a form of leisure time. Using their smartphone to listen to music is a hobby for them. The majority of students use their smartphones for social media while going

about their regular lives and watching videos (Ghofur, 2022). Lastly, having a different intensity every day for owning a smartphone is a must.

Meanwhile, the researcher opted for this equipment because of its ability to measure the utilization of smartphones usage. With a theoretical maximum range of 10-100, the SUS-27 has a reliability mean of 28.2 (SD 15.6), a minimum of 10, and a maximum of 96. The internal consistency was measured by Cronbach's alpha, which was good at 0.85. However, when comparing baseline and follow-up data using Pearson's correlation, the retest reliability of the SUS-27 after one year was quite low ($r = 0.40$, $p < 0.001$).

Communication Skills Scale

The communication skills scale (CSS) was utilized by Sagar and Seman (2023). The CSS comprised 20 items on a 4-point Likert scale (Never (1), Not often (2), Often (3), and Always (4) was utilized to gather data for this study's communication skills measure. Communication skills in the areas of openness, empathy, support, positive attitude, and equity were the five main components of the survey. parts on openness have four items, parts on empathy have five items, sections on support have three, sections on good attitude have four items, and sections on equity have four items. The capacity to speak one's mind openly in social situations is important to the openness communication skill set (Merkaš et al., 2024). Students are considered to be actively participating in the learning process when they can give and receive feedback, offer recommendations and ideas, and voice concerns. The capacity to put oneself in another person's shoes and experience what they are feeling is at the heart of the empathy communication system (Rodríguez et al., 2020). It entails paying close attention to the person speaking, identifying with their feelings, and reacting in a manner that demonstrates your concern for them as a person. Supportive communication abilities allow those who have trouble hearing or seeing to get information visually or allow those who are non-verbal to interact with those who talk. Positivity in communication begins with an interest in other people and what they have to say (Wang et al., 2023). Be receptive to criticism and flexible in your approach to varied modes of expression. The last piece of the equity puzzle is having a wide range of perspectives and experiences represented. Give the equity communications team the freedom to share their opinions on important company and global issues.

To guarantee accurate data analysis, this study only utilized four scales. By eliminating the mid-point scale of uncertainty, respondents' bias resulting from their attempts to satisfy the researcher can be controlled. A straightforward sampling strategy was used to randomly choose the respondents for the pilot study in this investigation. To get a feel for the research samples, ten participants participated in this pilot study. Using Cronbach's α, we test the instrument's dependability. The standard test for determining the internal consistency of an instrument is Cronbach's α. Cronbach's α will provide a value between zero and one. When the value of alpha, α, is 0.7 or greater, reliability is considered acceptable.

Data Analysis

The interdependencies between each variable are modeled by the structural model. Either a causal or a purely correlative relationship might exist. According to (Byrne, 2019), a correlation is shown by two arrows on a single line, while an effect is represented by an arrow pointing in just one direction. The interrelationships of the different variables

are illustrated in Figure 1. There is just one component to the structural model, and that is a CFA model. According to Kline (2017), structural equation modeling (SEM) can deduce the connections between the target construct and variables. The research's structural model helps us understand how smartphone usage influences communication skills among higher education students.

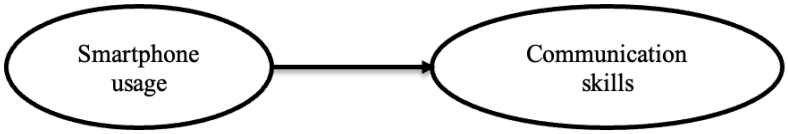

Figure 1. The framework of study

However, tests such as the Adjusted Goodness of Fit Index (AGFI), Goodness of Fit Index (GFI), Root Mean Square Error of Approximation (RMSEA), and Chi-Square Statistics can be used to assess the degree of Goodness of Fit (GOF). The following criteria are met by an acceptable model: 1) a Chi-squared value below 3.0 and a p-value above 0.05; 2) GFI and AGFI values above 0.90, indicating that the constructed model is satisfactory; and 3) the maximum value for either the GFI or the AGFI is 1. According to Hair et al. (2014), when the RMSEA value is less than 0.3, it means that the model is quite near to the ideal model. After running the model through its paces, we find that there is a statistically significant difference between zero and one of its parameters when we use the 95% confidence interval. The SEM-AMOS software was utilized to analyze the SEM that was utilized in this study (Creswell, 2009).

Structural Model

The use of SEM allows for the controlled investigation of interactions between three or more constructs (Bauldry, 2019). SEM allows for the analysis of relationships between numerous variables (Kline, 2017). By gauging the strength of a phenomenon's connections, this method can determine how effective it is. This study aims to compare the predictive power of smartphone usage for students' communication skills. Nonetheless, a multi-factorial path structure can be explored using this study technique (Byrne, 2019). With this model, we may evaluate the efficacy and trustworthiness of a phenomenon's relationships. We take a look at how well the learning design matrix, process theory of procedural knowledge, and prior learning theory can predict outcomes.

▪ RESULT AND DISSCUSSION

Respondents Data

From the fifth semester, 255 students (46.70% of the total) were chosen, from the third semester, 141 students (39.01% of the total), and 160 students from the seventh semester. 327 called the city home and the rest reside in the Village. Notably, most students (244 out of 556) use the internet for more than five hours daily, which is used as a demographic indicator to estimate the severity of LDM in this study. Tabulated in Table 1 are the findings from the demographic surveys.

Table 1. Respondents Data

Profile	Category	Frequency	Percentage (%)
Gender	Male	313	56.29
	Female	243	43.71
Semesters	3rd	141	25.35
	5th	255	45.86
	7th	160	28.78
Location	City	327	58.81
	Village	229	41.19
Daily smartphones usage	<3 hours	190	34.17
	3 – 5 hours	122	21.94
	>5 hours	244	43.88

The Reliability Constructs

There was a 0.834 Kaiser-Meyer-Oikin (KMO) value for the smartphone usage construct questionnaire items, which was higher than the communication skills value of 0.724. Since all two of these numbers are more than 0.50, we may safely conduct factor analysis on the components of the construct without worrying about serious multicollinearity issues. At the 0.05 level of significance, the two-part Barlett's Test of Sphericity yielded a value of 0.000, indicating statistical significance. To ensure that the survey results are consistent with each other, this study employed the concept of dependability. The reliability value (as evaluated by Cronbach's alpha) of the Likert scale responses was greater than 0.70, indicating that they were suitable for use in this inquiry.

The Validity Constructs (Hypotheses 1 – 2)

Based on the reliability criterion set by Cronbach's Alpha, the validity of CFA was assessed. Create the AVE and CR criteria for the Average Validity Estimate. The reliability ratings for each construct are greater than 0.7 on the Cronbach Alpha, more than 0.6 on the Cronbach's Rho, and more than 0.5 on the AVE. The CFA yielded six distinct subgroups of smartphone usage. To represent the six subfactors that comprised the original factor, use the letters SUS, SUG, SUMN, SUMS, SUV, and SUIP. The first factor is composed of six parts: SUIP1, SUIP2, SUIP3, and SUIP4. Three components comprise the second sub-factor of SUV: SUV8, SUV9, and SUV10. Three pieces have made up the third section of SUMS (SUMS11, SUMS12, SUMS13). Three components made up the following SUG sub-factor (SUG16, SUG17, and SUG18). SUMN14, SUMN15, SUMN19, and SUMN20 are the four components that makeup SUMN's fifth sub-factor. SUS, the final sub-factor, is made up of three components: SUS5, SUS6, and SUS 7. The results of the statistical tests allow us to conclude that hypothesis 1 is accepted.

Conversely, communication skills are being dissected into their constituent elements. Four numbers made up the first factor: CSK1, CSK2, CSK3, and CSK4. Five integers made up the second factor: CSE5, CSE6, CSE7, CSE8, and CSE9. Factor 3 comprised those from CSD11–CSD13, and factor 4 contained those from CSSP14–CSSP17. The final factor was made up of the four components CSKS18–21. As a result of the statistical process being significant for communication skills, the second hypothesis of this study is accepted.

Two measures that evaluate the validity of measurement models use Cronbach's alpha: composite reliability (CR) and average variance extraction (AVE). When the AVE value is greater than 0.5 and Cronbach's Rho (CR) is greater than 0.6, we will have achieved the rating. Following a CFA on the smartphone usage and communication skills, the AVE, Cronbach's alpha, and CR values were determined. The Cronbach's alpha, average, and cutoff values used to assess the constructs are displayed in Table 2.

Table 2. The value of factor loading, AVE, and CR of the constructs

Constructs	Item	Factor Loading	CR	AVE
Smartphone usage for performance	SUS5	0.381	0.694	0.642
	SUS6	0.623		
	SUS7	0.564		
Smartphone usage for games	SUG16	0.803	0.655	0.656
	SUG17	0.841		
	SUG18	0.693		
Smartphone usage for music	SUMN14	0.752	0.722	0.735
	SUMN15	0.731		
	SUMN19	0.352		
	SUMN20	0.342		
Smartphone usage for social media	SUMS11	0.892	0.824	0.635
	SUMS12	0.883		
	SUMS13	0.563		
Smartphone usage for video	SUV8	0.441	0.844	0.741
	SUV9	0.674		
	SUV10	0.243		
Smartphone usage for daily intensity	SUIP1	0.402	0.742	0.592
	SUIP2	0.381		
	SUIP3	0.193		
	SUIP4	0.401		
Communication skills for openness	CSK1	0.684	0.800	0.631
	CSK2	0.779		
	CSK3	0.777		
	CSK4	0.577		
Communication skills for empathy	CSE5	0.664	0.776	0.532
	CSE6	0.618		
	CSE7	0.694		
	CSE8	0.642		
	CSE9	0.580		
Communication skills for support	CSD11	0.670	0.731	0.637
	CSD12	0.743		
	CSD13	0.656		
Communication skills for positively attitude	CSSP14	0.682	0.741	0.634
	CSSP15	0.770		
	CSSP16	0.591		
	CSSP17	0.793		
Communication skills for equity	CSKS18	0.723	0.732	0.642
	CSKS19	0.620		
	CSKS20	0.636		

	CSKS21	0.587

Significant of AVE>0.5; significant of CR>0.6; significant at p<0.05; *** significant at p<0.001; AVE = Average Variance Extracted; CR= Composite Reliability

Structural Model (Hypotheses 3)

The three foundational elements of structural equation modeling (SEM) are unidimensionality, validity, and reliability. Priority is given to unidimensionality. In order to meet all three of these criteria, a pooled CFA must be conducted prior to conducting a structural model analysis. For the purpose of attaining unidimensionality, it is necessary to guarantee that the loading factor exceeding 0.6 for every item and dimension. Convergent, construct, and discriminant validity can all be demonstrated using a CFA. Validity can be found in these forms. Convergent validity is achieved when the value of the AVE can be used to validate all the elements in the measurement model. The component's average value is abbreviated as AVE. Discrimination validity was achieved when there were no items in the measurement model that measured the same two objects, and construct validity was achieved when the GOF was statistically significant. Also, if the value of the correlation between the two external constructs is less than 0.4, then discrimination validity has been attained.

Figure 2 is used in the analysis to ascertain which model provides the most satisfactory explanation for the study's results. We start by checking the fit index against the respondent's data to see if the proposed model fits. The three types of compatibility must be represented by at least one index that meets the minimal requirements. Figure 2 displays the results of the structural equation analysis. The Chi-Square/df value is 2.611, which is less than 5.0, and the RMSEA value is 0.094, which is less than 0.3. None of these numbers is more than 0.3. With CFI at 0.929, TLI at 0.911, and NFI at 0.891, all three fit indices are excellent. After ensuring that the model fits the data provided by the respondents, it is important to assess each coefficient individually. Because we know the direction of the relationship (it's positive) going in, we can say that the test is unidirectional and that a p-value less than 0.05 indicates statistical significance.

In the investigation, three possible manifestations of the components were considered. The standard estimate, critical ratio, and significant value ($p<0.001$) are all associated with the coefficient, which is also called the standard estimate or standard regression weight. As coefficients, p and are considered to test the hypothesis. According to the following scale: "little contribution" = 0.10; "medium contribution" = 0.10–0.50; and "high contribution" = 0.50+. Both low (less than 0.1) and negative amounts of contribution are considered insignificant. Thus, if the p-value is negative and less than 0.10, the null hypothesis will be rejected regardless of its significance. No matter how big the p-value gets, this holds. If the p-value is smaller than 0.05, we say that the result is statistically significant. The medium correlation between smartphone usage and communication skills is shown in Figure 2. When looking at the relationship between smartphone usage and communication skills ($\beta= 0.23$), the same result may be obtained. The third hypothesis is accepted due to the correlation between smartphone usage and communication abilities in the medium association.

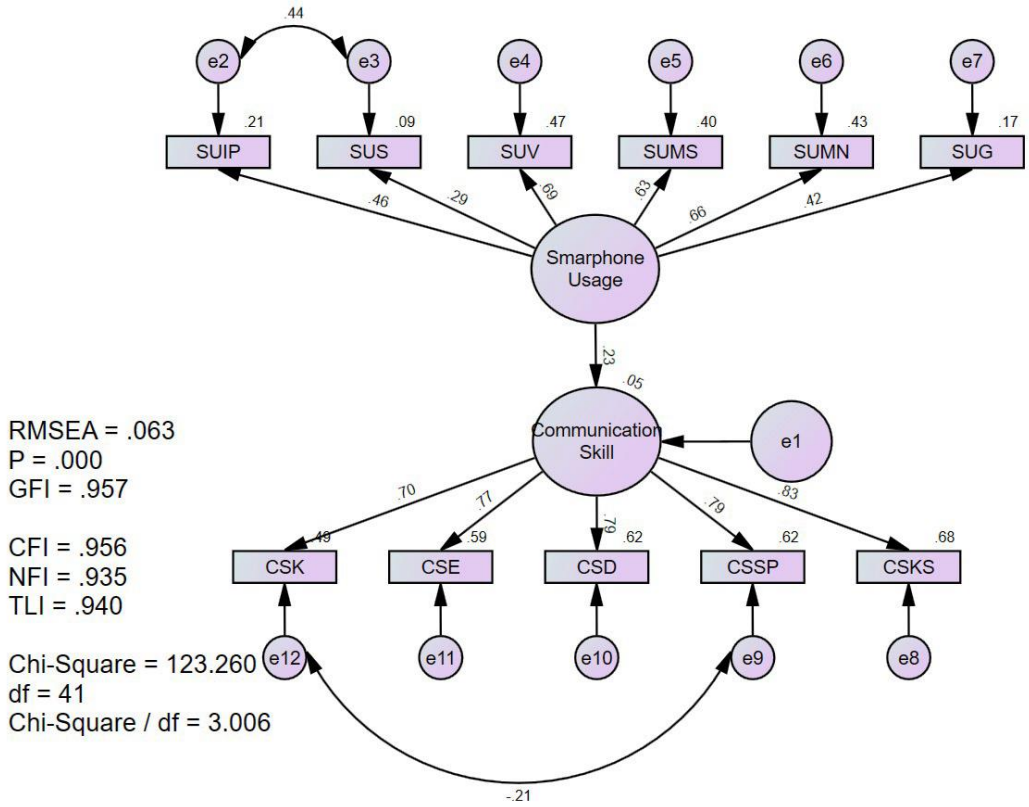

Figure 2. Structural model of the study

Smartphone usage is negatively correlated with SIUP (β=0.462; SE = 0.782; CR = -3.722; p = 0.052; p<0.05), SUMS (β=0.634; SE = 0.744; CR = 0.783; p = 0.592; p<0.05), and SUG (β=0.421; SE = 0.744; CR = -2.733; p = 0.004; p<0.05), as shown in Table 5. There is a large effect on smartphone use from the remaining constructions as well. The results for SUS, SUV, and SUMN are as follows: SUS is 0.293, SE is 0.681, CR is 0.735, p = 0.042, p<0.05; SUV is 0.693, SE is 0.632, CR is 0.673, p = 0.000, p<0.001; and SUMN is 0.662, SE is 0.637, CR is 0.663, p = 0.045, p<0.05. In addition, there is a statistically significant relationship between the sub-factors of communications skills and the following: CSK (β=0.701; SE = 0.661; CR = 0.726; p = 0.002; p<0.05), CSE (β=0.773; SE = 0.677; CR = 0.644; p = 0.047; p<0.05), CSD (Ų=0.792; SE = 0.773; CR = 0.744; p = 0.000; p<0.001), CSSP (Ų=0.791; SE = 0.633; CR = 0.844; p = 0.002; p<0.05), and CSKS (Ų=0.834; SE = 0.631; CR = 0.833; p = 0.021; p<0.05). Thus, Table 3 contains all of the information regarding the correlations between the two constructs.

Table 3. The result of the structural model

Constructs effect	*β*	AVE	CR	*p* value	Decision
Communication Skill ← Smartphone usage	0.234	0.672	0.633	0.004	Significant
SUIP ← Smartphone usage	0.462	0.782	-3.722	0.052	Not significant
SUS ← Smartphone usage	0.293	0.681	0.735	0.042	Significant
SUV ← Smartphone usage	0.693	0.632	0.673	***	Significant
SUMS ← Smartphone usage	0.634	0.744	0.783	0.592	Not Significant

SUMN ← Smartphone usage	0.662	0.637	0.663	0.045	Significant
SUG ← Smartphone usage	0.421	0.744	-2.733	0.004	Not significant
CSK ← Communication Skills	0.701	0.661	0.726	0.002	Significant
CSE ← Communication Skills	0.773	0.677	0.644	0.047	Significant
CSD ← Communication Skills	0.792	0.773	0.774	***	Significant
CSSP ← Communication Skills	0.791	0.633	0.844	0.002	Significant
CSKS ← Communication Skills	0.834	0.631	0.833	0.021	Significant

Significant at positive; significant at AVE>0.5; significant at CR> 0.6; significant at p<0.05; ***significant at p<0.001; AVE= Average Variance Extracted; CR= Composite Reliability

Recently, there has been a dramatic increase in the educational sector's use of smartphones. Nevertheless, there have been a few problems with using smartphones in universities (Paiman et al., 2022). When it comes to education, the issues with smartphones are used as a medium for communication. The problem with the smartphone as a communication tool is the first point. Research on smartphones is seen a dramatic uptick in the recent past. Virtual tutoring has the potential to greatly enhance the educational experience at universities, but there has been very little research on smartphone features and impacts as a substitute communication method (Azka et al., 2020). Despite the proliferation of smartphone usage, there is still a dearth of knowledge about how to effectively use the smartphone in the classroom. The availability of technological tools that pique students' interest in learning (Ruben et al., 2021). On top of that, there are no standards for the implementation of these messaging tools into higher education pedagogical methods, and both students and faculty have different views on the efficacy of these tools in the classroom (Khasanah & Daulay, 2022). In terms of smartphone functionality, WhatsApp is the most underutilized. It may be a real pain to type on a mobile device's tiny screen, and the screen resolutions are making things worse (Merkaš et al., 2024).

Secondly, there is the matter of utilizing the smartphones for educational purposes. The students' negative views on smartphones were centered on the group's repetitious thread of messages and the timing of certain contributions (Francis Olowo et al., 2020). Despite smartphone prevalence as a tool for student-to-student communication, the majority of students report using the app more for communication and personal than academic reasons (Morsidi et al., 2021). Since they are more used to using computers, educators may not feel comfortable using smartphones into the teaching and learning process. Despite providing a standard and alternative platform to distribute instructional materials and activities, smartphones are the least preferred medium for teaching and learning (Eshioke & Umolu, 2022).

The problem with the smartphone as a means of teamwork brings us to our third point. It is yet unclear whether or not smartphone usage, used as a venue for online group discussion, may outperform more traditional methods of teaching the same course through face-to-face discussion (Alqahtani, 2019). No one has looked at what happens when students use smartphones as a form of self-initiated group discussion (Malik & Ubaidillah, 2021).

The inability to communicate effectively has become an issue in today's job market due to globalization (Harkin & Kuss, 2021). Because of their inadequate communication abilities, only five out of hundreds of students were able to pass the job interview (López-

Mora et al., 2021). Because of the problem with students' employability and unemployment, higher education has become more politically involved in emerging nations like Indonesia. Lack of communication skills among students has contributed to several issues with education standards, which in turn has contributed to a shortage of students in the job market (Malik & Ubaidillah, 2021). Many students struggle to find employment despite their strong academic credentials. Nowadays, companies aren't happy since students aren't up to snuff when it comes to meeting the demands of the labor market. One apparent vulnerability of students who are unable to keep up with the changing pace of technology and expectations in industry requirements is the quick pace of change (Rahman et al., 2022).

In addition to students' attitudes, the increasing number of unemployed students in Indonesia can be attributed to a lack of communication skills, and technological proficiency, which is not meeting employers' expectations even though there are more job openings in the industry (Ghofur, 2022). When students lack the courage or ideas to speak up in class, it may be a challenging situation for everyone. Some students, on the other hand, are great thinkers but struggle when it comes to putting their thoughts into words. Some students have a natural talent for communication but have difficulty articulating their thoughts and arguments (Sagar & Seman, 2023). The communication skills of the students remain insufficient, even though the institution has arranged several programs (Verduyn et al., 2021). Students' lack of self-assurance in social situations warrants our attention, as stated in (Ahmad, 2020). When it comes to group projects and discussions, students fall short in terms of communication skills.

Excessive use of smartphones among higher education students and its impact on their communication skills was the goal of this study. Since the results show a positive correlation between smartphone usage and students' communication skills, we can accept the hypothesis. One possible interpretation of the present data is that early students' real-life communication is also impacted by their excessive smartphone use. This might be because students these days don't have to look a person in the eyes to pick up on communication signs when chatting online. (Mutanga & Molotsi, 2022) came to a similar conclusion, stating that students' perceptions of the value of their time spent with friends on smartphones diminished the quality of that time spent interacting with those friends in person (AlSaied & Akhtar, 2021). Consequently, students may struggle to form friendships as they enter the elderly, all because they spend so much time glued to their phones and fail to realize the importance of face-to-face connection.

Bittner et al. (2021)also detailed similar findings on the impact of students' device use on their communication interactions. His study found that students were less likely to engage in meaningful communication interactions when they were more reliant on smartphone usage. It follows that students' communication skills levels are negatively correlated with smartphone use and positively correlated with the opposite. Research by Tak et al., (2020) states that smartphones are more prevalent in society, particularly among today's teenagers. This is attributed to the fact that smartphones offer a wide range of features that cater to the interests of their users in various activities since they can do multiple tasks with just one hand. One of them is to indirectly convey or alert the nearest individual.

Amez and Baert (2020), found that the majority of smartphone owners fall into the "heavy use" category, which leads to a decrease in peer contact. As a result of their heavy

reliance on smartphones, today's youth avoid engaging in face-to-face communication in favor of screen time spent doing things like playing video games, chatting on social media, navigating cyberspace, watching YouTube videos, and so on. For the time being, they are less concerned with the students around them and more absorbed in their phones, which makes them oblivious to their environment (Kitani et al., 2023).

Moreover, Okpara (2023), a new paradigm, mobile learning, emerged from the usage of smartphone-based learning and can enhance the processes of both teaching and learning. Smartphones offer a range of characteristics that can be utilized in multiple ways to enhance the process of teaching and learning. An example of a useful smartphone app is the video, word searches (both online and offline), and the ability to read and write online are all made possible by the cutting-edge capabilities of smartphones, which are largely responsible for the positive results (Schlomann et al., 2020).

Those in the workforce and those looking for work can both benefit from microlearning opportunities made possible by smartphones (Metruk, 2022). Students benefited from some functions of smartphones, such as the ability to access films from YouTube, a popular platform among millennials. It was a useful tool to supplement the learning process if the video actually had anything to do with the topic at hand. In addition, it is essential for students' proficiency when studying online (Francis et al., 2020) and was utilized to help students enhance their communication skills (Elsheikh et al., 2023).

In addition, the students contributed significantly while we were teaching. Before delivering their communication in front of the class, most of them felt confident (Ruben et al., 2021). Even though, depending on the text, a few of them did persist. They felt more comfortable communicating more fluently as time went on. All things considered, students were able to greatly improve their communication skills and knowledge base, especially in learning, with the help of smartphones. The claims made by Bhattacharjee and Begum (2022), using social media, anyone, anywhere, at any time, and with anyone online can gain access to communication skills. As an example, it can be used for instructional purposes by both teachers and students.

Learning resources are abundant and easily accessible in this era of rapid information development, thanks to smartphone technology. One of the learning resources that cannot be separated from the quest for information is the internet-enabled smartphone (Morsidi et al., 2021). Most students, especially undergraduates, are impacted by the introduction of smartphone technology, which leads to changes in their communication skills (Verduyn et al., 2021). A growing number of human endeavors and aspects of our natural surroundings have also made use of it. It had its benefits and drawbacks. With an internet connection, a smartphone can search through thousands of websites and return very precise results (Tanil & Yong, 2020). To save themselves the trouble of physically visiting the university library, they nearly entirely substituted reference books. Although students and instructors both can benefit from using smartphones to research class topics, some adults still resist letting their children use them.

▪ CONCLUSION

Results show that students who use their smartphones excessively are less likely to have high-quality communication skills, suggesting that this is an issue that needs

significant attention. It can be detrimental to students' communication development if their communication skills are low because it indicates they lack excellent communication. Therefore, to make sure they have good communication skills, students should be more mindful of how they use their smartphones.

This study's results demonstrate unequivocally that students' communication skills suffers when they use their smartphones excessively. From a purely pragmatic standpoint, this should serve as a wake-up call to all parents and guardians to pay closer attention to how their students use smartphones. More parental involvement and supervision of students' everyday smartphone use is necessary.

In terms of theory, this study can contribute to existing information technology-era psychological theories like the Uses and Gratification Theory, which proposes that people willingly spend time on smartphone devices to fulfill their needs for interaction skills, distraction, and problem-solving. The theory was based on the assumption that technology should improve communication skills.

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