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# Social media addiction: the moderators effect of demographic

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**Abstract:** Social media addiction is the constant concern over social networking sites and the frequent visits daily in which this behavior started to interfere with one's social activity, interpersonal relationship, and mental health as well as general wellbeing. Against these backgrounds, this study aims to determine the factors which would affect one's addiction level in social media. Besides, this study aims to identify does the demographic factors of an individual affect their level of addiction towards social media. The Pew Research Centre provided a total of 1502 sets of sample data for analysis. The results show that the type of connection, cost of connection, and social networking sites may all have an impact on a person's level of addiction. Also, the result asserted that female, individual with lower education level and individual with lower income level are prone to have social media addiction. The results of this study have made some essential contributions to the literature on the understanding of social media addiction in terms of insights and consequences.

**Keywords:** social media addiction; stimulus response theory (SR); social networking sites; type of connection; cost of connection

## 1. Introduction

Owing to the swift progress of technology, incorporating the Internet into daily routines has become customary for individuals. Given the development of the accessibility of mobile data and the abundance of smartphone applications, the number of individuals who own at least one smartphone is estimated ranging from 60% to 95% of young adults in both developing and developed countries [1]. The latest worldwide figures of global social media users reach 4.89 billion in 2023, a 6.5% increase from previous year and it is expected to reach 5.85 billion in the year 2027 [2].

This highlights the innate human desire for connection and interaction, emphasizing the pivotal role of interpersonal communication [3]. Over the past years, the surge in social media usage has profoundly transformed community interactions [3,4]. The ease of accessing social



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media platforms has paved the way for the emergence of social media addiction—a phenomenon marked by excessive and irrational usage of these platforms, often disrupting an individual's regular daily activities and routines [5]. Another terminology of social media addiction is Internet addiction, which includes addictive behavior towards online entertainment and E-Commerce [6]. This occurs when individuals exhibit a compulsive use of social media. Individuals who are addicted to social media often log into their social media accounts with uncontrollable urge to check for updates [7].

The diffusion of internet and social media has dramatically changed the way individuals spend their time and interact with each other over time [8]. A data analysis from the UK Millennium cohort, reported that 43% of female and 22% of male at age 14 browse social media for more than 3 hours every day [9]. Besides, students and adolescents from high-income and low-income groups have different levels of social media usage due to different levels of access to the Internet [10]. Also, parents with different educational levels have different attitudes towards usage of technology and digital media towards their child development [11].

Therefore, this research is to investigate the factors influencing social media addiction with the demographic factors as the moderator.

## 2. Literature review

### 2.1. Stimulus Response Theory (SR)

Stimulus Response Theory is suitable and is being used to explain this research. According to the theory of Stimulus- Response (SR) proposed by Thorndike back in 1898 to observe his cat's behavior [12]. The environmental factors play a stimulating role (S), which leads to their behavioral responses (R). The Stimulus-Response (S-R) framework has found extensive application in forecasting online behaviors, including social media usage [13]. This theory has also been embraced and customized to explore the phenomenon of compulsive use of mobile social networking sites. In the presence of stimulus, the response may become compulsive when it occurs most frequently when the condition of the stimulus is repeated [14].

### 2.2. Review of variables

#### 2.2.1. Social Networking Sites (SNS)

SNS is defined as internet networks that allow users to interact as well as communicate with others, both verbally and visually [15]. It is a web capability of creating, exchanging, and collaborating on content online [16]. It includes a broad range of applications, including web blogs, content and social networking sites as well as virtual game communities. Most of the social media platform do not require any payment to access [16]. It includes Facebook, YouTube, Twitter, and Instagram. Over the years, social media has emerged and gradually increasing in popularity, particularly among the younger generations due to the advancement of Artificial Intelligence in the provided solutions [17]. Also, one of the contributions of

social networking sites is its instant messaging feature. WhatsApp and Facebook Messenger with over 1000 million active users each are some of the most popular messaging services [16].

### 2.2.2. Types of Connection (TC)

This can be categorised by whether the user is subscribing dial-up internet or a broadband service such as such as Wi-Fi router, cable, or fibre optic service. In America, there is an increasing trend among adult's smartphone ownership, from 81% to 85% and 73% to 77% from year 2019 to 2021 [18]. Although the year-on-year growth is modest, it remains noteworthy, particularly given that a majority of Americans express the importance of the internet in their personal lives. Furthermore, a significant 91% of adults indicate the utilization of at least one of the mentioned technologies.

The type of connections will determine the users' ease of access to the internet [19]. Individuals who possess home connections to the internet experience more convenient accessibility compared to those reliant on public spaces like schools, libraries, or Wi-Fi at coffee shops for internet access [20]. Additionally, the type of connection influences the degree of user autonomy. This encompasses both the physical location where internet access occurs and the perceived sense of freedom to utilize it according to personal preferences. In short, type of connection differentiates users experience due to the different internet speed, accessibility, and autonomy of using internet and social media.

### 2.2.3. Cost of Connection (CC)

Cost of connection refers to the cost of subscribing to the internet. This may vary according to countries and thus may not affect everyone in the same degree. Household with relatively lower income may not be able to afford internet subscription bundle or have the best connection both in terms of internet speed and the data usage limit [19]. Some of the household needs to sacrifice essential spendings to have stable and reliable access to the internet [19].

### 2.2.4. Gender

Traditionally gender has always been classified as male or female. But there are recent studies into the changeability of gender, and it may not always be the sex assigned at birth [20]. However, this research does not go into the various gender identity expression other than male or female.

### 2.2.5. Education level

Education is known as a method to share knowledge, ease the learning process, and motivate individuals to innovate [21]. It is very crucial for the growth of both individuals and society. Education categories are different in different counties. However, majority of countries have three main levels of education: primary, secondary, and tertiary [22]. Education level can be a measurement for a lot of things. Education level can be used to assess social problems,

mental and physical health, income, and family life [23]. Besides being a measurement, education level is also useful to eliminate poverty and promote wealth. The higher the education level, the lower the poverty [21].

#### 2.2.6. Income

Income serves as a straightforward indicator that reflects an individual's capacity to afford the items they desire [24]. It essentially represents the financial resources that exert a significant influence on their purchasing decisions. Income is likely to reflect one's affordability and accessibility in purchase, especially in a low-income household [25]. Income are commonly grouped three income levels, which are low-, medium- and high-income groups. Lower income households may need supportive financing to afford ongoing and unexpected expenses [25]. The increasing income will eventually increase the availability of affordable goods; therefore, this will increase their sense of community and their life satisfaction in the society [26].

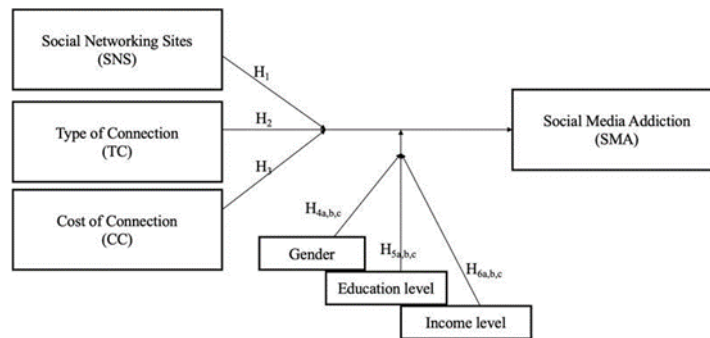
#### 2.2.7. Social Media Addiction (SMA)

SMA is defined by an excessive preoccupation with social networking sites, propelled by a compelling urge to engage with them, leading to a substantial investment of time and energy [7]. This phenomenon frequently disrupts users' normal functioning, causing interference with their social interactions, academic or professional commitments, interpersonal connections, as well as their mental health and overall well-being. When considering the problematic use of social media, the term "disorder" is more encompassing than "addiction," as individuals might develop addictive tendencies towards specific online platforms [27]. Also, people who spend over 5 hours on social media per day are considered as addicted. It is said that teenagers may spend up to 9 hours every single day on social media [28].

Researchers argue that social media addicts often spend their spare time in social media [10]. This resulted in more time spent on such media than initially intended by the social media addicts, to attain the same level of enjoyment they feel the urgency to spend more and more time on social media. Users who are addicted mainly use social media to modify their moods from reducing anxiety to reducing depression and a mechanism to escape from real life problems. In addition, certain individuals also view social media as a secure haven and a convenient space where they can seek a sense of belonging [29]. The downside of this use of social media has its downside. When users are not able to or are prohibited from using social media, they become distracted, disturbed, restless and uncomfortable.

### 3. Hypotheses development

Figure 1 illustrates the proposed conceptual framework for this research. This framework is utilized in examine the effect of moderators on social media addiction.



**Figure 1.** Proposed conceptual framework.

Following are the twelve hypotheses are proposed:

- H1: There is a relationship between social networking sites and social media addiction.
- H2: There is a relationship between type of connection and social media addiction.
- H3: There is a relationship between cost of connection and social media addiction.
- H4a: Gender moderate the relationship between social networking sites and social media addiction.
- H4b: Gender moderate the relationship between type of connection and social media addiction.
- H4c: Gender moderate the relationship between cost of connection and social media addiction.
- H5a: Education level moderate the relationship between social networking sites and social media addiction.
- H5b: Education level moderate the relationship between type of connection and social media addiction.
- H5c: Education level moderate the relationship between cost of connection and social media addiction.
- H6a: Income moderate the relationship between social networking sites and social media addiction.
- H6b: Income moderate the relationship between type of connection and social media addiction.
- H6c: Income moderate the relationship between cost of connection and social media addiction.

#### 4. Methodology

Secondary data is used to conduct this research. It is the Core Trends Survey 2021 published by Pew Research Centre in CSV format [18]. It is authorized by Open Database License in the file size of 112 bytes. In this research, probability sampling technique is adhered with the chosen approach, simple random sample. This indicates that each individual in the target population has an equitable opportunity of being chosen. Firstly, a list of samples by the Pew Research Centre were provided by Dynata, the world's largest first-party data company,

according to the specification set by a global research leader, Abt Associates. Hence, probability sampling technique is used in this study.

Besides, the sample used a combination of landline and cell phone of random-digit-dial. All respondents in the landline and cell phone sample were then selected randomly. Therefore, a simple random sampling technique is used here. This technique consists in providing an equal chance to every member within the sample frame because they are being drawn in a straightforward manner [30]. This could make sure the fairness, validity and the simplicity of the analysis of study [30]. The sample size collected by the source of the secondary data by Pew Research Centre is 1502 respondents, with 95% level of confidence. Descriptive analysis and inferential analysis are used in this research to summarize the key features of data.

## 5. Results and discussion

The questionnaires were distributed and collected using landline and cell phone calls. The collected data underwent analysis using SPSS software. The questionnaire included three demographic questions aimed at gathering general profile information from the respondents. This section encompassed inquiries about gender, education level, and income level.

Derived from Table 1, the survey encompassed 865 male respondents and 637 female respondents. The proportion of male participants stood at 58%, surpassing that of female respondents at 42%. The respondents were categorized into different education levels, from less than high school graduate to postgraduate. Among these groups, the highest contribution to the survey came from the four-year Bachelor's Degree group, which accounted for 25.9% of the total respondents. The second highest was the high school graduate group, comprising 20.84% of the 1502 respondents. The third highest group was the postgraduate group or professional, representing 18.24% of the total. Furthermore, it is followed by 244 respondents (16.25%) who have some college with no degree and 156 respondents (10.39%) who have a two-year associate degree. Lastly, the number of respondents who are professional schooled, high school incomplete, as well as less than high school, score averagely at 42 respondents (2.8%), 44 respondents (2.93%), 40 respondents (2.66%) respectively. It can be concluded that among all 1502 respondents, most of them are educated as most of them are at least high school graduates.

Regarding income level, 217 respondents (14.45%) have an annual income of more than \$150,000. Furthermore, respondents who have the annual income of \$100,000 to \$150,000, and \$75,000 to \$100,000 are the same which are 193 respondents (12.85%) for each category. Besides, 182 respondents (12.12%) earn between \$50,000 to \$75,000 per annum. It is followed by respondents who have the annual income of \$40,000 to \$50,000 (5.93%), \$30,000 to \$40,000 (7.99%) and \$20,000, to \$30,000 (7.32%) as well as \$10,000 to \$20,000 which and 99 respondents (6.59%) respectively. Lastly, the category in terms of income level is less than \$10,000 has only 70 respondents (4.66%) out of 1502 respondents. In short, most of the respondents have an annual income of at least \$50,000 and above and all income levels are represented.

**Table 1.** Respondents profile.

Background	Valid	Sample frequency	Percentage (%)
Gender	Male	865	58
	Female	637	42
	<b>Total</b>	<b>1502</b>	<b>100</b>
Education Level	Postgraduate or Professional Degree	274	18.24
	Four-year Bachelor's Degree	389	25.9
	Two-year Associate Degree	156	10.39
	Some College, No Degree	244	16.25
	High School Graduate	313	20.84
	Professional Schooling	42	2.8
	High School Incomplete	44	2.93
	Less Than High School	40	2.66
<b>Total</b>	<b>1502</b>	<b>100</b>	
Income Level	Above \$150,000	217	14.45
	\$100,000–\$149,999	193	12.85
	\$75,000–\$99,999	193	12.85
	\$50,000–\$74,999	182	12.12
	\$40,000–\$49,999	89	5.93
	\$30,000–\$39,999	120	7.99
	\$20,000–\$29,999	110	7.32
	\$10,000–\$19,999	99	6.59
	Less than \$10,000	70	4.66
<b>Total</b>	<b>1502</b>	<b>100</b>	

**Table 2** Respondents Profile

Variables	SNS	TC	CC	SMA
<b>Pearson correlation</b>	1	.077**	.047**	.187**
<b>SNS Sig. (2-tailed)</b>		0.006	0.066	0.000
<b>N</b>	1502	1288	1502	1424
<b>Pearson correlation</b>	.077**	1	.124**	.159**
<b>TC Sig. (2-tailed)</b>	0.006		.000	.000
<b>N</b>	1288	1288	1288	1272
<b>Pearson correlation</b>	0.047	0.124**	1	.057*
<b>CC Sig. (2-tailed)</b>	0.066	.000		.030
<b>N</b>	1502	1288	1502	1424
<b>Pearson correlation</b>	.187**	.159**	.057*	1
<b>SMA Sig. (2-tailed)</b>	.000	.159**	.057*	
<b>N</b>	1424	1272	1424	1424

Note\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

As shown in Table 2, every independent variable demonstrates significance and maintains a positive correlation with the dependent variables, as evidenced by Pearson correlation coefficients ranging from 0.057 to 0.187, all at the 0.05 significance level. Consequently, all variables considered in this study exhibit a positive correlation. According to the result, the independent variable – Social Networking Sites (SNS) has the strongest prediction power among all variables, with the Pearson correlation value of 0.187, towards the dependent variable – Social Media Addiction (SMA). Furthermore, the Type of Connection (TC) have the correlation value of 0.159, followed by Cost of Connection (CC) which have the least correlation value of 0.057 to the dependent variable.

**Table 3.** Summary of hypothesis testing.

Hypothesis testing	Result	Accepted/ Rejected	Standardized coefficients beta
H <sub>1</sub>	0.000 < 0.05	Accepted	0.148
H <sub>2</sub>	0.000 < 0.05	Accepted	0.148
H <sub>3</sub>	0.049 < 0.05	Accepted	0.054
H <sub>4a</sub>	0.000 < 0.05	Accepted	-0.100
H <sub>4b</sub>	0.466 > 0.05	Rejected	-0.020
H <sub>4c</sub>	0.034 < 0.05	Accepted	-0.057
H <sub>5a</sub>	0.000 < 0.05	Accepted	-0.214
H <sub>5b</sub>	0.748 > 0.05	Rejected	0.009
H <sub>5c</sub>	0.809 > 0.05	Rejected	0.007
H <sub>6a</sub>	0.000 < 0.05	Accepted	-0.151
H <sub>6b</sub>	0.020 < 0.05	Accepted	-0.065
H <sub>6c</sub>	0.136 > 0.05	Rejected	-0.04

From Table 3, H<sub>1</sub>–H<sub>3</sub> is accepted as there is a relationship between social networking sites, type of connection and cost of connection to social media addiction. H<sub>4a</sub>, H<sub>5a</sub>, and H<sub>6a</sub> have been confirmed, indicating that all three moderators exert a moderating influence on the connection between social networking sites and social media addiction. However, for the association between type of connection and social media addiction, solely the income moderator H<sub>6b</sub> has been accepted, with H<sub>4b</sub> and H<sub>5b</sub> being rejected. In the context of the gender moderator, solely H<sub>4c</sub> has been accepted, illustrating that gender moderates the link between type of connection and social media addiction. Conversely, the education level and income level moderators, represented by H<sub>5c</sub> and H<sub>6c</sub> respectively, do not exhibit a moderating effect on the relationship between the cost of connection and social media addiction.

Facebook users remain active on the platform despite the increasing popularity of the other social networking sites. Different social networking sites will have different general social media activity [8]. This refers to the different online feedback from each social networking sites, including the commenting, liking and social behaviour, which affect the attachment needs of each individual. In addition, the researcher also highlights that



individuals who experience anxiety related to loneliness and possess a pronounced need for reassurance are inclined to dedicate more time to social networking sites, particularly emphasizing platforms like Facebook. They will have high attachment on Facebook to search for the worthy of love. This research is aligned with the result of this study as most of the respondents spend most of their time on Facebook platform compared to the other social networking sites.

Moreover, as per the collected data, there's a notable distinction in the usage patterns of individuals who employ mobile data for accessing social media in comparison to those who opt for home broadband. The data indicates that 85% of respondents employ mobile data, whereas 77% opt for home broadband. Additionally, certain participants reported a dual subscription to both mobile data and home broadband for their social media interactions. Conversely, a segment of respondents indicated neither subscribing to mobile data nor home broadband. For these individuals, alternative options like accessing social media in public spaces or workplaces fulfil their browsing needs. The nature of an individual's connectivity method significantly influences their propensity for social media addiction. This is attributed to the fact that the chosen type of connection profoundly shapes their experience while engaging with social media platforms.

In addition, some countries or area may have different accessibility and the reliability of internet connection speed [31]. Countries with poor telecommunication management have no coverage of mobile data network in every area and parts of the street. This significantly affects the time and speed of browsing social media and downloading capabilities as well as the accessibility of Internet. Therefore, the type of connection influences the social media addiction level of an individual as the reliability of the Internet affect their experience in visiting social networking sites.

Furthermore, some of the individual forgo high-speed broadband internet connection. The non-broadband adopters cite financial constraint as one of the most important reasons why they forgo these services. Data shows that 45% of them find the monthly cost of subscribing home broadband is too expensive while 37% say the same about the cost of having multiple home device, such as computer and tablet. This indicate that they do not require a home broadband as they only accessing Internet using a device, which is their smartphone. The rest cite having only a smartphone as the device and mobile data can does everything online they need as a reason of not subscribing to broadband connection at home. For example, in the case of Nigeria, they have challenges from irregular power supply, high broadband subscription cost and poor Internet coverage issue [32]. The high cost of mobile data and broadband makes them encounter difficulties in paying Internet bills. This makes them difficult to adopt e-learning, let alone addictive to social media. Some of the Internet user may have issue getting online at home. Instead, they rely on the opened Internet access which is available for public not everyone is able to access to social media whenever and wherever they want.

Apart from that, findings from the above indicate that in terms of gender, the hypotheses of H4a and H4c are accepted with the standardized coefficients beta recorded as  $-0.100$  and  $-0.057$  respectively. Since the respondents are contributed more by the male than the female,

which accounted for 58% and 42% respectively; thus, the negative beta value represents the female. This indicates that female is more likely to be addicted to social media due to the social networking sites that they visit, and the cost of connection of the Internet. This study shows the same with the research done by Boursier in 2020 [33]. The research mentioned that female appears to develop more problematic symptoms to social media addiction. Females are more worried than males regarding their social activity engagement. This makes them to develop more social anxiety in which they need to access more to social media to gain more social attachment.

Furthermore, with education level acting as the moderator, only hypothesis H5a has been confirmed. Given that many respondents possess higher educational backgrounds, the negative standardized coefficient beta of -0.214 points to a noteworthy finding – individuals with lower education levels (high school and below) show a heightened susceptibility to social media addiction, largely influenced by the social networking sites they frequent. This aligns with prior research which found that individuals with the least educational attainment demonstrated the highest degree of addiction to social media [34]. Specifically, those with minimal education levels exhibited the most pronounced tendencies of social media addiction. It's plausible that this demographic faces challenges in effectively self-regulating their compulsive online behaviour.

Shifting focus to income level as the moderator, both hypotheses H6a and H6b are corroborated by this study's findings. Since a substantial portion of the respondents originates from a higher income bracket, the negative standardized coefficient beta values of -0.151 and -0.065 corresponding to H6a and H6b respectively underscore the connection to lower income groups. This implies that the study successfully demonstrates that individuals with lower income levels are more prone to engaging in addictive behaviours concerning social media. This tendency is attributed to the types of social networking sites they frequent and the nature of their connectivity. This could be due to individuals with lower income are more likely to rely on social media as a means to alleviate feelings of loneliness [35]. Moreover, individuals in this income bracket might have more leisure time available, leading to increased engagement with social media due to varying daily tasks and commitments.

## 6. Conclusion

The findings of this study revealed that the type of connection, cost of connection, and social networking sites have an impact on a person's level of addiction. Users who own smartphones will generally have subscription to mobile data and can access social networking sites. Cost of connections may limit the time users can spend online but it does not prohibit them from visiting the social networking sites whenever they have access. In terms of demographics, the result asserted that females, individual with lower education level and individual with lower income level are prone to have social media addiction.

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## Conflicts of interests

The authors declare no conflict of interests.

## References

- [1] Yang SY, Chen MD, Huang YC, Lin CY, Chang JH. Association between smartphone use and musculoskeletal discomfort in adolescent students. *J. Community Health* 2017, 42:423–430.
- [2] Gaubys J. How many people use Social Media in 2023? Available: <https://www.oberlo.com/statistics/how-many-people-use-social-media> (accessed on 4 May 2023).
- [3] Fam KS, Liat Cheng B, Cham TH, Tan Chia Yi M, Ting H. The role of cultural differences in customer retention: evidence from the high-contact service industry. *J. Hosp. Tour. Res.* 2023, 47(1):257–288.
- [4] Jalaludin FW, Abdul Rahim F, Tai LC, Cham TH. Spreading Faster Than the Virus: Social Media in Spreading Panic Among Young Adults in Malaysia. In *International Conference on Information Systems and Intelligent Applications*, 2022, pp. 163–174.
- [5] Griffiths MD. Facebook addiction: concerns, criticism, and recommendations—a response to Andreassen and colleagues. *Psychol. Rep.* 2012, 110(2):518–520.
- [6] Seah CS, Loh YX, Wong YS, Jalaludin FW, Loh LH. The Influence of COVID-19 Pandemic on Malaysian E-Commerce Landscape: The case of Shopee and Lazada. In *Proceedings of the 6th International Conference on E-Commerce, E-Business and E-Government*, 2022, pp. 17–23.
- [7] Schou Andreassen C, Pallesen S. Social network site addiction-an overview. *Current Pharm. Des.* 2014, 20(25):4053–461.
- [8] Cheong YS, Seah CS, Loh YX, Loh LH. Artificial Intelligence (AI) in the food and beverage industry: improves the customer experience. In *2021 2nd International Conference on Artificial Intelligence and Data Sciences (AiDAS)*, 2021, pp. 1–6.
- [9] Kelly Y, Zilanawala A, Booker C, Sacker A. Social media use and adolescent mental health: Findings from the UK Millennium Cohort Study. *EClinicalMedicine* 2018, 6:59–68.
- [10] Dalvi-Esfahani M, Niknafs A, Kuss DJ, Nilashi M, Afrough S. Social media addiction: Applying the DEMATEL approach. *Telemat. Inform.* 2019, 43:101250.
- [11] Lepičnik J, Samec P. Communication Technology in the Home Environment of Four-year-old Children (Slovenia). *Comunicar.* 2013, 20(40): 119–126.
- [12] Thorndike EL. Animal intelligence: An experimental study of the associative processes in animals. *Psychol. Rev. Monogr. Suppl.* 1898, 2(4):i–109.
- [13] Kamboj S, Sarmah B, Gupta S, Dwivedi Y. Examining branding co-creation in brand communities on social media: Applying the paradigm of Stimulus-Organism-Response. *Int. J. Inf. Manag.* 2018, 39:169–185.
- [14] Wang C, Lee MK. Why we cannot resist our smartphones: investigating compulsive use of mobile SNS from a Stimulus-Response-Reinforcement perspective. *J. Assoc. Inf. Syst.* 2020, 21(1):4.
- [15] Hen KW, Seah CS, Witarsyah D, Shaharudin SM, Loh YX. The study on Malaysia Agricultural E-Commerce (AE): Customer Purchase Intention. *JOIV: Int. J. Inform. Vis.* 2023, 7(3):704–709.
- [16] Kuss DJ, Griffiths MD. Social networking sites and addiction: Ten lessons learned. *Int. J. Environ. Res. Public Health* 2017, 14(3):311.

- [17] Choong YO, Seow AN, Low MP, Ismail NH, Choong CK, *et al.* Delving the impact of adaptability and government support in small-and medium-sized enterprises business resilience: The mediating role of information technology capability. *J. Conting. Crisis Manag.* 31(4):928–940.
- [18] Pew Research Centre. 2021 Core Trends Survey. Available: <https://www.pewresearch.org/internet/dataset/2021-core-trends-survey/> (accessed on 25 March 2023).
- [19] Cartwright T, Nancarrow C. A Question of Gender: Gender classification in international research. *Int. J. Mark. Res.* 2022, 64(5):575–593.
- [20] Beaunoyer E, Dup   S, Guitton MJ. COVID-19 and digital inequalities: Reciprocal impacts and mitigation strategies. *Comput. Hum. Behav.* 2020, 111:106424.
- [21] Guo L, Huang J, Zhang Y. Education development in China: Education return, quality, and equity. *Sustainability* 2019, 11(13):3750.
- [22] Manaa A, ul Haq MA. The Effects of SMEs, Population and Education level on Unemployment in Kingdom of Bahrain. *iKSP J. Bus. Econ.* 2020, 1(2):23–33.
- [23] Tebar WR, Ritti-Dias RM, Fernandes RA, Damato TM, Barros MV, *et al.* Validity and reliability of the Baecke questionnaire against accelerometer-measured physical activity in community dwelling adults according to educational level. *PLoS One.* 2022, 17(8):e0270265.
- [24] Pereira B, Ros  rio P, Silva C, Figueiredo G, N  nhez JC, *et al.* The mediator and/or moderator role of complexity of knowledge about healthy eating and self-regulated behavior on the relation between family’s income and children’s obesity. *Int. J. Environ. Res. Public Health* 2019, 16(21):4207.
- [25] Puzzolo E, Zerriffi H, Carter E, Clemens H, Stokes H, *et al.* Supply considerations for scaling up clean cooking fuels for household energy in low - and middle - income countries. *GeoHealth* 2019, 3(12):370–390.
- [26] Lim HE, Shaw D, Liao PS, Duan H. The effects of income on happiness in East and South Asia: Societal values matter? *J. Happiness Stud.* 2020, 21:391–415.
- [27] Duke   , Montag C. Smartphone addiction and beyond: Initial insights on an emerging research topic and its relationship to Internet addiction. In *Studies in Neuroscience, Psychology and Behavioral Economics*, Springer, Cham, 2017, pp. 359–372.
- [28] Woodward, M. Social Media Addiction Statistics: Who is addicted and what are the consequences? Available: <https://www.searchlogistics.com/learn/statistics/social-media-addiction-statistics/> (accessed on 4 May 2023).
- [29] D’Arienzo MC, Boursier V, Griffiths MD. Addiction to social media and attachment styles: a systematic literature review. *Int. J. Ment. Health Addict.* 2019, 17:1094–1118.
- [30] Pace DS. Probability and non-probability sampling-an entry point for undergraduate researchers. *Int. J. Quant. Qual. Res. Methods* 2021, 9(2):1–15.
- [31] Boer M, Stevens G, Finkenauer C, van den Eijnden R. Attention deficit hyperactivity disorder-symptoms, social media use intensity, and social media use problems in adolescents: Investigating directionality. *Child Dev.* 2020, 91(4):e853–e865.
- [32] Adeoye IA, Adanikin AF, Adanikin A. COVID-19 and E-learning: Nigeria tertiary education system experience. *Int. J. Res. Sci. Innov. Appl. Sci.* 2020, V(V): 28–31.
- [33] Boursier V, Gioia F, Griffiths MD. Do selfie-expectancies and social appearance anxiety predict adolescents’ problematic social media use? *Comput. Hum. Behav.* 2020, 110:106395.
- [34] Barnes SJ, Pressey AD, Scornavacca E. Mobile ubiquity: Understanding the relationship between cognitive absorption, smartphone addiction and social network services. *Comput. Hum. Behav.* 2019, 90:246–258.

- 
- [35] Turan N, Durgun H, Kaya H, Aştı T, Yılmaz Y, *et al.* Relationship between nursing students' levels of internet addiction, loneliness, and life satisfaction. *Perspect. Psychiatr. Care* 2020, 56(3):598–604.