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Systemic influences of Social Media Dependency (SMD) among generation Z in Sarawak

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ABSTRACT

In Sarawak, social media usage is incredibly high among youth, with a large proportion actively engaging with applications such as WhatsApp, Instagram and YouTube. They use these platforms daily and spend long hours online. This study aims to investigate the systemic influences (social system and social media system) that determine Generation Z social media dependency (SMD). A structured questionnaire was administered to 305 University students using purposive sampling. The data were then analysed using SPSS software, employing descriptive statistics and PLS-SEM for further analysis of the proposed systemic influences. The findings revealed that all three systemic influences significantly and positively determine SMD. The study offers valuable insights into the social and platform-related factors that contribute to Social Media Dependency (SMD) among Generation Z in Sarawak. By demonstrating the significant influence of both the social system and social media system on SMD, this study contributes to a better understanding of the multidimensional nature of Social Media Dependency (SMD) among young adults. The findings may assist researchers, educators, and platform developers in developing strategies that promote healthier and more responsible social media engagement.

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1. INTRODUCTION

The rapid evolution of digital media, particularly social media platforms, has transformed the ways individuals communicate, access information, and interact with others. Among all demographic groups, Generation Z, defined as individuals born between 1997 and 2012 (Dimock, 2019), represents the first generation to grow up fully immersed in digital technologies. Unlike previous generations, Generation Z integrates online and offline experiences seamlessly, making social media a central component of everyday life. Through social media, they engage with peers, communities, brands, and information sources, resulting in unprecedented levels of connectivity and digital engagement (Sprout Social, 2022).

Social media usage among young people has increased substantially over the past decade. In Malaysia, approximately 86% of the population were active social media users in 2021, spending an average of three hours per day on social networking platforms (Muller, 2021). Similarly, studies have reported that most Generation Z individuals own smartphones and remain connected online almost continuously (Anderson & Jiang, 2018). The widespread adoption of smartphones and social media has created opportunities for communication, self-expression, emotional support, and community participation. At the same time, excessive engagement has raised concerns regarding problematic or addictive usage patterns, which may negatively affect physical health, psychological well-being, and social functioning (Ayandele et al., 2019; Elhai et al., 2017).

In the first few months of the COVID-19 pandemic, there was an increased risk of developing bad habits among Generation Z, such as spending time excessively watching television, online gaming and gambling, or social media, compulsive shopping, and eating excessively. During the COVID-19 lockdown, there was a notable rise in the use of social media as it was the preferred medium to contact the outside world (Gupta, 2020). When Generation Z chooses social media as their primary activity, they will have special capabilities in social media applications, knowledge, skills, attitudes, and self-efficacy in creating social media content.

To examine these issues more systematically, it is essential to define the core concepts underpinning this study. Social media refers to an online environment where individuals interact to establish relationships and share information, experiences, and interests. Common platforms such as WhatsApp, Facebook, YouTube, Instagram and TikTok enable communication, content creation and information exchange. Within this context, social systems, such as family, peers, and social media influencers, are of great importance for individuals' development and adaptation (Yen et al., 2007; Sun et al., 2021), and addicted users scored higher on social media use (Zhao, 2021; Marengo et al., 2022). Given that each social networking site (SNS) that represents a social media system has a particular structure, unique features, and different gratifications and motives underlying its use (Alhabash & Ma, 2017), there is a need to investigate SMD along with causes and consequences that might be related to addictive use of Instagram and other platforms (Ponnusamy et al., 2020).

Leading theories of SMD (Davis, 2001; Kardefelt-Winther, 2014) have identified dysfunctional social relationships as key risk factors of SMD. For example, the Compensatory Internet Use hypothesis (Kardefelt-Winther, 2014) posits that individuals dissatisfied with social relationships might use the Internet to fulfil unmet social needs, increasing the risk of SMD (Hu et al., 2022). Adolescents' social relationships are highly rooted in the family and school settings, the two primary socialisation contexts or social systems according to developmental theories (e.g., Lerner & Castellino, 2002). As such, Gen Zers'

social relationships with these social systems parents, teachers, and peers (other students) could be significant antecedents of SMD.

In recent decades, social media has become an essential and irreplaceable platform for communication and information dissemination. Its forms have diversified, encompassing everything from simple messaging functions, such as WhatsApp, to platforms like LinkedIn, which are optimised for professional use. Kim et al. (2024) suggest that these differences in content format and user interaction give rise to distinct psychological stressors. For instance, users of text-based platforms may experience stress related to argumentative discourse or information overload, while users of image-based platforms may face pressures related to appearance, lifestyle comparison, or social validation. These platform-specific stressors contribute to varying degrees of social media dependency, which in turn influence users' perceptions of information quality, emotional well-being, and digital behaviour.

Despite growing scholarly interest in SMD, important research gaps remain. First, many previous studies have focused on general social media users or broader age cohorts, while limited attention has been given specifically to Generation Z university students. Second, existing research has often examined individual psychological factors associated with SMD, with less emphasis on the combined influence of social systems and social media systems. Third, evidence from Sarawak remains limited despite the increasing reliance on social media following the expansion of digital infrastructure and online learning initiatives during and after the COVID-19 pandemic. Therefore, this study aims to examine the systemic influences of social systems and social media systems on Social Media Dependency among Generation Z university students in Sarawak.

2. LITERATURE REVIEW

2.1 Social Media Dependency (SMD)

Social Media Dependency (SMD) refers to an individual's reliance on social media platforms to fulfil informational, social, emotional, and recreational needs. As an extension of Media System Dependency (MSD) theory, SMD reflects the extent to which users depend on social media for orientation, understanding, communication, and interaction in their daily lives (Zhang et al., 2019). The concept goes beyond frequency of use and encompasses the psychological importance of social media in achieving personal and social goals.

Previous studies have reported mixed consequences of SMD. On one hand, social media use may strengthen social connectedness, facilitate communication with family and friends, and support self-expression and identity development (Babkirk et al., 2016; Sherman et al., 2016). These findings suggest that dependency on social media may represent an adaptive response to contemporary communication needs. On the other hand, excessive dependency has been associated with numerous psychological and cognitive challenges, including social isolation, psychological distress, low self-esteem, depression, reduced working memory performance, impaired attention regulation, and difficulties in task switching (Frost & Rickwood, 2017; Twenge et al., 2017; Uncapher et al., 2016; Ophir et al., 2009; Rosen et al., 2013).

Beyond communication and information seeking, social media increasingly serves important psychological and developmental functions for Generation Z. Research suggests that adolescents and young

adults may turn to social media as a coping mechanism when experiencing stress or difficulties within their immediate social environment. For example, exposure to frequent parental conflict may encourage young people to seek emotional support, distraction, or social connection through online platforms (Zhou et al., 2017). Although such engagement may temporarily alleviate stress, excessive reliance on social media can gradually displace offline interactions and potentially intensify family tensions, thereby creating a cycle of increased dependency (Young, 2009). In this regard, SMD may function as an intermediary mechanism through which family dysfunction influences adolescent well-being (Li et al., 2024). At the same time, social media has become a critical space for identity exploration, emotional expression, and personal development among Generation Z. Dependency on platforms such as TikTok, Instagram, and YouTube extends beyond passive content consumption, encompassing activities related to self-presentation, social participation, entrepreneurial pursuits, and emotional regulation (Anderson & Jiang, 2018). These findings suggest that SMD is closely intertwined with the social and developmental needs of young people, making it a particularly relevant construct for understanding Generation Z's digital experiences.

The contrasting findings indicate that SMD is neither inherently beneficial nor harmful. Rather, its outcomes depend on the degree of dependency and the contexts in which social media is used. For Generation Z, social media serves not only as a communication tool but also as a platform for identity construction, emotional regulation, social participation, and knowledge acquisition. Consequently, understanding the factors that contribute to SMD is essential for explaining how digital media shapes behavioural and psychological outcomes among young adults.

2.2 Systemic Influences

Social Media Dependency (SMD) does not develop solely as a result of individual characteristics. Instead, it emerges through interactions between individuals and the broader systems within which they operate. Consistent with system-oriented perspectives, users are embedded within social environments while simultaneously interacting with technological environments. Accordingly, this study conceptualises two major systemic influences on SMD: the social system and the social media system.

Social System

Social Media Dependency (SMD) is influenced not only by individual psychological characteristics but also by the broader social environments in which individuals are embedded. Although previous studies have identified several personal risk factors associated with excessive social media use, emerging evidence suggests that social and interpersonal contexts play an equally important role in shaping dependency behaviours. Ahmed and Ahmed (2025) reported that personality traits such as low self-control, impulsivity, neuroticism, and Dark Triad characteristics are positively associated with addiction-like social media behaviours. Similarly, low self-esteem has been identified as a significant predictor of problematic social media use, with Hou et al. (2019) demonstrating that self-esteem partially mediates the relationship between social media addiction and mental health outcomes. Zhao et al. (2022) further highlighted impulsivity, attentional bias towards social media cues, and weak self-regulatory capacity as important contributors to SMD, particularly among younger users such as Generation Z.

However, individual characteristics alone cannot fully explain the development of SMD. Social behaviour is shaped by interactions within family, peer, and educational environments, collectively referred to as the social system. Hou et al. (2019), for example, found that demographic and social factors, including family structure and educational setting, significantly influenced social media dependency among

university students in China. Their findings suggest that social environments may either facilitate or constrain social media engagement depending on the nature of interpersonal relationships and social expectations.

The literature further indicates that inadequate offline social support can increase reliance on online interactions. Hassan et al. (2024) argue that loneliness often emerges from weak social networks and limited interpersonal support, encouraging individuals to seek connection through digital platforms. Consequently, social media may function as a compensatory mechanism that satisfies unmet social and emotional needs. This perspective reinforces the importance of examining social systems as potential antecedents of SMD.

The social system in the present study is operationalised through three interrelated dimensions, namely family, peers, and social media influencers. These dimensions collectively represent the primary sources of social interaction and behavioural influence experienced by Generation Z. Within the family dimension, supportive parent-child relationships characterised by trust, emotional understanding, open communication, and mutual respect have consistently been associated with healthier psychological adjustment and lower levels of problematic internet and social media use (Elsaesser et al., 2017; Wang et al., 2024). Conversely, weak family cohesion and limited parental support may increase young adults' tendency to seek emotional fulfilment and social connection through online environments.

Peer influence constitutes another important dimension of the social system. During adolescence and emerging adulthood, peers become a major source of emotional support, identity formation, and behavioural reinforcement. Previous studies have shown that supportive friendships, peer communication, and the need to maintain social connectedness significantly influence the frequency and intensity of social media engagement (Nesi et al., 2018; Verma & Panday, 2024). Individuals who perceive stronger pressure to remain socially connected with their peers are more likely to engage in frequent social media use to maintain interpersonal relationships and social acceptance.

In recent years, social media influencers have emerged as an additional source of social influence that extends beyond traditional family and peer networks. Influencers frequently shape users' attitudes, consumption patterns, lifestyle aspirations, and online behaviours through continuous interaction and parasocial relationships. Lou and Kim (2019) argue that perceived intimacy and identification with influencers strengthen followers' emotional attachment and engagement with social media platforms. Likewise, Sokolova and Kefi (2020) demonstrated that trust in influencers significantly increases users' intentions to continuously engage with social media content. These findings suggest that social media influencers have become an integral component of contemporary social systems that may contribute to the development of Social Media Dependency among Generation Z.

Among the various social influences, peer relationships appear particularly influential during adolescence and emerging adulthood. Tetik et al. (2025) contend that social learning processes, especially peer influence and prevailing social norms, significantly contribute to the development of social media addiction among university students. Likewise, Verma and Panday (2024) found that peer pressure and the desire for social validation encourage compulsive social media use, which may subsequently affect academic engagement and cognitive performance. Supporting these findings, Pellegrino et al. (2022) identified interpersonal relationships and behavioural reinforcement mechanisms as recurring themes within the global social media addiction literature.

Taken together, the evidence suggests that social systems exert influence through multiple pathways. Family relationships establish the foundation of social support, peer groups reinforce behavioural norms, and broader social networks shape expectations regarding online participation. When these influences converge, they may create conditions that strengthen reliance on social media for communication, emotional support, and social validation. Therefore, the social system can be regarded as a significant antecedent of SMD among Generation Z.

Social Media System

In addition to social influences, the characteristics of social media platforms themselves contribute significantly to the development of Social Media Dependency (SMD). The social media system refers to the technological architecture, design features, and functional characteristics embedded within social networking platforms that influence user engagement and behaviour. Unlike traditional media, social media platforms facilitate continuous interaction, personalised content delivery, and immediate feedback mechanisms, all of which have the potential to increase user dependency.

Research suggests that many platform features are specifically designed to maximise engagement and prolong user attention. Dong et al. (2025) found that social networking services such as Facebook, Instagram, and YouTube utilise a algorithmic personalisation and continuous content streams that encourage repeated usage. Similarly, Ma et al. (2023), drawing upon Media System Dependency (MSD) theory, demonstrated that users increasingly rely on social networking platforms to satisfy needs related to orientation, entertainment, and social validation. As these needs become integrated into everyday routines, dependency on social media platforms becomes more pronounced.

The literature also highlights the role of platform design in shaping habitual behaviours. Features such as push notifications, infinite scrolling, and variable reward mechanisms encourage repeated interaction and reinforce engagement patterns over time. According to Han and Tzu (2023), application interface design is among the technological factors contributing to social media addiction. These findings suggest that social media systems are not passive communication channels; rather, they actively shape user behaviour through structural and design characteristics.

Furthermore, different types of social media platforms may generate distinct user experiences and psychological outcomes. Kim et al. (2024) argue that variations in content format and interaction mechanisms expose users to different forms of psychological pressure. While some platforms may encourage information sharing and discussion, others may promote social comparison, self-presentation, and validation-seeking behaviours. These platform-specific experiences influence how users engage with social media and may contribute to differing levels of dependency.

The present study conceptualises the social media system through three major categories of online platforms, namely social networking sites, online photo-sharing platforms, and online video-sharing platforms. Although these platforms share common interactive characteristics, they differ in content presentation, user engagement mechanisms, and communication functions, resulting in different patterns of user dependency.

Social networking sites, such as Facebook and X (formerly Twitter), primarily facilitate interpersonal communication, community participation, and information exchange. Research suggests that these platforms fulfil users' needs for maintaining relationships, obtaining information, and participating in online communities, thereby increasing habitual usage and platform dependency (Kirca burun et al., 2020; Ma et al., 2023).

Online photo-sharing platforms, including Instagram and Snapchat, place greater emphasis on visual self-presentation and social comparison. Previous studies indicate that image-based interactions encourage users to seek social approval through likes, comments, and follower engagement, which may strengthen compulsive checking behaviours and psychological dependence (Vannucci et al., 2020; Kim et al., 2024). The highly visual nature of these platforms also intensifies upward social comparison, further reinforcing repeated platform use.

Meanwhile, online video-sharing platforms such as YouTube and TikTok employ personalised recommendation algorithms, autoplay functions, and short-form video content that encourage prolonged viewing and repeated engagement. Montag et al. (2021) reported that algorithm-driven content delivery significantly increases users' viewing duration and habitual consumption patterns. Similarly, Dong et al. (2025) found that personalised recommendation systems and continuous content feeds contribute substantially to excessive social media use by reducing users' self-regulation and increasing platform engagement. Collectively, these three platform categories represent complementary dimensions of the broader social media system that shape users' dependency behaviours.

Overall, the literature indicates that dependency is influenced not only by users' social needs but also by the technological environments in which those needs are fulfilled. Through personalised content delivery, engagement-driven design, and platform-specific interaction patterns, social media systems create conditions that encourage continued usage and strengthen user reliance on digital platforms. Therefore, the social media system represents a significant factor in explaining SMD among Generation Z.

2.3 Research Hypothesis

Based on the literature reviewed, this study proposes that both the social environment surrounding Generation Z and the characteristics of social media platforms contribute to the development of Social Media Dependency (SMD). Previous studies indicate that interpersonal relationships, peer influence, family support, and broader social interactions shape individuals' reliance on social media, while platform design characteristics such as algorithmic personalisation, continuous content delivery, and interactive features encourage prolonged engagement and dependency. Therefore, the following hypotheses are proposed:

H1: There is a positive relationship between the Social System and Social Media Dependency (SMD) among Generation Z.

H2: There is a positive relationship between the Social Media System and Social Media Dependency (SMD) among Generation Z.

2.4 Research Framework

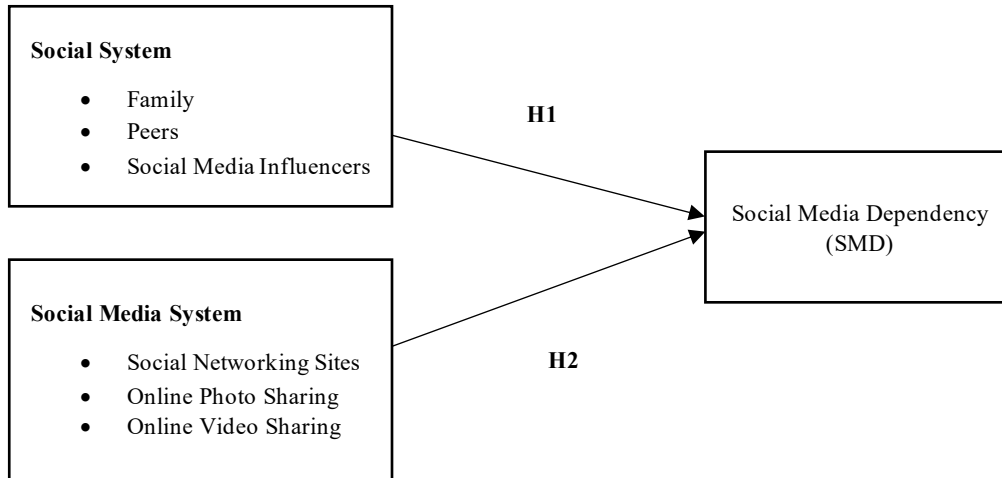


Fig. 1. H1 and H2 denote hypothesized positive

3. METHODOLOGY

3.1 Study Design and Data Analysis

This study employed a quantitative cross-sectional survey design to examine the influence of the Social System and Social Media System on Social Media Dependency (SMD) among Generation Z university students in Sarawak. A structured self-administered questionnaire was used because it enables the efficient collection of standardised responses from a relatively large sample while allowing statistical examination of the proposed relationships.

The questionnaire was developed based on measurement items adapted from previously validated instruments reported in the literature. The items measuring the Social System, Social Media System, and Social Media Dependency (SMD) were modified to suit the context of Generation Z university students in Sarawak while preserving the original meaning of each construct. Prior to data collection, the questionnaire was reviewed by academic experts to ensure content validity and clarity of wording. All measurement items were assessed using a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Purposive sampling was employed because the study targeted a specific group of respondents who possessed characteristics relevant to the research objectives. The respondents were required to be Generation Z university students enrolled in higher education institutions in Sarawak and active users of social media platforms. Since not every university student fulfilled these criteria, probability sampling was considered less appropriate. Purposive sampling therefore ensured that the respondents possessed sufficient experience with social media to provide meaningful responses regarding Social Media Dependency.

Data collection was conducted over six months through both online and face-to-face questionnaire distribution. A total of 305 usable questionnaires were successfully collected, exceeding the minimum sample size recommended for PLS-SEM analysis (Hair et al., 2022).

Participation in the study was entirely voluntary. Prior to completing the questionnaire, respondents were informed of the purpose of the study and assured that their responses would remain anonymous and confidential. No personally identifiable information was collected, and respondents were informed that they could discontinue participation at any stage without penalty.

Ethical approval for this study was obtained from the Universiti Teknologi MARA (UiTM) Research Ethics Committee. Participation was voluntary, and informed consent was obtained from all respondents before data collection. Respondents were assured that their participation was anonymous, their responses would remain confidential, and the data collected would be used solely for academic research purposes.

3.2 Statistical Analysis

In PLS-SEM, the procedures for assessing the measurement model depend on whether the constructs are specified as reflective or formative. Reflective measurement models are typically evaluated using internal consistency reliability, convergent validity, and discriminant validity. Internal consistency reliability is commonly assessed using Cronbach's Alpha and Composite Reliability (CR), convergent validity is assessed using the Average Variance Extracted (AVE), while discriminant validity is commonly evaluated using the Heterotrait-Monotrait (HTMT) criterion (Hair et al., 2017). However, these assessment procedures are appropriate only for reflective constructs because they assume that indicators are manifestations of the same underlying latent variable and are therefore expected to correlate highly.

In the present study, all constructs were specified as formative. Consequently, internal consistency reliability measures such as Cronbach's Alpha and Composite Reliability, as well as reflective validity measures including AVE and HTMT, were not applicable. Instead, the formative measurement model was evaluated by examining multicollinearity among indicators using the Variance Inflation Factor (VIF), followed by the assessment of the significance and relevance of the formative indicator weights through bootstrapping procedures. Indicators with non-significant outer weights were retained where justified by theoretical considerations because each indicator represented a unique conceptual dimension of the formative construct (Hair et al., 2017).

Following the assessment of the formative measurement model, the structural model was evaluated to test the proposed hypotheses. The significance of the structural relationships was determined using the bootstrapping procedure to estimate the path coefficients (β) and their associated t-values and p-values. In addition, the coefficient of determination (R^2), effect size (f^2), and collinearity statistics (VIF) were examined to evaluate the explanatory power of the model and the relative influence of the predictor constructs on Social Media Dependency (SMD). The use of PLS-SEM was appropriate because it is well suited for prediction-oriented research, theory development, and the analysis of complex models with relatively small to medium sample sizes and data that do not necessarily satisfy multivariate normality assumptions (Hair et al., 2017).

4. FINDINGS

4.1 Descriptive Analysis

A summary of respondents' demographic profile is presented in Table 1. More than half of the participants were female, comprising 220 (72.1%) students, while 85 (27.9%) were male. Age distribution showed that students aged 20 to 22 years old had the largest proportion of respondents, with 259 (84.9%) students, while 23 to 25 years old had the fewest participants, with 46 (15.1%) students.

In terms of institution of study, Universiti Teknologi Mara (UiTM) Sarawak reported the highest participation, with 53 students (17.4%). This is followed by University of Technology Sarawak (UTS) with 28 students (9.25) and Curtin University Malaysia with 26 students (8.5%). Whereas only 15 students (4.9%) were from Universiti Malaysia Sarawak (UNIMAS) and only 14 students (4.3%) from Universiti Putra Malaysia (UPM). Other universities, which consist of Segi College and Open University Malaysia (OUM), reported the lowest participation with 3 students (1.0%).

Table 1. Results of Descriptive Analysis

Demographic	Frequency	Percentage (%)
Gender		
Male	85	27.9
Female	220	72.1
Age		
20-22 years old	259	84.9
23-25 years old	46	15.1
Institution of Study		
Universiti Teknologi MARA (UiTM) Sarawak	53	17.4
University of Technology Sarawak (UTS)	28	9.2
Curtin University Malaysia	26	8.5
University Malaysia Sarawak (UNIMAS)	15	4.9
Universiti Putra Malaysia (UPM)	13	4.3
Others	3	1.0
Three most favoured social media platforms		
WhatsApp	275	90.4
Instagram	205	67.4
YouTube	192	62.9
Facebook	129	42.4
X (Twitter)	47	15.4
TikTok	41	13.4
Telegram	40	13.1
Threads	1	0.3
LinkedIn	1	0.3
Snapchat	1	0.3
Wikipedia	1	0.3
Research Gate	1	0.3
Google Plus	1	0.3
Others	15	4.9

WhatsApp appeared as the most favoured platform, with 275 respondents (90.4%) choosing it, surpassing other applications. Instagram ranked second with 205 respondents (67.4%), followed closely by YouTube with 192 respondents (62.9%) and Facebook with 129 respondents (42.4%). While X (formerly known as Twitter), TikTok, and Telegram showed the least favouritism with 47 (15.4%), 41 (13.4%), and 40 (13.1%), respectively, Threads and the rest of the applications were the least popular social media platforms chosen by respondents, with only 1 respondent at 0.3%. Others such as LokLok, Netflix, and DubuYo were chosen by 15 respondents, with 4.9%.

4.2 Measurement Model Results

Formative Measurement Model

Table 2 presents the assessment of the formative second-order measurement model. Following the recommendations of Hair et al. (2017), formative constructs were evaluated by examining multicollinearity among indicators using the Variance Inflation Factor (VIF), followed by the significance and relevance of the outer weights.

The VIF values ranged from 1.007 to 2.852, all below the recommended threshold of 5.00, indicating that multicollinearity was not a concern. The significance of the formative indicators was subsequently assessed using bootstrapping. Significant indicators included Family ($t = 2.130$, $p = 0.017$), Peers ($t = 3.777$, $p < 0.001$), Online Photo Sharing ($t = 3.996$, $p < 0.001$), Online Video Sharing ($t = 3.661$, $p < 0.001$), Potential Entrepreneurs ($t = 2.957$, $p < 0.001$), and Online Business Literacy ($p < 0.001$). Several indicators were statistically non-significant; however, they were retained because formative indicators represent conceptually distinct dimensions of the construct, and removing them would alter the construct's theoretical meaning (Hair et al., 2017). The latent variable scores derived from these formative constructs were subsequently used in the structural model assessment.

Table 2. Results of Formative Measurement Model

Construct	Indicator	Outer Weight	VIF	t-value	p-value	Decision
Social System	Family	0.097	1.007	2.130	0.017	Retained
	Peers	0.985	1.014	3.777	<0.001	Retained
	Social Media Influencers	0.986	1.019	1.078	0.140	Retained
Social Media System	Social Networking Sites	0.070	1.762	1.607	0.054	Retained
	Online Photo Sharing	1.110	1.907	3.996	<0.001	Retained
	Online Video Sharing	0.211	2.852	3.661	<0.001	Retained

4.3 Structural Model Results

Collinearity Assessment

As shown in Table 3, the VIF values ranged from 1.06 to 1.13, which are well below the recommended threshold of 5.0 (Hair et al., 2017). These results indicate that multicollinearity was not a concern and that the predictor constructs contributed distinct explanatory information to the structural model.

Table 3. Results of Collinearity Assessment

Items		VIF	Collinearity Status
Social Media Dependency (SMD)	Social System	1.06	No Issue
Social Media Dependency (SMD)	Social Media System	1.13	No Issue

Structural Model Relationships

The results of the structural model assessment are summarised in Table 4. The relationships between the predictor constructs and Social Media Dependency (SMD) were evaluated based on the direction and magnitude of the path coefficients.

Table 4. Results of Structural Model

Hypothesis	Structural Path	β	t-value	p-value	Decision
H1	Social System $\rightarrow$ Social Media Dependency (SMD)	0.188	3.574	<0.001	Supported
H2	Social Media System $\rightarrow$ Social Media Dependency (SMD)	0.246	4.153	<0.001	Supported

Bootstrapping analysis revealed that both hypothesised relationships were statistically significant. The Social System positively influenced Social Media Dependency ($\beta = 0.188$, $t = 3.574$, $p < 0.001$), supporting H1. Likewise, the Social Media System exhibited a stronger positive influence on Social Media Dependency ($\beta = 0.246$, $t = 4.153$, $p < 0.001$), supporting H2. These findings indicate that both systemic factors significantly contribute to Social Media Dependency among Generation Z university students.

Effect Size

The effect sizes (f^2) were examined to determine the relative contribution of each predictor to Social Media Dependency (SMD). The Social System exhibited a small effect ($f^2 = 0.039$), while the Social Media System also demonstrated a small effect ($f^2 = 0.064$). Although modest, these effect sizes indicate that both predictors contribute meaningfully to explaining variance in SMD, consistent with Cohen's (1988) guidelines for behavioural research.

Table 5. Results of Effect Size

Hypothesis	Structural Path	f^2	R^2	VIF
H1	Social System $\rightarrow$ Social Media Dependency (SMD)	0.039	0.147	1.045
H2	Social Media System $\rightarrow$ Social Media Dependency (SMD)	0.064		1.121

Overall, the findings indicate that the Social System and Social Media System jointly explain a meaningful proportion of variance in Social Media Dependency (SMD), highlighting the multidimensional nature of social media reliance among Generation Z users in Sarawak.

5. DISCUSSION

This study examined the influence of the Social System and Social Media System on Social Media Dependency (SMD) among Generation Z university students in Sarawak. The findings provide empirical support for the proposed model, demonstrating that both systemic influences significantly contribute to SMD, thereby reinforcing the multidimensional nature of social media dependency.

The formative Social System construct, comprising the dimensions of family, peers, and social media influencers, demonstrated a positive influence on Social Media Dependency ($\beta = 0.188$). This finding suggests that these dimensions collectively contribute to explaining dependency behaviour among Generation Z. This finding aligns with prior studies suggesting that interpersonal relationships, peer norms, and family dynamics play a critical role in shaping individuals' media usage behaviours (Hou et al., 2019; Tetik et al., 2025). For Generation Z students, social media functions not merely as a communication tool but as an extension of their social environment. Weak offline social support, family conflict, or peer pressure may encourage students to seek validation, emotional support, or belonging through digital platforms, thereby increasing dependency. This finding supports the Compensatory Internet Use Theory, which posits that individuals turn to online environments to compensate for unmet social needs in offline contexts (Kardefelt-Winther, 2014).

The formative Social Media System construct, represented by social networking sites, online photo sharing, and online video sharing, exerted a stronger positive influence on SMD ($\beta = 0.246$), indicating that these platform-related dimensions collectively shape dependency behaviours. Features such as algorithmic personalisation, infinite scrolling, push notifications, and visually engaging content are intentionally designed to maximise user engagement and retention (Ma et al., 2023; Dong et al., 2025). This result is consistent with Media System Dependency (MSD) theory, which emphasises users' increasing reliance on media systems for orientation, entertainment, and social interaction (Zhang et al., 2019). For Generation Z, whose daily routines and identity formation are deeply embedded within digital ecosystems, such platform affordances intensify habitual use and psychological reliance.

Although both predictors exhibited small effect sizes, these findings remain meaningful within the context of behavioural and social science research. Cohen (1988) argues that small effects can have substantial practical implications, particularly when behaviours are widespread and recurrent, as is the case with social media use. The combined explanatory power of the Social System and Social Media System underscores the importance of examining SMD through an integrated systems perspective rather than attributing dependency solely to individual traits.

From a theoretical perspective, this study contributes to the existing literature by demonstrating that Social Media Dependency is a multidimensional phenomenon shaped by the interaction of both social and technological systems. While previous studies have largely examined SMD from individual perspectives, focusing on psychological characteristics such as impulsivity, self-esteem, and self-regulation, the present study shows that broader systemic influences also play a significant role in explaining dependency behaviours among Generation Z. The significant effects of the formative Social System and Social Media System constructs indicate that interpersonal relationships and platform characteristics should be considered complementary determinants of SMD rather than independent influences. By integrating these two systemic perspectives within a single empirical model, this study broadens the current understanding

of Social Media Dependency (SMD) and provides additional evidence that dependency behaviours are shaped by multiple interacting environmental factors.

Furthermore, the Sarawak context adds a unique contribution to the literature. The rapid expansion of digital infrastructure and the widespread adoption of online learning following the COVID-19 pandemic have accelerated social media usage among university students. This environmental shift may have amplified students' reliance on digital platforms for academic, social, and emotional purposes, further reinforcing dependency patterns.

Overall, the findings highlight that Social Media Dependency (SMD) among Generation Z is not merely a result of personal vulnerability but emerges from the interaction between social environments and technologically driven media systems. This integrated perspective reinforces the importance of considering both interpersonal and technological influences when examining social media dependency. The findings therefore suggest that efforts to address SMD should adopt a holistic approach that considers both supportive social environments and the influence of digital platform characteristics in shaping social media use among young adults.

6. CONCLUSION

This study investigated the systemic influences of the Social System and Social Media System on Social Media Dependency (SMD) among Generation Z university students in Sarawak. The findings confirm that both systems significantly contribute to SMD, with the Social Media System exerting a stronger influence than the Social System. These results reinforce the view that social media dependency is a multifaceted phenomenon shaped by interpersonal dynamics as well as the structural features of digital platforms.

From a practical perspective, the findings offer useful implications for educators, policymakers, mental health practitioners, and social media platform providers. Higher education institutions should integrate digital literacy programmes into student development initiatives, focusing on responsible social media use, critical evaluation of online content, digital self-regulation, privacy awareness, and effective time management. Universities are also encouraged to organise workshops and awareness campaigns that educate students about the psychological effects of excessive social media use and strategies for maintaining healthy online–offline balance.

Educators should promote meaningful face-to-face interactions through collaborative learning activities and provide opportunities for students to develop healthy interpersonal relationships beyond digital platforms. Parents should foster supportive family communication, encourage open discussions regarding online experiences, and establish healthy digital habits that reduce excessive dependence on social media.

Mental health practitioners and university counselling centres should implement preventive mental health programmes, including routine screening for problematic social media use, psychoeducation sessions, stress management workshops, peer support groups, and counselling services that strengthen emotional resilience and self-regulation among students. At the policy level, higher education authorities should incorporate digital well-being into student support policies and collaborate with technology providers to promote responsible platform use. Social media platform providers are also encouraged to introduce user-centred design features, such as screen-time reminders, usage dashboards, break

notifications, and enhanced content management tools that help users monitor and regulate their online behaviour.

Despite its contributions, this study is not without limitations. The use of a cross-sectional design limits causal inference, and the sample was confined to business students in Sarawak, which may affect generalizability. Future research could employ longitudinal designs, include students from diverse academic disciplines, and explore additional mediating or moderating variables such as self-regulation, digital literacy, or psychological resilience.

In conclusion, understanding social media dependency among Generation Z requires a holistic perspective that integrates social systems and media systems. By addressing both dimensions, stakeholders can develop more effective strategies to mitigate excessive social media use and promote digital well-being among young adults.

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8. CONFLICT OF INTEREST STATEMENT

The authors agree that this research was conducted in the absence of any self-benefits, commercial or financial conflicts, and declare the absence of conflicting interests with the funders.

9. AUTHORS' CONTRIBUTIONS

Pressca Neging led the research by formulating the core research questions, objectives, and hypothesis. She was responsible for the conceptualisation of the study. She played a central role in the writing of the original draft, organising the literature review, synthesising findings, and interpreting the results. In addition, she was responsible for the creation of data visualisations and figures that supported the theoretical and future empirical components of the study. **Prof. Dr Jati Kasuma Ali** contributed significantly to the theoretical development of the manuscript. This author also provided intellectual leadership and supervision, ensuring that the study remained aligned with the broader research agenda and adhered to academic standards. **Dr Noraini Nasirun's** role involved offering critical feedback during the writing process, as well as ensuring theoretical rigour in the construction of the proposed conceptual framework for the study. **Dr Yusman Jacob** took the lead in the design and development of the research methodology, including the selection of appropriate theoretical constructs, survey instruments, and analytical approaches. He played a key role in the design and coordination of the research process. This included overseeing the administration of the survey, managing ethical compliance, and ensuring that all resources and tools required for data collection and analysis were available. **Assoc. Prof. Dr Nelson Lajuni** contributed to the formal analysis by performing the PLS-SEM procedures, interpreting the results, and supporting the reporting of the study findings. He was actively involved in reviewing and editing the manuscript for

coherence, scholarly tone, and adherence to journal guidelines. His expertise contributed to improving the clarity and overall quality of the manuscript during the final stages of revision.

All authors discussed the results and implications of the study, and all contributed to the final approval of the version to be submitted. Each author accepts accountability for the content of the work and ensures that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

10. DECLARATION OF GENERATIVE AI IN THE WRITING PROCESS

During the preparation of this work, the author(s) used **ChatGPT (OpenAI)** for the purpose of **improving language, grammar, clarity, academic writing style, and the organisation of the manuscript**. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

11. DATA AVAILABILITY/ SUPPLEMENTARY MATERIALS

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

12. ETHICS STATEMENT

The authors declare that this research did not involve human or animal subjects. All experimental procedures were performed following the institutional Safety, Health, and Environmental (HSE) protocols of Universiti Teknologi MARA Sarawak.

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