




Self-Reflection as a Mediator Between Solitude and Identity Development

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ABSTRACT

Objective: This study aimed to examine the mediating role of self-reflection in the relationship between solitude and identity development among Malaysian adolescents.

Methods and Materials: A descriptive correlational design was employed with a sample of 476 adolescents selected based on the Morgan and Krejcie table using stratified random sampling from various educational institutions in Malaysia. Participants completed three standardized instruments: the Preference for Solitude Scale (PSS), the Self-Reflection and Insight Scale (SRIS), and the Ego Identity Process Questionnaire (EIPQ). Data were analyzed using SPSS-27 for descriptive and Pearson correlation analyses, and AMOS-21 was used for Structural Equation Modeling (SEM) to examine direct and indirect paths and assess model fit through standard indices.

Findings: Descriptive results showed moderate to high levels of solitude ($M = 35.42$, $SD = 5.76$), self-reflection ($M = 67.89$, $SD = 9.13$), and identity development ($M = 101.47$, $SD = 10.86$). Pearson correlations revealed significant positive relationships among solitude, self-reflection, and identity development ($p < .001$). The SEM model indicated good fit ($\chi^2 = 142.36$, $df = 64$, $\chi^2/df = 2.22$, $GFI = 0.94$, $AGFI = 0.91$, $CFI = 0.96$, $TLI = 0.95$, $RMSEA = 0.051$). Self-reflection significantly mediated the relationship between solitude and identity development. The indirect effect of solitude on identity development through self-reflection ($\beta = 0.22$, $p < .001$) complemented the direct effect ($\beta = 0.22$, $p < .001$), resulting in a total standardized effect of $\beta = 0.44$ ($p < .001$).

Conclusion: The findings highlight the essential role of self-reflection in enhancing the developmental impact of solitude on identity formation. Encouraging reflective practices among adolescents can optimize the psychological benefits of solitude and support more coherent identity development during formative years.

Keywords: Solitude, Self-Reflection, Identity Development, Adolescents.

1. Introduction

Identity development represents a central psychological task during adolescence and emerging adulthood, serving as the foundation for establishing coherence across personal values, roles, and beliefs. It is through this process that individuals create an integrated sense of self and purpose. The formation of identity has long been understood as a dynamic and context-sensitive process, involving both internal cognitive exploration and external sociocultural interactions (McLean & Syed, 2016). Central to identity development is the ability to engage in reflective thought and self-exploration, both of which require time, space, and, critically, solitude. In recent years, solitude—once regarded primarily as a negative state associated with loneliness—has gained renewed interest among developmental psychologists as a potential catalyst for personal growth and self-understanding (Bosacki, 2024). Rather than simply being a condition of social withdrawal, solitude is now increasingly conceptualized as a complex, multifaceted experience that may support identity development when voluntarily chosen and internally valued (Coplan et al., 2019).

Research suggests that solitude can foster introspective practices by providing a context in which individuals are not distracted by external feedback, allowing them to engage in deeper levels of self-reflection (Thomas et al., 2021). This reflective solitude enables adolescents to detach temporarily from social norms and expectations, offering a space in which they can explore personal narratives, goals, and value systems. In this regard, solitude may serve as a powerful environmental condition that facilitates the cognitive processes necessary for identity development. However, solitude's effects are not uniform. Some individuals experience solitude as liberating and self-enhancing, while others perceive it as isolating or distressing (Bermingham et al., 2021). These divergent experiences highlight the importance of understanding mediating factors—such as self-reflection—that may determine whether solitude contributes positively or negatively to identity development outcomes.

Self-reflection, defined as the conscious examination of one's thoughts, feelings, and experiences, plays a key role in identity formation. It enables individuals to evaluate the coherence of their beliefs and integrate personal experiences into a broader life narrative (Champ et al., 2023). The reflective process allows for the consolidation of past and present selves, while also facilitating the imagination of possible future selves—a hallmark of mature identity

development (Adamson & Lyxell, 1996). Importantly, self-reflection is not a passive cognitive habit but a skill that can be cultivated through intentional practices and structured educational interventions. For example, programs that encourage reflective journaling, value clarification, and introspective questioning have been shown to promote self-understanding and resilience in youth (Kwon, 2024). These findings suggest that self-reflection may serve as a psychological mechanism through which solitude exerts its developmental effects, particularly with respect to identity formation.

The mediating role of self-reflection has gained empirical support across a range of studies. In educational settings, structured self-reflective practices have been shown to enhance metacognitive awareness, emotional regulation, and personal insight—skills directly linked to identity construction (Pedrosa et al., 2021). Similarly, (Suryarini & Bahtiar, 2021) found that student teachers who engaged in guided self-reflection reported greater self-awareness and growth in personal development. These results align with theoretical models that view self-reflection as essential for processing complex emotional and cognitive experiences, particularly those arising in transitional periods such as adolescence. Moreover, self-reflection has been associated with psychological wellbeing and resilience, indicating that it not only facilitates identity clarity but also serves as a protective factor against identity confusion (Khoshnavay Fomani et al., 2022).

While solitude can offer the psychological space needed for reflective thought, it is not inherently beneficial unless accompanied by the capacity for constructive self-reflection. The experience of being alone does not automatically yield insight; rather, it is the interpretive and evaluative engagement with one's inner world that promotes development. This distinction is particularly relevant in the digital age, where solitude is increasingly disrupted by continuous connectivity and external stimulation (Kawamoto, 2021). Adolescents today often struggle to disconnect from social media and digital interactions, leading to a form of “pseudo-solitude” that lacks the quietude necessary for authentic self-reflection (Manago et al., 2008). In this context, voluntary solitude—deliberately sought and valued—may be more likely to foster the kind of introspective engagement that supports identity development.

At the same time, the quality and structure of solitude experiences also matter. Solitude that emerges from social exclusion or peer rejection is more likely to result in feelings

of loneliness and identity fragmentation, rather than growth (Naor & Mayseless, 2020). (Bermingham et al., 2021) highlight the interaction between attachment style and solitude experiences, noting that individuals with higher attachment anxiety may perceive solitude as threatening rather than empowering. This suggests that personality traits and emotional regulation capacities play a significant role in determining the developmental outcomes of solitude. Consequently, the role of self-reflection as a mediator becomes even more critical—it may help individuals reframe solitude not as isolation, but as an opportunity for insight and self-knowledge.

Furthermore, cognitive and emotional dimensions of self-reflection have been shown to influence how adolescents make meaning of their social and personal experiences. For instance, (Kim, 2023) demonstrated that questioning strategies aimed at deepening self-reflection helped adolescents clarify personal values and reduce emotional ambiguity. Similarly, (MacIsaac et al., 2022) found that dispositional self-reflection moderated the effect of a journaling intervention on psychological well-being, underscoring the significance of reflective capacity in shaping developmental trajectories. These findings highlight that while solitude provides the conditions for self-reflection, it is the individual's reflective engagement that ultimately determines its influence on identity.

The cultural context within which solitude and self-reflection occur also plays a critical role. In collectivist societies such as Malaysia, identity formation is deeply intertwined with family values, social obligations, and communal expectations. The interplay between culturally endorsed norms and individual introspection may complicate the relationship between solitude and identity development. Nevertheless, studies show that when supported by reflective practices, adolescents in such contexts can navigate these tensions and achieve a coherent sense of self (Javdan, 2014). (Hofer & Spengler, 2020) have argued that even in environments where self-expression is constrained by external demands, reflective solitude can help individuals develop a personal identity that is both authentic and contextually sensitive.

From a developmental standpoint, adolescence is a period of heightened sensitivity to both social feedback and self-evaluation, making it a critical window for identity exploration. During this stage, young people increasingly engage in narrative construction, attempting to make sense of who they are in relation to others and the world around them (McLean & Syed, 2016). Solitude, when experienced

constructively, allows adolescents to pause this social feedback loop and turn inward for meaning-making. In doing so, they gain the opportunity to question inherited beliefs, reassess personal goals, and explore alternative self-concepts—activities that are central to identity development (Bosacki, 2024).

The present study seeks to extend this growing body of research by examining the mediating role of self-reflection in the relationship between solitude and identity development among Malaysian adolescents. While previous studies have explored these constructs independently, few have investigated their interrelationships in a unified model, particularly in non-Western cultural contexts. By focusing on a sample of adolescents from Malaysia—a society that values both collectivist traditions and increasing individual autonomy—this study aims to provide culturally nuanced insights into the developmental processes linking solitude, self-reflection, and identity. Specifically, the study hypothesizes that self-reflection will mediate the positive association between preference for solitude and the level of identity development, thereby offering a more refined understanding of how internal processes transform environmental experiences into developmental outcomes.

This research also carries practical implications for educational and mental health practices. Given the growing prevalence of digital distractions and the reduced availability of reflective time among adolescents, schools and caregivers may benefit from promoting structured opportunities for solitude and self-reflection. Encouraging youth to engage in reflective practices—through journaling, guided questioning, or mindfulness—may help them harness the developmental potential of solitude. Moreover, understanding the role of self-reflection as a mediator can inform the design of identity-focused interventions that leverage the reflective capacities of adolescents to support healthy psychological growth.

In summary, solitude, self-reflection, and identity development represent three interlinked dimensions of adolescent growth. While solitude offers the physical and emotional space for reflection, it is through the process of self-reflection that identity is shaped and solidified. By exploring these dynamics in an integrated framework, this study aims to shed light on the mechanisms through which adolescents transform experiences of aloneness into opportunities for self-discovery and personal meaning.

2. Methods and Materials

2.1. Study Design and Participants

This study employed a descriptive correlational research design to examine the relationships between solitude, self-reflection, and identity development among adolescents. The target population consisted of Malaysian high school and early college students. A total of 476 participants were selected using stratified random sampling, with the sample size determined based on the Morgan and Krejcie sample size table to ensure statistical representativeness and generalizability. Participants included both male and female students across diverse educational institutions in Malaysia, ensuring a balanced distribution in terms of gender and academic level.

2.2. Measures

2.2.1. Identity Development

To measure identity development, the Ego Identity Process Questionnaire (EIPQ), developed by Balistreri, Busch-Rossnagel, and Geisinger in 1995, was used. The EIPQ is grounded in Marcia's identity status model and assesses two major identity processes: exploration and commitment. The questionnaire contains 32 items divided equally between the two dimensions (16 items for exploration and 16 for commitment) across various domains such as occupation, religion, politics, values, and relationships. Respondents rate their agreement on a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree), with higher scores indicating more advanced identity development. The tool has been widely employed in identity research and has demonstrated good psychometric properties, with Cronbach's alpha coefficients ranging from 0.62 to 0.86 across subscales and studies. Its construct validity and reliability have been supported in various populations and cultural contexts, making it a reliable instrument for assessing identity development (Aldahadha Al-Khawaldeh & Mohammed Al-Khawaldeh, 2023; Nazari et al., 2023).

2.2.2. Solitude

To assess individuals' orientation toward solitude, the Preference for Solitude Scale (PSS), developed by Burger in 1995, was employed. This scale consists of 12 items designed to capture an individual's voluntary preference for being alone, rather than as a result of social rejection or isolation. It includes three subscales: Enjoyment of Solitude, Productivity During Solitude, and Discomfort in Social

Settings. Each item is rated on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree), with higher scores reflecting a stronger preference for solitude. The scale has been validated in various adolescent and adult populations and shows satisfactory internal consistency, with Cronbach's alpha coefficients reported between 0.72 and 0.83. Studies have confirmed its factorial structure and discriminant validity, supporting its use as a standard measure of solitude in psychological research (Bosacki, 2024; Thomas et al., 2021).

2.2.3. Self-Reflection

Self-reflection was assessed using the Self-Reflection and Insight Scale (SRIS), developed by Grant, Franklin, and Langford in 2002. This 20-item instrument is designed to measure two key aspects of introspective thought: self-reflection and insight. The scale includes two subscales—Self-Reflection (12 items) and Insight (8 items)—with responses rated on a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). Higher scores on the Self-Reflection subscale indicate a greater tendency to engage in thoughtful self-examination. The SRIS has demonstrated good reliability, with Cronbach's alpha coefficients ranging from 0.76 to 0.87 for the subscales. Its convergent and discriminant validity have been confirmed in numerous studies, making it a widely accepted and psychometrically sound tool for measuring self-reflective tendencies in diverse populations (Javdan, 2014; Kim, 2023; Kwon, 2024)s.

2.3. Data Analysis

For data analysis, both descriptive and inferential statistical techniques were employed. Initially, Pearson correlation analysis was conducted using SPSS version 27 to assess the bivariate relationships between identity development and each of the independent variables—solitude and self-reflection. Subsequently, Structural Equation Modeling (SEM) was performed using AMOS version 21 to examine the mediating role of self-reflection in the relationship between solitude and identity development. SEM enabled the evaluation of both direct and indirect effects within the hypothesized model while accounting for measurement error. The significance of mediation effects was tested through bootstrapping procedures with a 95% confidence interval. Model fit indices, including the Chi-square statistic, RMSEA, CFI, and TLI, were used to assess the adequacy of the proposed model.

3. Findings and Results

The study sample consisted of 476 participants from various regions of Malaysia. Of these, 238 participants (50.0%) identified as female and 238 (50.0%) as male. The participants ranged in age from 16 to 22 years, with a mean age of 18.43 years ($SD = 1.61$). Regarding educational level, 183 participants (38.4%) were enrolled in upper secondary

school, 147 (30.9%) were in pre-university programs, and 146 (30.7%) were first-year university students. In terms of ethnicity, the sample included 289 Malay participants (60.7%), 103 Chinese (21.6%), 58 Indian (12.2%), and 26 from other ethnic backgrounds (5.5%). The diversity of the sample was considered sufficient for generalizing the findings across the Malaysian adolescent and young adult population.

Table 1

Means and Standard Deviations of Study Variables (N = 476)

Variable	M	SD
Solitude	35.42	5.76
Self-Reflection	67.89	9.13
Identity Development	101.47	10.86

The descriptive statistics in Table 1 show that the mean score for solitude was 35.42 ($SD = 5.76$), indicating a moderate preference for being alone among the participants. The average score for self-reflection was 67.89 ($SD = 9.13$), suggesting a relatively high tendency toward introspective thinking. The mean identity development score was 101.47 ($SD = 10.86$), reflecting moderately advanced levels of identity formation in this adolescent sample.

Prior to conducting statistical analyses, the assumptions underlying Pearson correlation and Structural Equation Modeling (SEM) were assessed and confirmed. Normality was evaluated using skewness and kurtosis values, which were within the acceptable range of ± 2 for all main variables: solitude (skewness = -0.41, kurtosis = -0.36), self-reflection

(skewness = 0.12, kurtosis = -0.21), and identity development (skewness = -0.33, kurtosis = 0.08). Linearity was verified through scatterplots showing approximately linear relationships among variables. Homoscedasticity was checked via residual plots, which indicated consistent variance across predicted values. Multicollinearity was assessed using Variance Inflation Factor (VIF) values, all of which were below 2.0, indicating no significant multicollinearity. Additionally, the data showed no significant outliers, as assessed by Mahalanobis distance with a critical value of $\chi^2(3) = 16.27$, $p < .001$. These checks confirmed the suitability of the dataset for correlation and SEM analysis.

Table 2

Pearson Correlation Coefficients Between Study Variables (N = 476)

Variable	1	2	3
1. Solitude	—		
2. Self-Reflection	.41** ($p < .001$)	—	
3. Identity Development	.34** ($p < .001$)	.53** ($p < .001$)	—

As shown in Table 2, solitude was significantly correlated with self-reflection ($r = .41$, $p < .001$) and identity development ($r = .34$, $p < .001$). Moreover, self-reflection was strongly associated with identity development ($r = .53$,

$p < .001$). These results support the hypothesized bivariate relationships among the variables, indicating that both solitude and self-reflection are positively related to identity formation.

Table 3

Fit Indices of the Structural Equation Model

Fit Index	Value	Threshold
Chi-Square (χ^2)	142.36	—
Degrees of Freedom (df)	64	—

χ^2/df	2.22	< 3.00
GFI	0.94	≥ 0.90
AGFI	0.91	≥ 0.90
CFI	0.96	≥ 0.95
TLI	0.95	≥ 0.95
RMSEA	0.051	≤ 0.06

As presented in Table 3, the structural model demonstrated an excellent fit to the data. The chi-square to degrees of freedom ratio was 2.22, indicating acceptable model parsimony. Additional fit indices confirmed model

adequacy, including GFI = 0.94, AGFI = 0.91, CFI = 0.96, TLI = 0.95, and RMSEA = 0.051, all within recommended thresholds. These results suggest that the proposed model with self-reflection as a mediator fit the observed data well.

Table 4

Total, Direct, and Indirect Effects Between Study Variables in the Structural Model

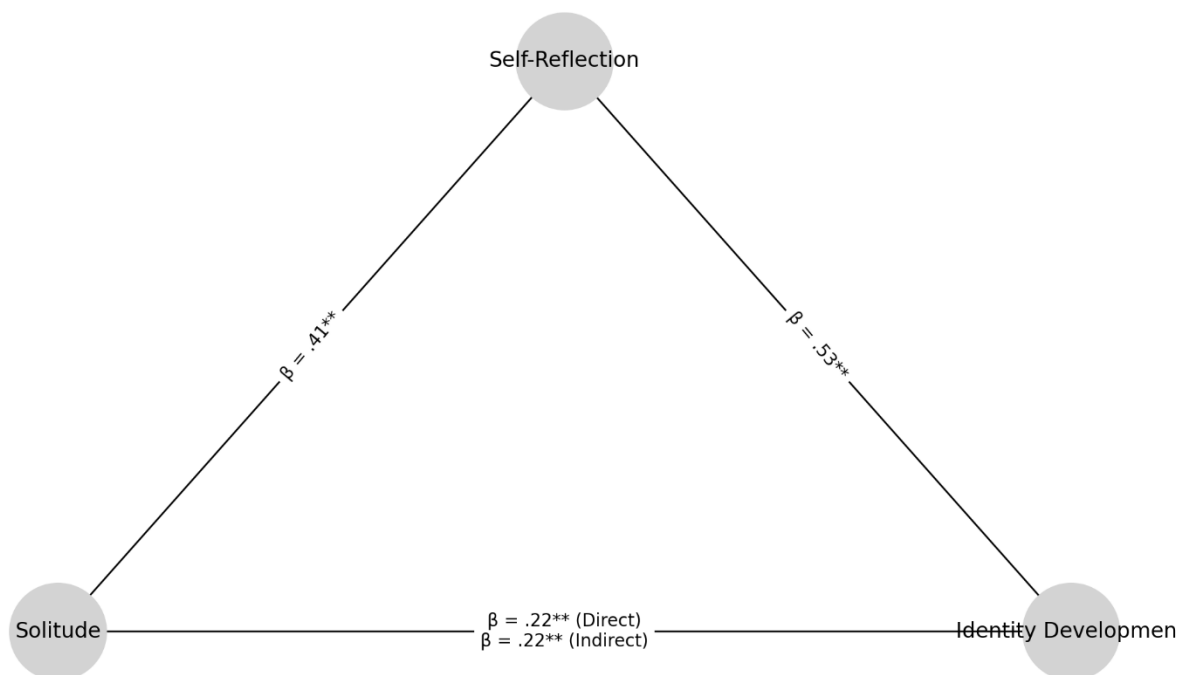
Path	B	S.E	β	p
Solitude \rightarrow Self-Reflection	0.48	0.06	0.41	< .001
Self-Reflection \rightarrow Identity Development	0.62	0.05	0.53	< .001
Solitude \rightarrow Identity Development (Direct)	0.29	0.07	0.22	< .001
Solitude \rightarrow Identity Development (Indirect)	0.30	0.04	0.22	< .001
Solitude \rightarrow Identity Development (Total)	0.59	0.06	0.44	< .001

As shown in Table 4, the direct effect of solitude on self-reflection was significant ($B = 0.48$, $\beta = 0.41$, $p < .001$), as was the direct effect of self-reflection on identity development ($B = 0.62$, $\beta = 0.53$, $p < .001$). The direct path from solitude to identity development also remained significant ($B = 0.29$, $\beta = 0.22$, $p < .001$), suggesting a partial

mediation. The indirect effect of solitude on identity development through self-reflection was also statistically significant ($B = 0.30$, $\beta = 0.22$, $p < .001$). The total effect (direct + indirect) from solitude to identity development was $B = 0.59$, $\beta = 0.44$ ($p < .001$), indicating a substantial combined influence.

Figure 1

Final Model with Path Coefficients



4. Discussion and Conclusion

The primary aim of this study was to explore the mediating role of self-reflection in the relationship between solitude and identity development among Malaysian adolescents. The results of the Pearson correlation analyses revealed significant positive associations between solitude and identity development, as well as between solitude and self-reflection, and between self-reflection and identity development. Structural Equation Modeling (SEM) confirmed that self-reflection significantly mediated the relationship between solitude and identity development, suggesting that adolescents who prefer solitude are more likely to engage in self-reflection, which in turn contributes to higher levels of identity development.

These findings reinforce the conceptualization of solitude as a potentially constructive psychological space, especially when chosen voluntarily. Rather than functioning solely as a marker of social isolation, solitude emerged in this study as a fertile ground for introspective activity and identity formation. This aligns with recent theoretical frameworks that reconceptualize solitude not as a deficit of connection but as a space of self-connection and personal development (Bosacki, 2024). The current study supports the idea that solitude, when coupled with an internal disposition toward reflection, can foster identity clarity and coherence.

Our findings are also consistent with earlier work highlighting the benefits of solitude in adolescent development. (Thomas et al., 2021) found that adolescents who reported greater comfort with being alone showed better psychological adjustment and higher self-understanding. Similarly, (Coplan et al., 2019) emphasized that voluntary solitude—distinct from loneliness—can promote psychological well-being, especially when individuals use the time to engage in reflective practices. In this study, the mediating role of self-reflection confirms that solitude's developmental outcomes depend heavily on how the time alone is used. Solitude alone is not sufficient to produce identity growth; it is the presence of reflective engagement that transforms solitude into a meaningful developmental process.

The strong association between self-reflection and identity development observed in this study also echoes previous research. (Champ et al., 2023) argued that self-regulation and self-reflection are essential mechanisms of psychological integration, allowing individuals to align their behaviors with internalized values. Self-reflection facilitates cognitive and emotional processing of life experiences,

helping adolescents to develop narrative continuity and a coherent sense of self (McLean & Syed, 2016). In contexts where external influences—such as social media, academic pressures, or familial expectations—are pervasive, reflective solitude offers adolescents a rare space to engage in self-dialogue, disentangle competing influences, and articulate an authentic identity.

Furthermore, the mediating effect of self-reflection highlights its instrumental role in translating external experiences (like solitude) into internal growth. Several studies support this pathway. For instance, (Kwon, 2024) demonstrated how Buddhist liberal arts education, which emphasizes reflective silence, enhanced students' self-understanding and moral clarity. Similarly, (Kim, 2023) found that structured questioning strategies improved adolescents' reflective capacity and value clarification, both of which are critical for identity development. The present findings suggest that self-reflection functions as a psychological tool for processing the insights gained during solitude and translating them into stable identity commitments.

From a metacognitive perspective, these results are also aligned with research on the cognitive functions of self-reflection in educational and developmental contexts. (Pedrosa et al., 2021) emphasized the importance of reflective thinking in promoting self-regulation and learning in online environments. Their findings, although rooted in academic performance, underscore the broader value of reflective practices in fostering autonomy and self-awareness—both of which are fundamental to identity development. In a more applied educational context, (Suryarini & Bahtiar, 2021) showed that student teachers who engaged in self-reflective exercises reported improved self-development, emotional regulation, and perspective-taking.

This study's findings also connect to the broader sociocultural understanding of solitude in adolescence. In a rapidly digitizing world, solitude is increasingly difficult to access as adolescents are constantly bombarded with digital stimuli. (Kawamoto, 2021) noted that adolescents' online self-presentation practices often undermine identity development by reinforcing external validation over internal exploration. By contrast, when adolescents are able to disconnect and reflect—especially in non-digital environments—they are better positioned to form authentic identities. This supports the notion that solitude is not inherently beneficial or harmful, but that its developmental

value depends on the cognitive and emotional processes it activates.

The contextual dimension of solitude also warrants attention. In collectivist societies such as Malaysia, where familial and communal identities are emphasized, solitude may carry different connotations than in individualistic cultures. However, solitude still appears to function as a valuable space for personal reflection, even when embedded within strong social structures. As (Adamson & Lyxell, 1996) suggested, identity development often involves negotiating between internal aspirations and external expectations. In such contexts, self-reflection can serve as a mediating tool that allows adolescents to critically assess inherited norms and align them with personal values.

The emotional quality of solitude experiences also appears to be shaped by attachment patterns and early life experiences. (Bermingham et al., 2021) found that individuals with attachment anxiety are more likely to experience solitude as threatening rather than enriching. This may explain individual differences in how solitude influences development. In the current study, the positive outcomes associated with solitude were contingent upon the presence of self-reflection, suggesting that reflective capacity may buffer against the emotional risks of being alone. (Hofer & Spengler, 2020) similarly noted that individuals who lacked reflective coping strategies were more vulnerable to identity diffusion and maladaptive emotional responses when exposed to solitude or isolation.

Additionally, this study supports growing evidence that self-reflection is a trainable skill with significant developmental benefits. (MacIsaac et al., 2022) demonstrated that adolescents who engaged in smartphone-based journaling interventions reported enhanced psychological well-being over time, particularly when they had high levels of dispositional self-reflection. These findings align with the present study's emphasis on reflective solitude as a mechanism for identity growth. Moreover, (Khoshnavay Fomani et al., 2022) showed that self-reflection interventions enhanced emotion regulation and resilience in mothers of premature infants, illustrating the broader applicability of reflective practices across developmental stages.

Finally, the results resonate with cultural perspectives on solitude, such as those articulated by (Paz, 2021), who emphasized the philosophical and existential role of solitude in shaping human identity. Solitude, according to this perspective, is not merely an absence of others, but a space for existential clarity and personal meaning-making. The

present findings offer empirical support for this conceptualization, showing that solitude, when paired with reflective engagement, can indeed function as a context for deep identity work.

5. Limitations & Suggestions

Despite the valuable insights offered by this study, several limitations should be acknowledged. First, the use of self-report measures may have introduced social desirability bias, especially regarding personal experiences like solitude and self-reflection. Participants may have underreported discomfort with being alone or overestimated their reflective capacities. Second, the cross-sectional design limits causal interpretations. Although the SEM model suggests a mediating relationship, longitudinal studies would be required to confirm directionality. Third, the sample was limited to adolescents in Malaysia, which, while culturally meaningful, may limit the generalizability of findings to other sociocultural contexts. Lastly, although the instruments used have strong psychometric properties, qualitative methods could offer richer insights into the subjective meaning of solitude and reflection in identity development.

Future studies should consider employing mixed-methods designs to capture both the quantitative and qualitative dimensions of reflective solitude. Longitudinal research would allow for the examination of how solitude and self-reflection evolve over time and their long-term impact on identity trajectories. It would also be valuable to explore potential moderators such as personality traits, attachment styles, or levels of digital engagement, which may influence how adolescents experience solitude. Expanding the sample to include participants from different cultural backgrounds could help to uncover cross-cultural similarities and differences in the solitude–reflection–identity pathway. Furthermore, experimental designs testing specific self-reflection interventions could provide evidence for causality and support the development of applied programs.

Given the demonstrated importance of self-reflection in mediating the positive effects of solitude on identity development, educational institutions should consider integrating structured reflective activities into their curricula. This could include journaling sessions, guided questioning, or mindfulness-based practices designed to help students process their experiences. Mental health professionals working with adolescents might also

incorporate solitude-friendly strategies into therapeutic approaches, encouraging clients to spend intentional time alone for self-exploration. Parents and caregivers can support this process by creating environments where solitude is not stigmatized but valued as part of personal growth. Finally, digital wellness programs should advocate for periodic disconnection from online environments to create space for internal dialogue and reflective processing.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed in this article.

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