

Attitudes and Purposes of Internet Use: Mediating Effects of Gratification and the Moderating Role of Gender

¹*Toktam Namayandeh Joorabchi

¹ Post-Doctoral, Faculty of Education, The National University of Malaysia (UKM), Malaysia
Email: T.Namayande@gmail.com

*Corresponding Author: Toktam Namayandeh Joorabchi (T.Namayande@gmail.com)

Received: 24 Oct 2025; **Revised:** 14 Nov 2025; **Accepted:** 20 July 2026; **Published:** 1 Sept 2026

Vol: 6, Issue 3 (2026)

Doi: 10.5281/zenodo.21783203

Abstract

Keyword:

Internet attitudes, gratifications of Internet use, purposes of Internet use, gender differences, Malaysia

The Internet has become a cornerstone of modern communication, transforming daily life and social interactions worldwide. Among youth, online engagement spans entertainment, education, business, and social connection. This study, grounded in Uses and Gratifications Theory (UGT), investigates how Internet gratification mediates the relationship between students' attitudes toward Internet use and their purposes for engagement, with gender as a moderator. Using structural equation modeling on data from 440 Malaysian university students, the study reveals significant mediation but no moderating effect of gender. The findings indicate that students hold predominantly positive attitudes toward Internet use, with primary purposes including academic information seeking and social networking. Cognitive and affective gratifications emerged as the most significant dimensions. The study confirms that Internet gratification significantly mediates the relationship between attitudes and purposes of use, while gender does not show a moderating effect. These results advance UGT by highlighting how gratifications bridge attitudinal and behavioral aspects of Internet use in collectivist cultural contexts. The study underscores the importance of understanding the motivational underlying youth Internet use, offering implications for digital literacy and educational interventions in Malaysia and similar societies.



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DOI 10.5281/zenodo.21783203

Introduction

The rapid evolution of communication technologies has made the Internet an integral component of both personal and social life. In Malaysia, the majority of the population accesses the Internet primarily through smartphones. By early 2025, Malaysia recorded 43.3 million active cellular mobile connections, equivalent to 121% of its total population. Concurrently, 34.9 million individuals were Internet users, representing an impressive 97.7% online penetration rate. Social media usage also remains widespread, with 25.1 million user identities in January 2025, accounting for 70.2% of the population (Kemp, 2025).

The highest concentration of Internet users falls within the 20–24 age group (34.1%), and urban areas account for 75.6% of overall Internet usage, in contrast to 24.4% in rural regions (MCMC, 2021). Social media platforms serve as essential tools for information exchange in Malaysia's fast-evolving digital landscape. As of 2023, approximately 26.8 million Malaysians engaged with social media networks, encompassing diverse demographic categories such as gender, ethnicity, religion, marital status, and age (Kemp, 2025).

From a theoretical perspective, the Uses and Gratifications Theory (UGT), initially established by Katz et al. (1973) and further developed by Ruggiero (2000), offers a foundational framework for examining media consumption behaviors and motivations (Panova & Carbonell, 2018). Central to UGT is the concept of gratification, referring to the satisfaction of users' needs when specific media fulfill their personal expectations (Katz et al., 1973). Media audiences actively select media forms that correspond with their social and psychological requirements (Mehrad & Tajer, 2016).

Although numerous studies have explored Internet use patterns and gratifications (Ali et al., 2022; Wang, 2021), few have examined the interrelationship between attitudes toward the Internet, user gratifications, and purposes of use in a single integrated model. Additionally, while gender has long been considered an influential variable in media use behavior, evidence regarding its moderating role in digital contexts remains inconclusive. Some studies have found gender differences in Internet usage motivations and gratifications (Grace-Farfaglia et al., 2005; Roy, 2009), whereas others reported no significant disparities (Wei et al., 2024). These inconsistencies suggest that gendered Internet behaviors may vary across cultural and educational settings, warranting further examination within the Malaysian context.

Recent applications of UGT include Khoa's (2020) study, which identified convenience, entertainment, socialization, and experience-sharing as primary motivations behind perceived enjoyment in online courses, and Wang's (2021) research, which applied UGT dimensions such as emotion management, information seeking, value expression, and social interaction to assess attitudes toward mainstream and alternative media consumption in China during the COVID-19 pandemic.

To address these gaps, this study investigates how students' attitudes toward the Internet relate to their purposes of Internet use and the mediating role of gratification in this relationship, while also assessing the moderating effect of gender. By integrating attitudinal, motivational, and behavioral constructs within the framework of UGT, this study aims to contribute to a more nuanced understanding of how Internet usage patterns among Malaysian university students are shaped by both psychological gratifications and sociocultural factors.

Accordingly, the study seeks to answer the following research questions:

1. What is the relationship between students' attitudes toward the Internet and their purposes of Internet use?
2. Does gratification derived from Internet use mediate the relationship between attitudes toward the Internet and purposes of use?
3. What is the relationship between gratification and attitudes toward the Internet?
4. What is the relationship between purposes of Internet use and gratification?
5. Does gender moderate the relationships among attitudes, gratification, and purposes of Internet use?

Literature Review

Purposes and Attitudes towards Internet

Previous research has highlighted varied patterns of Internet usage among Malaysian students. Saifan and Bohari (2012) reported that students predominantly use the Internet for academic-related activities,

irrespective of their ethnic background. However, contrasting findings by Soh et al. (2012) indicated that urban Chinese youth owned more personal computers, spent more time online, and accessed the Internet more frequently than their Malay and Indian peers. The digital engagement of Generation Z in Malaysia, representing around 30% of the national population, is notably intensive, with individuals averaging eight hours of daily mobile device usage and enjoying almost universal access to the Internet and smartphones (Tjiptono et al., 2020). Social media also plays a central role in digital interaction, with 78.5% of Malaysians using these platforms to maintain connections, network, and stay informed. Young adults account for nearly a quarter of these users, with over 28.6% belonging to the younger demographic segment (Meltwater, 2023).

Regarding gender dynamics in Internet usage, while earlier studies suggested disparities linked to factors such as introversion among women (Mossberger et al., 2003), more recent investigations have reported diminishing gender gaps. Abedalaziz et al. (2013) and Teo (2008) observed no significant gender differences in postgraduate students' perspectives on computer use, although men continued to demonstrate broader access and a more diverse range of online activities across age groups (Helsper, 2010; Rosen et al., 2015; Seifert et al., 2020). Notably, during the COVID-19 pandemic, women's Internet usage, particularly for entertainment, increased and approached levels traditionally associated with men (Bünning et al., 2023).

In terms of attitudes towards Internet use, Tiam (2024) found that the most commonly endorsed statement was enjoyment of the Internet for entertainment, while users least agreed that the Internet is an easily navigable and highly useful tool. Hemal et al. (2024) similarly identified that students' Internet use patterns vary across educational levels. School students primarily engage with the Internet for education and entertainment, college students favor social media and entertainment, and university students balance academic use with social networking. High-achieving students tend to frequent educational and informational platforms such as Google and YouTube, while those with lower academic performance are more inclined towards social media use, particularly on platforms like Facebook and WhatsApp. Internet activity is also most prevalent during nighttime hours.

Additionally, Ozturk et al. (2024) explored Internet use among Fine Arts students, revealing a preference for social networking, video, and photo-sharing platforms. The study found notable gender-based differences in Internet usage purposes, alongside a significant relationship between creative personality traits and the motivations behind Internet use. Participants reported engaging with the Internet for a range of reasons, including social media interaction, academic collaboration, online shopping, and personal development, opinion expression, technological adaptation, communication problem-solving, and information retrieval, often preferring online interaction to face-to-face encounters.

Attitudes are defined as an individual's positive or negative evaluation of a particular subject, shaped through learning processes and influenced by continuous interaction with environmental stimuli and prevailing social norms (Binder & Niederle, 2007). According to Azwar (2014), the formation of attitudes is driven by multiple factors, including personal experiences, influential individuals, cultural contexts, mass media, educational and religious institutions, and emotional conditions. Both external factors—such as reference groups, familial influence, and interpersonal relationships—and internal factors—like personal experiences and individual beliefs—play critical roles in shaping one's attitudes. In the context of education, Ünlü (2017) argued that social media has become increasingly relevant as both a communication and instructional tool within academic environments. While widely adopted by students and recognized by educators for its potential advantages, challenges persist regarding its integration in formal educational settings. Issues such as the informal character of social media and differing attitudes about its appropriateness for lecturer-student interactions remain barriers to its broader educational application.

Examining attitudes towards Internet use, Morse et al. (2011) categorized these attitudes into dimensions of general enjoyment, negative perceptions, and task facilitation. Building on this framework, Des Armier and Bolliger (2019) applied the model to graduate students in the United States, finding that students with moderately positive attitudes toward the Internet experienced greater feelings of social connection. Furthermore, Van Deursen et al. (2021) identified positive correlations between higher education levels, increased income, and favorable attitudes toward Internet use, suggesting that such attitudes are associated with improved digital skills and competencies.

Uses and gratification Theory

The Uses and Gratifications (U&G) theory offers a framework for understanding the motivations behind individuals' use of entertainment media, the purposes it serves, and the satisfaction derived from such usage (Katz et al., 1973). According to this theory, media audiences actively select and engage with media content based on personal preferences and specific needs (Lee & Ma, 2012). U&G theory has been widely adopted by researchers to distinguish between the varied motivations and gratifications sought from both traditional and contemporary media platforms (Gan & Li, 2018). Its adaptable nature allows it to be applied across a range of user activities, motivations, and media consumption patterns (Luo & Remus, 2014). Furthermore, U&G enables the exploration of media experiences in relation to psychological needs, satisfaction, and communication behavior across different cultural contexts (Chigona et al., 2008); with social media being a prominent focus due to its pervasive use.

Gratifications derived from media consumption are generally categorized into four primary dimensions: content, process, social, and technological (Li et al., 2015). The outcomes of these gratifications can shape user behaviors positively or negatively, making it essential for families, policymakers, and community leaders to channel these influences constructively, particularly among youth.

U&G theory has informed a wide range of research areas. For instance, Lim and Kumar (2019) demonstrated that online social networking platforms enhance brand attachment, while Ray et al. (2019) examined gratifications associated with food delivery applications. Similarly, Gentina and Rowe (2020) explored the relationship between materialism and smartphone dependency, and Can et al. (2019) investigated university educators' integration of Web 2.0 tools into teaching practices.

Huang et al. (2020) compared identity formation processes among online users in China and Malaysia. Additionally, Ratcliff et al. (2017) studied the influence of attitudes toward technology and social media on religious practices, while Brubaker and Haigh (2017) explored the motivations driving Christian users to engage with religious content on Facebook. In recent work, Liu and Zheng (2024) emphasized how persuasive and engaging social media advertising increases user curiosity and openness to new services. Research further indicates that the ways in which individuals use social media and the gratifications they obtain from it significantly affect their continued use intentions (Yen et al., 2019), online purchasing behaviors (Aluri et al., 2016), reasons for use, and overall engagement patterns (Gan, 2017). Social media users pursue a diverse range of gratifications, including entertainment, relaxation, social interaction, information seeking, online self-expression, emotional support, escapism, and romantic pursuits (Dhir & Tsai, 2017).

Dhir et al. (2016) further extended their research on the relationship between Internet usage and gratifications by focusing specifically on adolescents aged 12 to 18. Their findings indicated that male adolescents prioritized social gratifications, particularly for networking and coordinating activities, whereas female adolescents were more inclined toward content-related gratifications, such as information seeking and, notably, exhibited a higher susceptibility to Internet addiction. Additionally, the study revealed that individuals with personal computers expressed a stronger preference for social and recreational gratifications compared to those without. Similarly, users with private home Internet connections demonstrated a greater inclination to seek high-quality information, process-related

benefits, and social gratifications than their counterparts without such access.

Ali et al. (2022) identified four principal motivations for Internet usage: cognitive motivations, which involve acquiring knowledge and information; affective motivations, driven by the pursuit of pleasure and emotional satisfaction; interactive motivations, associated with managing personal emotions; and social interaction motivations, pertaining to communication with family, friends, and acquaintances.

Existing research on Internet usage, Uses and Gratifications (U&G) theory, and gender-based differences has consistently demonstrated significant distinctions. Grace-Farfaglia et al. (2005) found that men and women differed in their motivations for Internet use, particularly regarding social gratifications, information-seeking needs, and perceptions of self-efficacy. Similarly, Roy (2009) reported significant gender differences in gratifications related to self-development, user-friendliness, broad exposure, and relaxation, a conclusion also supported by Lee and Wui (2013). In line with this, Opeyemi et al. (2018) determined that social gratification achieved the highest mean score among Internet users, followed by process and content gratifications, underscoring the dominant role of social motives in driving Internet engagement.

Grounded in the Uses and Gratifications theory—which posits that media users are proactive, purposive, and guided by their social and psychological needs met through media consumption—this study aims to examine the relationship between gratifications derived from Internet use, user attitudes, and purposes of Internet usage, while considering the moderating role of gender. The conceptual framework guiding this research is illustrated in **Figure 1**.

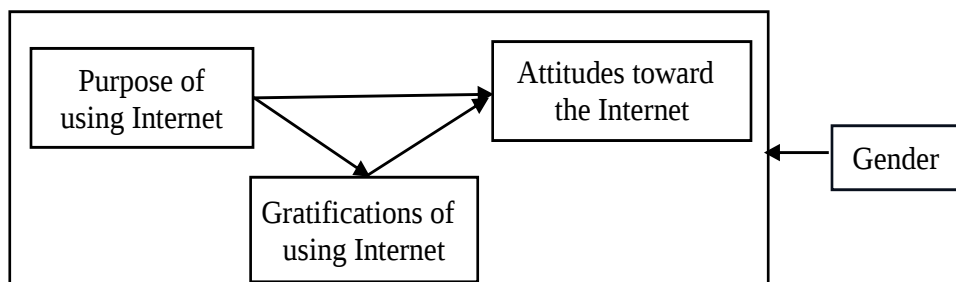


Figure 1: the mediation effects of gratification of using Internet on IVs and DVs

Methodology

Research Design

This study adopted a quantitative, cross-sectional survey design to examine the interrelationships among students' attitudes toward the Internet, their purposes of Internet use, and the gratifications derived from such use. The study also assessed the mediating effect of Internet gratification and the moderating role of gender within the framework of the Uses and Gratifications Theory (UGT). This design was chosen for its ability to test theoretically grounded causal pathways and to quantify the strength of associations among latent constructs using structural equation modeling (PLS-SEM).

Population and Sampling Procedure

The study population consisted of undergraduate and postgraduate students enrolled in various faculties at Universiti Putra Malaysia (UPM). A total of 440 students were selected through a stratified random sampling method to ensure proportional representation across the university's 15 faculties. Stratification was based on both academic level (Bachelor's, Master's, PhD) and faculty size to minimize sampling bias.

Participants were selected employing the stratified sampling method, a variant of probability sampling, utilizing the formula posited by Israel (1992), $n = \frac{N}{1 + N(e)^2}$, where n =Sample size, N =Population (comprising both postgraduate and undergraduate students), and e =Precision level (with a confidence level of 95% or 0.05). Students from all 15 faculties of Universiti Putra Malaysia (UPM) engaged in this study, thus facilitating the collection of data from 440 students.

The sample size allocated for each faculty was ascertained by dividing the student population of each specific faculty by the total population and subsequently multiplying by 440. For example, in the case of the Faculty of Agriculture, the calculations were performed for both undergraduate ($n = \frac{\text{Undergraduate Population}}{\text{Population of faculty}} * 440$) and postgraduate students, ($\frac{\text{Postgraduate Population}}{\text{Population of faculty}} * 440$), leading to the summation of these two figures, which yielded the total number of questionnaires that needed to be completed within the Faculty of Agriculture.

A pilot test was conducted among 30 students to validate the questionnaire for clarity, reliability, and cultural appropriateness. Feedback from the pilot phase informed minor linguistic adjustments and ensured content validity.

This study adhered to stringent ethical standards to protect participant confidentiality and autonomy. All questionnaires were conducted anonymously to safeguard respondents' identities. Participation was entirely voluntary, and individuals retained the right to withdraw from the study at any time without facing any consequences. These measures ensured that informed consent was obtained and that participants' autonomy was respected throughout the research process.

Participants

The final sample comprised 440 valid responses. Participants represented Malaysia's three major ethnic groups—Malay, Chinese, and Indian and ranged in age from 18 to 40 years, consistent with Malaysia's official youth classification (UNICEF, 2018). Of these, 67.7% were female and 32.3% were male, with most respondents (78.3%) between 18 and 23 years old. All participants were active Internet users enrolled in higher education programs, making them suitable representatives of digitally engaged Malaysian youth.

Participation was voluntary, and respondents were informed of their right to withdraw at any point without penalty. No personal identifiers were collected to ensure anonymity and confidentiality.

Measures

Undergraduate and postgraduate students were invited to participate in an abbreviated version of the Gratification of Internet Usage survey, which assessed Internet usage purposes, user attitudes, and the gratifications derived from Internet use. Demographic information, including gender and age, was also collected.

The study employed a comprehensive set of measures for both independent and dependent variables, comprising a total of 66 items. Internet usage purposes were assessed through 23 items, with responses recorded on a five-point frequency scale ranging from 1 = "Not at all" to 5 = "Very Frequent." Total scores for this section ranged from 23 to 115, with higher scores indicating greater frequency of Internet use for various purposes. This construct was treated as an interval-level measurement.

Attitudes toward the Internet were measured using 19 items rated on a five-point Likert scale, where 1 = "Strongly Disagree" and 5 = "Strongly Agree." Respondents indicated their level of agreement with various statements reflecting both positive and negative perceptions of Internet use, including beliefs such as "the Internet offers endless freedom," "it is the fastest way to acquire knowledge," and concerns over issues like "creating addiction." Scores for this dimension ranged from 19 to 95, with higher scores representing more favorable attitudes toward Internet use. This scale was also operationalized as an interval measurement.

Gratifications derived from Internet use were captured through 23 items distributed across five primary dimensions: cognitive (6 items), personal integration (5 items), escape (4 items), social integration (4 items), and affective (4 items). Participants rated their responses on a five-point Likert scale, ranging from "Strongly Disagree" (1) to "Strongly Agree" (5). For analytical purposes, responses were coded numerically from 1 to 5.

Finally, demographic variables included two items capturing participants' age and gender. All scales demonstrated satisfactory internal consistency in the pilot test (Cronbach's $\alpha > .70$ for all constructs), confirming their reliability for main data collection.

Data Analysis

Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS software. The analysis proceeded in two main stages: 1) **Measurement Model Assessment**, evaluated reliability and validity of constructs through Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE). Items with factor loadings below 0.6 were removed to improve model fit. Discriminant validity was tested using the Heterotrait-Monotrait ratio (HTMT). 2) **Structural Model Assessment**, examined hypothesized relationships among constructs using bootstrapping (5,000 resamples) to estimate path coefficients, *t*-values, and significance levels. The mediation effect of gratification and the moderating effect of gender were analyzed within the SEM framework. Model quality was evaluated using R^2 , f^2 , and Q^2 values, along with fit indices such as SRMR and NFI, following the recommendations of Hair et al. (2019).

Findings

Descriptive Statistics

The sample comprised 440 students from the University Putra Malaysia (UPM), representing a diverse ethnic composition (Malay, Chinese, Indian) and varying academic levels (Bachelor's, Master's, PhD). The analysis of the descriptive statistics revealed significant patterns in Internet usage, attitudes, and gratification levels across the sample.

Internet Gratifications

The study found that the cognitive dimension had the highest mean ($M=4.18$), with "to get information about something" scoring the highest ($M=4.38$, $SD=0.70$). In the affective dimension, "because it's entertaining" had the highest mean ($M=4.12$, $SD=0.76$). The personal integration dimension's highest mean was for "I can do things in my own space" ($M=4.09$, $SD=0.80$). In the escape dimension, "To relax and unwind" had the highest mean ($M=4.21$, $SD=0.74$). In the social integration dimension, "to keep in touch with people" had the highest mean ($M=4.15$, $SD=0.73$) (Table 1). This pattern reinforces the instrumental function of Internet use in a university context, where online resources substitute for or complement traditional learning environments.

The affective and escape dimensions also exhibited high mean values ($M = 3.78$ and $M = 3.91$, respectively), implying that Internet use is not merely functional but also emotionally compensatory. The Internet serves as a tool for relaxation "to relax and unwind" and emotional regulation, confirming UGT's assertion that media consumption simultaneously addresses both utilitarian and hedonic needs. The personal integration ($M = 3.61$) and social integration ($M = 3.79$) gratifications, though slightly lower, highlight the Internet's role in promoting self-expression and maintaining interpersonal connections, echoing prior findings (Dhir & Tsai, 2017) (Table 1).

The cognitive facet of Internet utilization satisfaction garnered the highest mean score, notably highlighting the inclination towards seeking diverse information. The outcomes underscore a prevailing positive outlook regarding the Internet's influence on individuals, accentuating its pivotal role in facilitating research and educational endeavors. These findings resonate with earlier research, corroborating a favorable disposition among students towards Internet engagement as documented by Akbaba (2001), Becker and Maunsaayat (2002), Joiner et al. (2007), Luan et al. (2008), Chou et al. (2010). Furthermore, congruence is observed with the works of Karlis (2013) and the Malaysian Communications and Multimedia Commission (MCMC) (2017), where Karlis identified youth utilizing social media for entertainment and information acquisition, while MCMC highlighted the Internet's significance as a primary source of information and entertainment for the majority of users.

Table 1: Distribution of respondents according to gratification Internet usage (n=440)

Variables	Mean	SD
Cognitive		
To obtain information about something	4.38	0.70
Help me with my research	4.34	0.72
Because it is easy to obtain the information, I need	4.27	0.71
To learn new things	4.24	0.66
It is more convenient than going to the library	3.96	1.08
To keep up to date on popular sites	3.90	0.89
Overall mean	4.18	
Affective		
Because it is entertaining	4.12	0.76
Because it is exciting	4.00	0.80
Because it is stimulating	3.62	0.78
To role play or experiment with my identity	3.41	0.99
Overall mean	3.78	
Personal Integration		
I can do things in my own space	4.09	0.80
Because I can do whatever I want	3.74	0.90
To put off doing something I should be doing	3.57	0.94
Because I feel more in control	3.36	0.84
Because I can act however, I want	3.32	1.02
Overall mean	3.61	
Escape		
To relax and unwind	4.21	0.74
Because it makes me feel less tense	4.00	0.83
Because it is a pleasant break from my routine	3.95	0.81
To get away from pressure and responsibilities	3.49	1.08
Overall mean	3.91	
Social Integration		
To keep in touch with people	4.15	0.73
Because I can talk with different people	3.79	0.92
Because it is a distraction from loneliness	3.72	0.95
Because I need to talk to someone	3.51	0.99
Overall mean	3.79	

Attitudes Toward Internet Use

The prevailing sentiment regarding to the attitudes of Internet usage was “Internet is the fastest way to research knowledge” (M= 4.45, SD=0.77), closely trailed by the perception of the Internet as a universal library (M= 4.40, SD= 0.81). These findings reflect strong cognitive-evaluative approval of the Internet’s role in education and everyday life. These findings demonstrate that positive attitudes are rooted in perceptions of efficiency and access rather than novelty or entertainment. Conversely, low scores for items such as “The Internet makes people feel alone” (M = 3.01) indicate that participants largely reject the isolation hypothesis, viewing online interactions as extensions of social engagement rather than replacements for real-world communication.

Moreover, noteworthy opinions conveyed included the notions that the Internet serves as a platform for facilitating educational endeavors, engenders excitement through the dissemination of information, and confers boundless autonomy to individuals. Conversely, the assertion that the Internet induces solitude garnered the lowest mean score (M= 3.01, SD= 1.09), with a marginally higher mean attributed to the concept that the Internet is detrimental to societal cohesion (M= 3.05, SD= 0.97) (Table 2).

Given the overwhelming prevalence of affirmative sentiments regarding Internet utilization, as indicated by the elevated mean scores, it is reasonable to deduce that respondents display a favorable inclination toward the transformative impact of the Internet on societal dynamics. Tiam (2024) corroborates these findings. Additionally, a considerable segment of students exhibited a positive orientation within the domain of attitudes. The conclusions drawn from this study align with prior research findings indicating a prevalent optimistic outlook among students regarding Internet utilization Akbaba (2001), Becker and Maunsaiyat (2002), Joiner et al., (2007), Luan et al., (2008), Chou et al., (2010), Ünlü (2017), Warschauer (2014) and Safdar et al., (2010).

Table 2: Distribution of respondents according to attitudes toward Internet usage (n=440)

Attitude	Mean	SD
The Internet is the fastest way to obtain knowledge	4.45	0.78
The Internet is a universal library	4.40	0.82
The Internet is a way to provide learning for people in order to research	4.29	0.76
It is exciting to obtain information about the Internet	4.20	0.79
The Internet provides endless freedom to people	4.19	0.84
The Internet can be an effective training tool	4.05	0.76
Internet creates addiction	4.05	0.92
The Internet is vital for enhancing the exchange of cultures	4.04	0.79
The Internet has created a tendency for people to acquire prepared knowledge	4.02	0.76
There should be no nervousness while shopping on the Internet	3.61	0.93
The Internet causes users to be far away from real life	3.60	1.03
The Internet includes unnecessary, non-useful knowledge	3.54	1.10
The Internet is a digital place that creates close relationships among societies	3.53	0.80
Having a friend on the Internet is temporary	3.52	0.94
It is unsafe to shop on the Internet	3.33	0.93
Chatting on the Internet prevents people from socializing	3.33	1.05
The Internet creates a cultural dilemma	3.25	0.83
The Internet destroys societies	3.08	0.98
The Internet makes people feel alone	3.01	1.09

Internet Usage Purposes

In terms of the objectives underpinning Internet usage among respondents, the activity of "Checking my Facebook" garnered the highest mean score ($M=4.50$, $SD=0.87$), succeeded by the pursuit of "Finding information relevant to research" ($M=4.22$, $SD=0.82$), whereas engagement in "E-commerce (Shopping)" registered the lowest mean score ($M=2.36$, $SD=1.20$). This pattern suggests that Malaysian university students use the Internet as a psychosocial space—not only to acquire knowledge but to maintain social presence and identity. It also implies that social gratifications reinforce cognitive ones, as students often integrate information-seeking with social interaction (e.g., academic group chats, online collaborations). Notably, these findings mirror the outcomes of earlier studies conducted by Asemi (2005), Chou (2010), José-Marie and Donald (2008), Hemal et al. (2024), Ünlü (2017), Saifan and Bohari (2012), Tjiptono et al.'s (2020), Lau and Sim (2008) (Table 3).

Table 3: Distribution of respondents according to purposes of Internet usage (n=440)

Variables	Mean	SD
Checking my Face book	4.50	0.87
Finding information relevant to research	4.22	0.82
Sending and receiving E-mail	4.21	0.87
Download the music and other things	4.17	0.95
Listening to the music	4.07	0.98
Finding news	4.05	0.85
Finding the entertainment information	4.01	0.93
Watching episodes in YouTube	3.89	1.15
Chat and instant message (IM)	3.86	0.99

Getting data bases	3.72	0.96
Finding information about my hobbies	3.68	0.99
Research in digital library	3.67	0.98
Finding medical or health related information	3.50	1.04
Meeting people	3.39	1.13
Checking advertisement and product information	3.32	1.14
Read journals via the Internet (E-journals)	3.23	1.15
Internet banking	2.94	1.38
Arrange the traveling such as buying online ticket and hotel reservation	2.90	1.37
Use Internet for political news	2.87	1.33
Read books via the Internet (E-book)	2.77	1.11
Check weather reports and forecasts	2.69	1.21
Checking my Twitter (X)	2.42	1.58
Shopping (E-commerce)	2.36	1.20

Measurement Model

The measurement model necessitates the establishment of guidelines that elucidate the manner in which latent variables are quantified through the observed variables, while concurrently delineating the measurement characteristics of the observed variables.

Convergent Validity

The convergent validity of the measurement is usually ascertained by examining the loadings, average variance extracted (AVE) and also the composite reliability (Rahman et al., 2015). The composite reliabilities were all higher than 0.6 and the AVE of all constructs were also higher than 0.5.

Table 4 shows the outer loadings of all items for all variables in the initial and modified measurement model. According to these results, all outer loadings are accepted except the following items: in attitudes towards Internet, attitude, attitudes 8, 9, 11 to 19, for purpose of using Internet 1, 2, 3, 5, 8, 10, 12 to 23. Regarding to the gratification of using Internet, gratification 1, 2, 3, 4, 7 to 14, 17, 20 were eliminated from the initial measurement model due to low loading factor which were less than 0.6 confirming their low contribution to the related constructs. Regarding the findings of this study, the Composite Reliability (CR) ranged between 0.81 and 0.91 and AVE ranged between 0.51 and 0.53. In addition, to measure collinearity at the indicator level, the variance inflation factor (VIF) was used. Results indicated that all values are below 5 revealing that there is no collinearity issue (Table 4).

Table 4: The result of Convergent Validity

Construct	Factor Loading (>0.5)	Cronbach's Alpha (>0.7)	Composite Reliability	Average Variance Extracted (AVE) (>0.5)	Collinearity Statistics (VIF)
Attitudes towards using Internet		0.88	0.91	0.53	
Attitudes1	0.726				1.88
Attitudes10	0.698				1.62
Attitudes2	0.791				2.31
Attitudes3	0.723				1.81
Attitudes4	0.73				1.88
Attitudes5	0.712				1.78
Attitudes6	0.786				2.09
Attitudes7	0.778				1.99
Gratification of using Internet		0.88	0.91	0.52	
Grat15	0.706				1.88
Grat16	0.706				1.69
Grat18	0.736				1.96
Grat19	0.676				1.63

Grat21	0.756				2.02
Grat22	0.737				1.99
Grat23	0.797				2.35
Grat5	0.702				1.73
Grat6	0.722				1.87
Purpose of using Internet		0.71	0.81	0.51	
Purpose1	0.697				1.23
Purpose4	0.641				1.30
Purpose6	0.726				1.49
Purpose7	0.721				1.36
Purpose9	0.601				1.26

Discriminant Validity

Discriminant validity demonstrates the extent to which a construct is empirically distinct from another construct. Regarding the assessment of the discriminant validity of this model, the value of the Heterotrait-Monotrait ratio of correlations (HTMT) is 0.44, which is lower than 0.90 (Henseler et al., 2015) or 0.80 (Hair et al., 2019). The results revealed that discriminant validity has been ascertained (Table 5).

Table 5: Discriminant validity for all variables

	1	2	3
Attitudes towards using Internet	0.744		
Gratification of using Internet	0.465	0.727	
Purposes of using Internet	0.448	0.548	0.678

1) Attitudes towards using Internet 2) Gratification of using Internet
3) Purpose of using Internet

Path model using bootstrap

RQ1. What is the relationship between students' attitudes toward the Internet and their purposes of Internet use? RQ3. What is the relationship between gratification and attitudes toward the Internet? RQ4. What is the relationship between purposes of Internet use and gratification?

The structural equation model (SEM) validated the hypothesized relationships (Figure 2). The purposes of Internet use had a significant and positive impact on attitudes toward the Internet ($\beta=0.27$, $p<0.05$), suggesting that more goal-directed and meaningful Internet engagement fosters more favorable attitudes toward the medium. This supports UGT's premise that media behavior shapes user attitudes through need satisfaction.

Similarly, Internet gratification exerted a significant effect on attitudes ($\beta=0.32$, $p<0.05$). This finding implies that students' emotional and cognitive satisfaction derived from Internet activities strengthens their positive evaluations of online environments. In other words, gratification is not only an outcome of Internet use but also a reinforcing feedback mechanism that sustains favorable attitudes and future engagement intentions.

The relationship between purposes of use and gratification was the strongest ($\beta=0.55$, $p<0.05$), emphasizing that well-defined intentions (e.g., learning, communication) are powerful predictors of satisfaction. This confirms that when users approach the Internet with clear objectives, their perceived gratification is higher, supporting the instrumental component of UGT.

RQ2. Does gratification derived from Internet use mediate the relationship between attitudes toward the Internet and purposes of use?

The mediation analysis revealed that Internet gratification significantly mediates the link between attitudes and purposes of use ($\beta=0.178$, $t=3.40$, $p<0.001$). This partial mediation demonstrates that positive attitudes alone are insufficient to predict purposeful Internet use—rather, it is the gratification process that translates cognitive orientations into behavioral outcomes. Thus, gratification acts as a psychological mechanism bridging what users believe about the Internet and how they actually use it. This finding extends UGT by clarifying the intermediary

role of user satisfaction in shaping online engagement among collectivist youth populations (Figure 2).

Effect Size f^2

The alteration in the R^2 value consequent to the exclusion of a specific independent construct from the model serves as a metric to ascertain whether the omitted construct exerted a fundamental influence on the dependent construct. This evaluation quantifies indicators of the f^2 or effect size. The recommended criteria for evaluating effect size are: $f^2 \geq 0.02$, $f^2 \geq 0.15$, and $f^2 \geq 0.35$ respectively, which correspond to small, medium, and large effect sizes of exogenous constructs (Cohen, 1988). The findings pertaining to f^2 elucidated that the effect size for the exogenous construct related to Internet gratification demonstrated an effect size for attitudes towards Internet usage ($f^2=0.094$), for the purpose of utilizing the Internet and attitudes towards Internet ($f^2=0.07$), and for the purpose and gratification of Internet use ($f^2=0.043$), all indicating a small effect size.

Explained Variance and Predictive Validity

The R^2 values indicated that 30% of the variance in Internet gratification and 26% in attitudes were explained by the model, signifying moderate predictive strength. The Q^2 values (1.40 for gratification and 1.47 for attitudes) further confirmed predictive relevance. This implies that students' gratifications and attitudes can be reliably predicted based on their Internet usage purposes and underlying motivations—validating the integrated attitudinal–motivational–behavioral framework proposed in this study (Table 6).

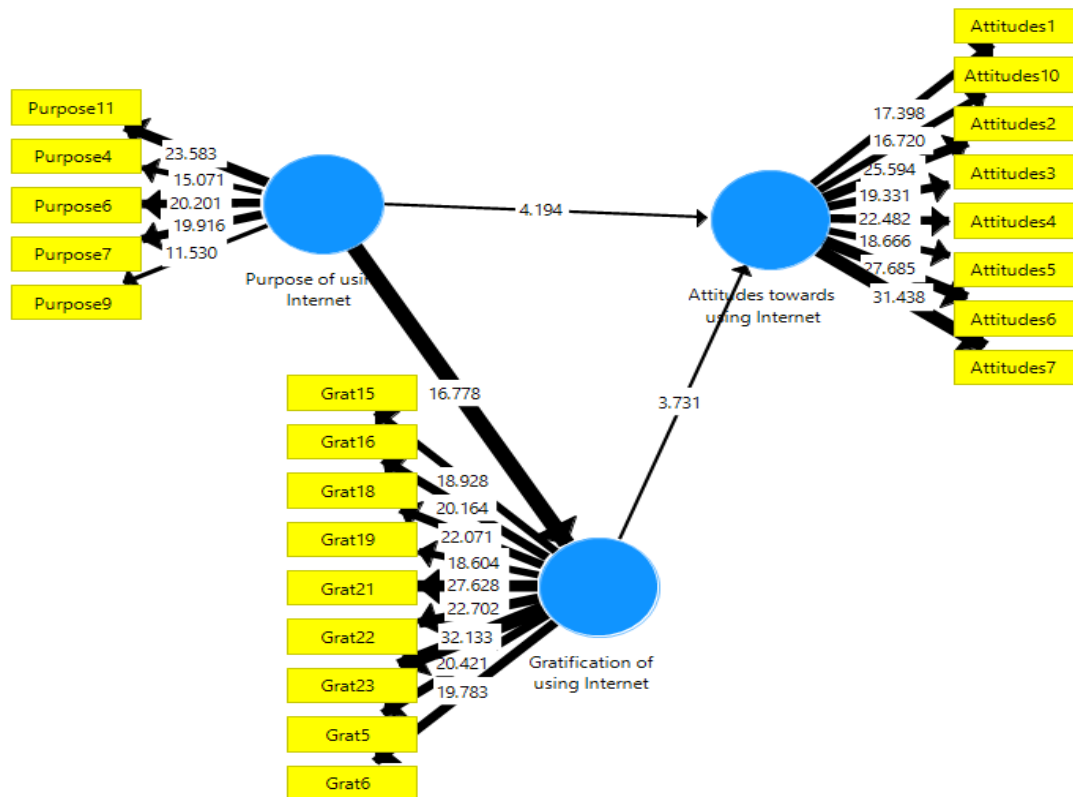


Figure 1: The mediation effects of gratification of using Internet with purpose of using Internet and attitude towards using Internet

RQ5. Does gender moderate the relationships among attitudes, gratification, and purposes of Internet use?

Multiple group analysis for Gender

Contrary to some prior studies (Grace-Farfaglia et al., 2005), gender did not significantly moderate any of the hypothesized paths ($p > 0.05$). This non-significance suggests that Internet gratifications and usage patterns are becoming increasingly gender-neutral, possibly due to Malaysia's high digital inclusion and universal smartphone access. The absence of gender effects aligns with recent scholarship (Bünning et al., 2023) highlighting digital convergence across genders in online education and entertainment (Table 6).

Table 6: Multi-Group Analysis

Gender	Difference (Female-Male)	p-value
Gratification of using Internet -> Attitudes towards using Internet	0.123	0.244
Purposes of using Internet -> Attitudes towards using Internet	0.025	0.581
Purposes of using Internet -> Gratification of using Internet	0.015	0.595

Discussion

The study's results also confirmed that purposes of use are critical in shaping attitudes toward the Internet. Specifically, academic purposes and social networking were identified as the most frequent reasons for Internet engagement, suggesting that students prioritize the Internet as both an educational tool and a social connector. This finding supports UGT's proposition that media users' motivations—especially when goal-directed—lead to positive evaluations of the media (Ruggiero, 2000).

When individuals engage with the Internet for personally relevant, goal-driven, or socially significant purposes—such as sustaining interpersonal connections, acquiring knowledge, seeking entertainment, or fulfilling academic obligations—their evaluations of and attitudes toward the medium tend to become more positive. The utilitarian value and psychological gratifications derived from these purposeful interactions foster the development of favorable attitudes. Moreover, in increasingly digitized societies where Internet use permeates both personal and professional spheres, the congruence between users' intended purposes and the gratifications they obtain further strengthens positive perceptions of the medium.

Interestingly, the study revealed that students' positive attitudes toward the Internet were primarily driven by their academic motivations rather than social or recreational ones. The high means for “The Internet is the fastest way to obtain knowledge” and “The Internet is a universal library” further underscore this finding. This reinforces the view that in university contexts, the academic function of the Internet is perceived as its most valuable role, aligning with studies that emphasize the informational benefits of digital media (Robinson, 2012). Moreover, the low mean score for the statement “The Internet makes people feel alone” suggests that, for these students, the Internet is viewed more as a social facilitator than an isolating force, contradicting traditional views of Internet use as a potential cause of social alienation (Bünning et al., 2023).

Consequently, the substantial impact of Internet usage purposes on attitudes emphasizes the pivotal role of functional motivations in shaping individuals' engagement with digital media. It underscores the notion that purposeful, meaningful, and need-driven Internet use not only influences user satisfaction but also directly informs how individuals perceive, evaluate, and respond to the medium.

Additionally, the study demonstrated that gratification derived from Internet use exerted a 32% influence on individuals' attitudes toward the medium. This finding coheres with the foundational assumptions of Uses and Gratification Theory (UGT), which posits that audiences actively engage with media based on its capacity to fulfill specific personal and social needs. When users consistently experience meaningful gratifications—whether through entertainment, information seeking, social interaction, or escapism—the positive outcomes of these engagements foster more favorable attitudes toward the Internet.

In essence, the extent to which the Internet effectively addresses users' psychological and social needs directly shapes their perceptions and evaluations of the medium. In the context of today's highly digitized, multifunctional online environments, the gratifications users obtain from diverse Internet activities play a decisive role in influencing both their cognitive and affective orientations toward digital platforms. This pronounced effect underscores the motivational strength of media gratifications in cultivating positive attitudes, reaffirming that the satisfaction users derive from their Internet experiences constitutes a critical factor in the formation and reinforcement of their attitudes toward digital technologies.

A crucial contribution of this study is its demonstration that Internet gratification plays a mediating role in the relationship between attitudes and purposes of Internet use. This finding extends UGT by incorporating the

psychological mechanism of gratification into the attitudinal and behavioral framework. Specifically, the results indicate that gratification not only reinforces positive attitudes but also facilitates purposeful engagement. Students who find greater gratification—whether cognitive, emotional, or social—tend to exhibit more positive attitudes and are more likely to engage in goal-driven online activities.

This mediating effect confirms that gratification is not merely a byproduct of Internet use but rather a critical driver that influences future behavior. It implies that positive feedback loops exist where initial attitudinal dispositions (e.g., positive evaluations of the Internet) are reinforced by gratifying experiences, which in turn motivate further engagement with the medium. This insight highlights the interactive and reinforcing nature of gratification, where positive reinforcement results in deeper media engagement over time.

The study found that the purpose behind Internet use accounted for 55% of the variance in users' gratification from using the Internet. This outcome aligns with the Uses and Gratification Theory (UGT), which suggests that media consumption is driven by specific goals and that the satisfaction users derive is closely linked to their motivations. When individuals access the Internet with well-defined objectives—such as seeking information, entertainment, completing academic tasks, or maintaining social connections—they are more likely to achieve gratifications that correspond to these purposes. The clearer and more focused the intention, the greater the likelihood of a gratifying experience, as users' expectations are more effectively met. Furthermore, the Internet's multifunctionality enables it to cater to a wide range of needs, enhancing its ability to deliver tailored experiences. As a result, the strong predictive relationship identified in this research underscores that user gratifications are systematically shaped by the intentions driving their media engagement, rather than occurring by chance.

This study determined that gender had no significant effect on Internet usage, a finding that contrasts with previous research in related areas such as food delivery applications (Lim & Kumar, 2019), smartphone dependency (Dhir et al., 2016; Gentina & Rowe, 2020; Ozturk & Ozturk, 2024), different Internet use purposes (Grace-Farfaglia et al., 2005), and Internet use gratification (Brubaker & Haigh, 2017). However, this result is consistent with the conclusions of Abedalaziz et al. (2013), Bünning et al. (2023) and Teo (2008), who similarly found no gender-based differences in Internet use patterns. A plausible explanation for this outcome lies in the ongoing digital integration of modern societies, where Internet access and usage behaviors have become routine and widespread across genders.

The fundamental gratifications obtained from Internet use—such as entertainment, information-seeking, social interaction, escapism, and personal expression—are rooted in universal human needs that transcend gender distinctions. According to Uses and Gratification Theory (UGT) (Katz & Blumler, 1974), these underlying needs are not inherently gendered, which may explain the absence of significant differences in how males and females experience gratification through Internet use, and how these experiences shape their attitudes and usage purposes. Additionally, within youth-centered and educational environments like universities, male and female students typically have equal access to digital resources, leading to comparable patterns of Internet usage for academic, social, and leisure-related activities, thereby reducing the likelihood of observable gender disparities.

Furthermore, the finding that gender had no significant effect on gratification or attitudes toward the Internet may suggest that internet behaviors are more culturally shaped than gendered in a Malaysian context, where societal collectivism and educational goals dominate young people's media use. Digital equality in educational settings could be further contributing to the convergence of male and female Internet behaviors.

A key finding is that cognitive and affective gratifications were the most prominent motivations for Internet use, with students particularly valuing the Internet for information seeking and emotional satisfaction. This aligns with previous studies highlighting the instrumental and hedonic functions of media (Dhir & Tsai, 2017). The high endorsement of statements like “to obtain information about something” and “to help with research” indicates that academic and informational needs drive a significant portion of Internet usage among university students. These findings resonate with UGT's assertion that media use is goal-directed, where individuals actively seek out media that fulfill their specific psychological needs (Katz et al., 1973).

Moreover, the strong impact of affective gratifications (e.g., "because it is entertaining") suggests that emotional fulfillment plays a significant role in students' online activities. This finding reflects the dual nature of Internet use among young adults, where functional academic goals and emotional satisfaction often coexist (Panova & Carbonell, 2018). The fact that both cognitive and affective gratifications ranked highest aligns with the integrated

model of media engagement proposed by Dhir et al. (2017), where users balance both utility-driven and pleasure-driven consumption.

Conclusion

Uses and Gratification Theory (UGT) offers a valuable framework for understanding Internet usage among Malaysian students by emphasizing their active role in selecting online media to fulfill distinct personal needs. These needs encompass cognitive gratifications (such as information-seeking), affective gratifications (emotional satisfaction), personal integrative functions (enhancing self-esteem and reinforcing identity), social integrative needs (fostering interaction and a sense of belonging), and tension release (escapism). Malaysian students address these needs through a variety of online activities, including academic research, engagement with social media, online gaming, and streaming entertainment content. Platforms like Instagram and TikTok are particularly favored for satisfying social and personal integrative gratifications.

Despite the absence of gender moderation in the relationships examined, the study points to the increasing digital convergence across genders, likely driven by universal access to digital technologies in Malaysia. This finding is significant in light of global trends toward more gender-neutral online behaviors, particularly among youth.

The implications for digital literacy are profound. Given that academic motivations and cognitive gratifications play a central role in Internet engagement, educational interventions should prioritize helping students navigate digital resources effectively for academic purposes, while also fostering awareness of the psychological and social impacts of online behaviors. Promoting digital literacy that encompasses both functional (research, information-seeking) and emotional (entertainment, relaxation) uses of the Internet will be crucial in supporting balanced and purposeful Internet use.

By integrating attitudes, gratifications, and purposes within a unified UGT model, this study contributes to refining UGT's explanatory power in collectivist societies, where cultural values shape motivational media engagement differently than in Western contexts.

Moreover, students' attitudes toward Internet use play a crucial role in shaping their patterns of online engagement. These attitudes determine whether students regard the Internet primarily as an academic resource or as a medium for distraction and escapism. Within the Malaysian socio-cultural setting where values of collectivism and community are emphasized, such cultural orientations further influence students' perceptions of, and behaviors within, digital environments, affecting both the gratifications they seek and the meanings they attach to their virtual interactions.

Limitations and Future Research

Despite its contributions, this study has some limitations. The cross-sectional design limits the ability to draw causal inferences over time. Future research should consider longitudinal designs to examine the dynamic evolution of Internet use and gratifications. Future research should investigate the shifting patterns of Internet usage and gratification-seeking behaviors among Malaysian students, especially in light of the growing influence of emerging digital platforms and AI-driven media environments. Comparative studies examining how Internet usage motivations and gratifications vary across demographic factors—such as gender, ethnicity, academic discipline, and the urban-rural divide—would provide valuable insights into the socio-cultural dynamics shaping online behaviors.

Incorporating qualitative methodologies, including in-depth interviews and focus group discussions, alongside quantitative approaches would offer a more comprehensive understanding of the complex personal and cultural meanings that young people associate with Internet use. Additionally, future

studies should examine the potential moderating and mediating roles of digital literacy, tendencies toward Internet addiction, and mental health status within the Uses and Gratification framework. Such inquiries could inform the development of more effective, evidence-based interventions aimed at promoting healthy and balanced patterns of Internet engagement among students.

Implications for Digital Literacy and Educational Interventions

This study offers significant implications for digital literacy and educational interventions in Malaysia and similar collectivist societies. The strong influence of academic purposes and cognitive gratification suggests that Internet use among university students is largely goal-oriented, emphasizing education and research. Consequently, digital literacy programs could benefit from focusing on the effective and purposeful use of online resources for academic achievement, such as enhancing research skills and critical thinking in online environments.

Additionally, given that social integration and emotional gratifications are central to students' Internet use, educational interventions should also address the social and emotional dimensions of digital media, foster healthy digital habits and ensure students are aware of the psychosocial impacts of their online behaviors.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

Acknowledgement

There is no grant for this study.

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Publisher: CLM Publishing Resources Malaysia



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Data Availability Statement: All relevant data are within the manuscript and its [Supporting Information](#) files.