# Problematic Internet Use at Junior and High School in Padang, Indonesia: The Interplay of Self-Esteem and Social Acceptance

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The objective of this study is to examine the influence and the role of social acceptance and self-esteem on problematic internet use among adolescents in Padang, Indonesia. A cross-sectional study design was used in this study, with a convenience sampling technique involving 668 participants (259 males and 409 females) from twenty-one junior high schools and senior high schools. The data collection instruments that have been used in this study are the Generalized Problematic Internet Use Scale 2, the Self-Esteem Scale, and Social Acceptance scale. The data collected from the adolescents was then analyzed in a quantitative and descriptive method. Descriptive analysis included the collection of general demographic data, quantitative analysis using correlation analysis statistics to ascertain relationships between variables, and evaluation of influence and mediation effects between research variables using SEM (Structural Equation Model). The findings of the research indicate a significant negative correlation between self-esteem and problematic internet use, as well as between social acceptance and problematic internet use. Furthermore, it was discovered that problematic internet use behavior is partially mediated by social acceptance and self-esteem. In

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conclusion, self-esteem and social acceptance demonstrate a significant relationship and can predict problematic internet use among adolescents in Padang city, Indonesia. The results and findings of the research lead to recommendations and suggestions regarding the prevention and reduction of Problematic Internet Use among adolescents.

**Introduction**

Internet use is one of the tools resulting from rapid technological development that plays an important role in providing comfort and convenience in everyday life (Bener & Bhugra, 2013; Borah, 2017; Morrison & Gore, 2010; Pan, et al., 2020), Today, the use of the Internet has become an inseparable part of every individual's life. The number of internet penetration, internet access, and internet use activities have increased significantly, especially now that many new technologies are more conveniently connected with the help of the internet, such as smartphones, tabs, laptops, various applications, and platforms, allowing individuals to use it online, anywhere, anytime (Bener, et al., 2019; Mcdonald, 2018). Based on survey data from the Indonesian Internet Service Providers Association, there is an increase in the number of internet users in Indonesia. In 2022, 210 million internet users were recorded and in 2023 there was an increase to 215 million users, with 120 thousand users being youth aged 12-18 years (APJJI, 2023).

With adolescents dominating the majority of Internet users, adolescent Internet users are vulnerable to the negative effects of harmful, damaging, and ineffective Internet use (Gioia, et al., 2021; M. S.-A. Park, et al., 2021; Perry-Parrish, et al., 2017; Tunc-Aksan & Akbay, 2019). Harmful internet use can take the form of online gaming, online gambling, pornography, violence, hate speech, discriminatory content, or excessive intensity of internet use and dependence (Lavrinenko, et al., 2019; Luthfia, et al., 2019). In recent times, many terms have been used to describe non-adaptive and problematic internet behavior. Some of these terms include problematic internet use (PIU), internet addiction, problematic gaming disorder, excessive internet use, pathological internet use, and computer addiction (Cash, et al., 2012). However, in this study, the term used is Problematic Internet Use (PIU), in this article and so on will be written as PIU.

PIU is defined in this study as the behavior of individuals who use the Internet in an excessive and harmful way that results in significant negative psychological consequences (Gámez-Guadix, 2014; Koronczai, et al., 2013; Vally, et al., 2020), social aspect (S. Park, et al., 2014; Tóth-Király, et al., 2021), occupation, and education (Mathew & Krishnan, 2020; Truzoli, et al., 2021). Various other previous studies have also shown that excessive use of the internet significantly affects the habits, lifestyle, and how adolescents relate to their environment. (Clements & Boyle, 2018; Koçak, 2018). As such, PIU can be seen as a condition that describes problematic or inappropriate behaviors that result from excessive use of internet technology.

Self-esteem is a form of individual psychological condition that involves positive or negative judgments or attitudes towards oneself (Rosenberg, 1965b) and is related to PIU (Koronczai, et al., 2013). Self-esteem, which includes an individual's assessment of themselves, has the potential to influence how one interacts online. Individuals with low self-esteem may seek external validation and approval, including excessive online activity, to validate and compensate for their need to be evaluated by others. Self-esteem has been found to be one of the contributing factors to adolescents' problematic Internet behavior due to excessive Internet use, among loneliness, age, and psychological distress (Mamun, et al., 2020).

There is a negative relationship between PIU and self-esteem in adolescents, which means that adolescents with a high prevalence of PIU have low self-esteem (Mamun, et al., 2020; Mathew & Krishnan, 2020; Schmuck, et al., 2019; van Dijk, et al., 2021). Other research finds that self-esteem plays a significant role in internet-addictive behavior (Pratiwi & Afiatin, 2021) and self-esteem is a negative predictor of PIU and internet addiction (Błachnio, et al., 2019).

A paradox is that one of the goals and benefits of using the Internet, and social media in particular, is to bring people closer together who are separated by time and place. Still, social media also seems to be able to distance people close to their environment.t (J. C. Taylor, 2019). Adolescents who feel less accepted or experience social rejection may seek validation and comfort through internet use (M. S.-A. Park, et al., 2021) and again are more likely to seek support or build interactions online, which do not always represent the reality of social relationships (Winstone, et al., 2021).

The lack of social interactions in adolescents with their real environment significantly affects adolescents' Internet use behavior, anxiety and concerns about peer relationships and social acceptance tend to be compensated by Internet use, which may potentially increase PIU in adolescents. Adolescents who tend to experience worry and anxiety associating with friends in their surrounding environment have an influence on increasing PIU (Sertbaş, et al., 2020). A social environment that is always supportive and positive has an influence on the low level of internet abuse behavior among teenagers (Malak, et al., 2023).

Based on the explanation above, individual self-esteem, especially adolescents, and how the adolescent's social environment feels accepted by the environment tend to be seen to be related to PIU in adolescents. Thus, the purpose of the study was to examine the role of self-esteem and social acceptance in adolescents on PIU.

## Method

### *Participants and Procedure*

A cross-sectional study design was employed to investigate junior and senior high school students in Padang City, West Sumatera, Indonesia. A cross-sectional study design was chosen to capture a snapshot of these variables at a single point in time, allowing for the identification of correlations and potential mediating factors within the target population.data collection was conducted throughout October 2023. Padang City comprises 101 junior and 59 senior high schools, distributed across 11 sub-districts. The population for this study included all junior and senior high school students in Padang, totaling 61,726 students according to the Basic Education Data website of the Provincial Office of Education and Culture (Data Pokok Pendidikan, 2023).

A convenience sampling technique was employed to facilitate data collection. This non-probability sampling method was chosen because it allowed the researchers to gather data from schools and students that were readily accessible within the limited timeframe available for the study. The study covered two sub-districts—Kecamatan Pauh and Kecamatan Padang Utara—out of the total 11 sub-districts in Padang City. The sample included 21 schools (nine junior high schools and 12 senior high schools), with 414 students from Grades 7, 8, and 9 in junior high schools and 254 students from Grades 10, 11, and 12 in senior high schools.

Before data collection, the Research and Community Service Unit at Syedza Saintika College of Health Sciences thoroughly validated the research design and measurement instruments. Following this, the study received validation from the Education and Culture Office of the Padang City Government and the West Sumatra Provincial Government, Indonesia. This validation process culminated in issuing a research data collection permit, which was presented to the participating schools to confirm the study's approval and compliance with ethical standards.

The data collection process involved a field team who distributed printed scales directly to the students. These scales included instructions, demographic data sections, and the three main research scales organized into booklets for students to complete. To ensure the accuracy and reliability of the responses, an administration guide was provided to instruct students on how to fill out the scales, and the necessary stationery was supplied. Participation was voluntary, with data collection taking place under the supervision of teachers and with the approval of school principals. Students were briefed on the study's purpose and assured of the confidentiality of their data, with informed consent obtained from all participants.

After collection, the completed research scales were categorized by sub-district, school type, and grade level. The data were then scored and tabulated into a computerized database, ready for subsequent analysis. The following demographic data of research respondents have been collected in Table 1 and 2.

Table 1. Sample demographic characteristics

| Variable | n | % |
|---|---|---|
| Gender | | |
| Female | 409 | 61.2 |
| Male | 259 | 38.8 |
| School level | | |
| Junior High School (Age 12-15) | 414 | 61.9 |
| Senior High School (Age 15-18) | 254 | 38.1 |
| Internet daily use | | |
| 3-5 hr | 282 | 42.3 |
| 5-8 hr | 220 | 32.9 |
| 8-12 hr | 113 | 16.9 |
| $\geq$12 hr | 53 | 7.9 |
| Internet Activities | | |
| Game | 68 | 10.2 |
| Live Streaming | 19 | 2.8 |
| Media Sharing/Chatting Network | 14 | 2.1 |
| Live Streaming & Game | 276 | 41.3 |
| Media Sharing Network & Game | 133 | 19.9 |
| Media Sharing Network & Live Streaming | 73 | 10.9 |
| Media Sharing Network, Live Streaming & Game | 85 | 12.7 |
| Device | | |
| Computer/laptop, Smartphone | 14 | 2.1 |
| Smartphone | 654 | 97.9 |

Table 2. Internet activities characteristics

| Internet Activities | Male | | Female | | Junir High School | | Senior High School | |
|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % |
| Gaming | 53 | 20.5 | 15 | 3.7 | 58 | 14.0 | 10 | 3.9 |
| Live Streaming | 10 | 3.9 | 9 | 2.2 | 16 | 3.8 | 3 | 1.1 |
| Live Streaming & Gaming | 9 | 3.5 | 5 | 1.2 | 14 | 3.4 | 0 | 0 |
| Social Media/Media Sharing/Chatting | 69 | 26.6 | 207 | 50.6 | 167 | 40.3 | 109 | 43.0 |
| Social Media/Media Sharing/Chatting & Game | 68 | 26.2 | 65 | 15.9 | 99 | 23.9 | 34 | 13.4 |
| Social Media/Media Sharing/Chatting & Live Streaming | 17 | 6.6 | 56 | 13.7 | 25 | 6.1 | 48 | 18.9 |
| Social Media/Media Sharing/Chatting, Live Streaming, Gaming | 33 | 12.7 | 52 | 12.7 | 35 | 8.5 | 50 | 19.7 |

The research sample that was successfully collected was 668 students, consisting of 259 (38.8%) male students and 409 (61.2%) female students. Respondents were aged between 12 – 18 years (M=14.6, SD=1.63). There were 414 research participants from junior high school (61.9%) and 254 people from senior high school (38.1%), with the devices used for internet access mostly being computers/laptops and smartphones (97.9%).

## Data Collection Tools

### Self-Esteem scale

Self-esteem involves beliefs and attitudes regarding one's abilities and values (Rosenberg, 1965a). In this study, the measuring tool used to measure self-esteem is the Rosenberg Self-Esteem Scale (Cingel et al., 2022; Cong & Cheong, 2023; García et al., 2019), which has been modified. Participant responses were measured with ten items (e.g., I wish I could respect myself more; I am satisfied with myself; I can do as well as other people do) and rated using a 5-point Likert scale (0=strongly disagree, 4=strongly agree). This instrument demonstrated good reliability with a Cronbach's alpha of 0.89 and Average Variance Extracted (AVE) of 0.683. Statistically, convergent validity can be seen from the Average Variance Extracted (AVE) value of >0.50 (Henseler, et al., 2015).

### Social Acceptance scale

In this study to measure social acceptance using a modified scale from the Self-For Perception Profile Adolescents (Rose, et al., 2012) on the social acceptance dimension, this measuring instrument was redeveloped into ten items with the form of a Likert scale (e.g., I am a teenager who tends to find it difficult to have friends; I am a teenager who does not know how to be famous and become popular). This instrument was modified to use a 5-point Likert scale, with answer categories ranging from 0 (strongly disagree) to 4 (strongly agree). The instrument's reliability was assessed in the current study, resulting in a Cronbach's alpha of 0.84, indicating high internal consistency among the items.

Furthermore, the construct validity was evaluated using the Average Variance Extracted (AVE), which yielded a score of 0.65. This AVE score suggests that the construct explains 65% of the variance in the items, surpassing the commonly accepted threshold of 0.50. This demonstrates strong convergent validity, indicating that the items are well-correlated and effectively represent the underlying construct being measured.

*Problematic Internet Use scale*

The PIU measurement tool used the Generalised Problematic Internet Use Scale 2 (Assunção & Matos, 2017; Caplan, 2010; Shoemaker Brino, et al., 2022; Stover, et al., 2023), which has been modified, consisting of 15 modified items (e.g. I prefer to chat online with friends rather than meet face-to-face; When I have not been online for a while I am drawn back to the internet as soon as possible; My recent internet habits have made a mess of my life). This instrument was modified to use a 5-point Likert scale, with answer categories ranging from 0 (strongly disagree) to 4 (strongly agree). In the current study, the instrument's reliability was assessed, resulting in a Cronbach's alpha of 0.89, indicating high internal consistency among the items.

In addition, the construct validity was evaluated through the calculation of the Average Variance Extracted (AVE), yielding a score of 0.606. This AVE score suggests that the construct explains 60.6% of the variance in the items, exceeding the commonly accepted threshold of 0.50. This demonstrates good convergent validity, indicating that the items are sufficiently correlated and effectively represent the underlying construct. Overall, the instrument shows strong reliability and satisfactory validity, confirming its appropriateness for use in the study.

*Data Analysis*

This study employed a quantitative approach to systematically investigate the relationships between adolescents' self-esteem, social acceptance, and problematic internet use (PIU). Descriptive analysis was used to analyze the sociodemographic data that had been gathered. Pearson correlation was used to determine the relationship among the study variables (Faizi & Alvi, 2023). Following this, a Structural Equation Modeling (SEM) approach was employed to conduct mediation analysis. This statistical technique was used to evaluate models that included mediator variables, aiming to elucidate the underlying mechanisms and the extent to which these mediators influenced the relationships between the independent and dependent variables. The mediation analysis was instrumental in revealing potential causal pathways within the data (Ballen & Salehi, 2021; Danner, et al., 2015). The SEM and mediation analyses were performed using JASP software version 0.18.1 (JASP Team, 2023). Meanwhile, to obtain $R2$ estimates for models one and two, the researcher employed R software version 4.2.1 (R Core Team, 2022) and utilized the psych package (Revelle, 2019). This methodological approach ensured robust and reliable estimation of model fit and explanatory power, contributing to the overall rigor of the analysis.

**Results**

Measuring the correlation value between the study's variables was the first step in the analysis process. The correlation coefficients between the variables and the findings of the correlation study are displayed in Table 1. The relationship between social acceptance and self-esteem is positive and statistically significant (r=.444, p<.001), meaning that a rise in self-esteem will probably lead to increased social acceptance. To determine the association between social acceptance and PIU, as well as self-esteem and PIU, correlation tests (Table 3) were also carried out. According to statistical findings, self-esteem and PIU have a substantial negative association (r= -.368, p<.001). This implies that a rise in self-esteem will have the opposite effect on PIU. Meanwhile, social acceptance and PIU also showed a negative and significant relationship (r= -.476, p< .001); it can be interpreted that any increase in social acceptance will show a decrease in PIU.

Table 3. Pearson Correlation of Self-esteem, social acceptance, and problematic internet use

| Variable | Self-esteem | Social Acceptance | PIU |
|---|---|---|---|
| 1. Self-Esteem | — | | |
| 2. Social acceptance | 0.444 | — | |
| 3. Problematic Internet Use | -0.368 | -0.476 | — |

*Note*. Correlation is significant at p < .001.

Mediation analysis was performed in this study using self-esteem as a mediator variable to determine the mediating effect value of the association between social acceptance and PIU (Figure 1). The analysis's findings revealed that R2 =.18. ($\beta$ =.28, SE =.07, z = 3.98, p <.01 [95% confidence interval (.14;.43)]) Self-acceptance was a significant predictor of self-esteem. The prediction of problematic internet use was also significantly influenced by self-esteem ($\beta$ = -.62, SE =.06, z = -9.47, p <.01 [95% confidence interval (-.75; -.49)]). Given that the self-acceptance variable also had significant results ($\beta$ = -.73, SE =.12, z = -5.91, p <.01 [95% confidence interval (-.96; -.49)]), these results point to partial mediation. Additionally, the analysis demonstrated the significance of the indirect effect ($\beta$ = -.18, SE =.05, z = -3.67, p <.01 [95% confidence interval (-.27; -.08)]).
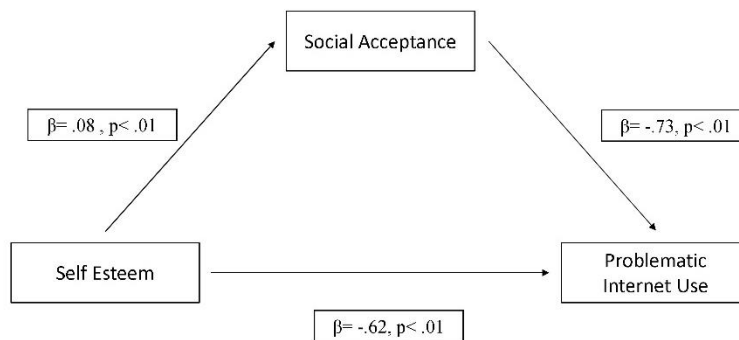


Figure 1. Model A, the result of the relationship between self-esteem and problematic internet use and self-acceptance as a mediator variable.

Then, this study also statistically measured the relationship between self-esteem and problematic internet use with the self-acceptance variable as a mediator (Figure 2.). Self-esteem significantly predicted self-acceptance ($\beta$ = .08, SE = .02, z = 3.98, p < .01 [95% confidence interval (.04; .21)]). Self-acceptance significantly predicted problematic internet use ($\beta$ = -.72, SE = .12, z = -5.91, p < .01 [95% confidence interval (-.97; -.49)]). This result indicates a partial mediation effect because self-esteem also shows a significant direct effect on the problematic internet use variable ($\beta$ = -.62, SE = .06, z = -9.47, p < .01 [95% confidence interval (-.75; -.49)]).
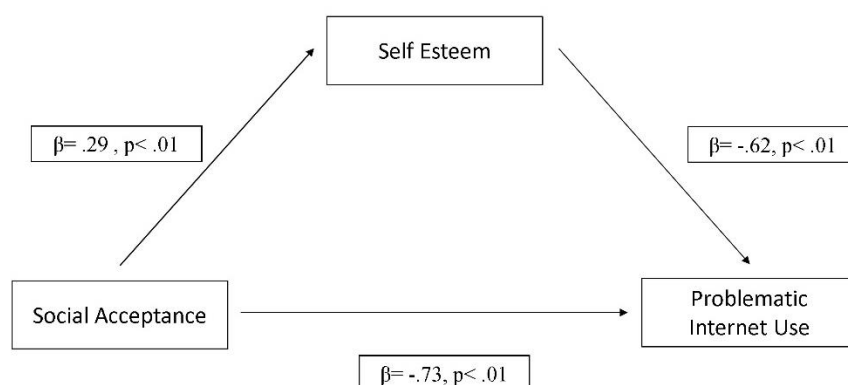
Figure 2. Model B, the result of the relationship between self-acceptance and problematic
internet use and self-esteem as a mediator variable.

Indirect effect shows a significant result ($\beta$ = -.06, SE = .02, z = -3.31, p < .01 [95%
confidence interval (-.09; -.02)]). Lastly, placed self-esteem and self-acceptance in predicting
problematic internet use. The results show $R^2$ = 17.8. The analysis results showed a
significant model (F(666) = 72.14, p < .01), indicating that self-esteem and self-acceptance
were simultaneously able to predict problematic internet use. Separately, self-esteem
predicted problematic internet use ($\beta$ = -.34, SE = .07, t = -9.44, p < .01) and self-acceptance
also predicted problematic internet use ($\beta$ = -.21, SE = .12, t = -5.89, p < .01).

## Discussion

The primary objective of this study was to examine the roles of self-esteem and social
acceptance in predicting problematic internet use (PIU) among adolescents in Padang City,
Indonesia. The findings revealed a significant negative relationship between self-esteem and
PIU, indicating that adolescents with lower self-esteem are more likely to engage in
problematic internet use compared to their peers with higher self-esteem. Self-esteem, which
encompasses adolescents' evaluations of their own abilities, values, and achievements, plays a
critical role in their online behaviors. Adolescents with high self-esteem are generally more
confident in their capabilities and self-worth, which helps them resist maladaptive internet
use. In contrast, adolescents with low self-esteem are more prone to anxiety and insecurity
due to negative self-assessments, leading them to seek external validation from peers both
offline and online. As a result, those with high self-esteem are more likely to use the internet
in a balanced and productive manner, integrating it into their daily lives without developing
PIU. Moreover, high self-esteem has been shown to positively influence academic
performance through more adaptive internet and app usage (Cingel et al., 2022; Kircaburun et
al., 2019; S. Park et al., 2014; van Dijk et al., 2021; Yücens & Üzer, 2018; Zeng et al., 2021).
Conversely, adolescents with low self-esteem may resort to problematic internet behaviors as
a temporary means of alleviating the distress associated with their low self-esteem (Mathew
& Krishnan, 2020).

The analysis also demonstrated a significant negative correlation between social acceptance
and PIU. Adolescents who perceive themselves as less socially accepted or who experience
social rejection may turn to the internet as a source of comfort and validation. This behavior

increases their likelihood of seeking support or interaction online, often in ways that do not reflect real-life social relationships (Winstone et al., 2021). As these individuals struggle to develop and maintain direct interpersonal relationships, their social acceptance may further decline, reinforcing a cycle of negative behavior. Over-involvement in online activities can disrupt the balance between virtual and real-life interactions, leading to reduced participation in offline social life and affecting adolescents' perceptions of being accepted within society (M. S.-A. Park et al., 2021; S. H. Taylor et al., 2022).

Furthermore, the study's findings indicate that self-esteem and social acceptance jointly predict the likelihood of PIU. Mediation analysis revealed that both self-esteem and social acceptance serve as partial mediators of PIU behavior in adolescents. Those who report higher levels of self-esteem and feel positively accepted by their peers exhibit a lower tendency toward PIU. Social acceptance significantly impacts self-esteem, with adolescents who experience higher levels of peer acceptance developing more positive self-assessments (Szcześniak et al., 2022). High self-esteem, in turn, enhances adolescents' interactions with others, creating a positive feedback loop where those with strong self-esteem are more likely to be socially accepted. Conversely, adolescents who face social rejection or lack acceptance from their peer group may experience a decline in self-esteem, leading to reluctance in engaging in social activities or mistrust in interpersonal relationships, ultimately increasing their likelihood of PIU. This pattern is consistent with previous research showing that both internal factors, such as self-esteem, and external factors, such as peer and environmental influences, play crucial roles in shaping adolescents' internet behavior (Chemnad et al., 2023; Kim et al., 2018; Li et al., 2014).

This study has several limitations that should be acknowledged. First, the use of a convenience sampling method limited the sample to students from only two sub-districts in Padang City, which may not be representative of all adolescents in Indonesia. This limitation suggests that the findings should be interpreted with caution when generalizing to broader populations. Second, the reliance on self-report measures may introduce biases such as social desirability or reluctance to disclose personal information, potentially affecting the accuracy of the data. Future research should consider using more representative sampling methods and incorporating additional data collection techniques, such as interviews or behavioral observations, to triangulate findings and reduce self-report biases.

Despite these limitations, the study offers significant contributions to the understanding of PIU among adolescents. To the best of our knowledge, this area of research remains underexplored, particularly in the context of Indonesia. The psychological attributes of self-esteem and social acceptance are crucial in adolescent development and can be effectively targeted through interventions in educational settings. Implementing programs that enhance these attributes could serve as a preventative measure against the development of PIU among adolescents, potentially leading to more balanced and healthy internet use behaviors.

### Conclusion and Recommendation

Based on various data analyses conducted in this study, it can be concluded that self-esteem and social acceptance affect problematic internet use behavior in adolescents. In addition, self-esteem and social acceptance also mediate the emergence of problematic internet use behavior. Therefore, it can be said that self-esteem and social acceptance play an essential role in the online behavior of adolescents in Padang City.

The following recommendations can be given and recommendations for further research.

First, recommendations for schools, in the school environment should be able to consider activities that allow increasing self-esteem and social acceptance among students as a form of effort to prevent the emergence of PIU behavior in students. The expected results of these activities can foster higher self-esteem and introduce students to be positive in establishing social relationships with peers in the real world so as not to make cyberspace or the internet a place for negative compensation in meeting their needs. Second, suggestions for future research, we suggest that future research be carried out on a wider sample with more in-depth methods such as qualitative or mixed method approaches in the hope of exploring more complex information and data about the roles of other factors besides self-esteem social acceptance and providing flexibility for respondents to express themselves.

The last recommendation is for the government and policy makers in the city of Padang and West Sumatra, which are rich in cultural values and closely related to Islamic culture. Cultural capital and religious values inherent in the city of Padang and West Sumatra along with the results of this study, it is recommended to consider the development of activities or programs that can be matched with identical cultural and religious values in the city of Padang, West Sumatra. For future research in Indonesia, it is recommended to further use the point of view of diverse values and cultures in Indonesia. The researcher considers that the results of the study are also influenced by habits, perspectives, and mindsets that are influenced by local culture. Given considering that West Sumatra is one of the many regions that have cultural distinctiveness from the many cultural values that are also found in other tribes or regions in Indonesia such as Java, Bali, Madura, and others. By including values and cultural factors, future research can better understand the behavior and responses of research respondents from various regions in relation to PIU.

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