

**Exploring the difference in levels of social media use
between extraverts and introverts**

AI Statement of Intent

I have used AI softwares such as ChatGBT and Grammarly to assist me in the flow of my work and rephrasing my draft versions to more polished versions of my own work.

Abstract

The human experience is increasingly shaped by social media, which has become a central part of daily life (Bowden-Green, Hinds, & Joinson, 2020). This study explored the relationship between extraversion, as measured by the OCEAN model (Costa), and social media use, aiming to determine whether this personality trait directly influences online engagement. Thirty-four participants were recruited through the EMS system at the University of Wales Trinity Saint David. Each participant completed a nine-item questionnaire assessing levels of extraversion (John et al., 1991) and social media dependence (Xanidis & Brignell, 2016). The results were inconclusive, showing no clear correlation between extraversion and social media use within this sample. Limitations, including a narrow age range and a restricted recruitment system, suggest that further research with a more diverse and larger sample is needed to clarify potential relationships.

Introduction

In 2025, an estimated 6.08 billion people used the internet daily (GSMA 2025), with devices such as smartphones, tablets, and gaming consoles significantly reshaping communication and interaction patterns. Social media platforms have become central to this transformation, providing a wide range of interactions for diverse user preferences. For instance, Facebook reported approximately 3.07 billion users in 2026, emphasizing the immense scale of online social engagement. As digital communication becomes more embedded in daily life, understanding how individual differences, such as personality traits, affect social media use is increasingly important (Correa, Hinsley, & de Zúñiga, 2010).

Hundreds of social media applications are currently available, each providing distinct modes of interaction. Platforms such as Reddit and Discord support relatively anonymous communication, while Instagram and Facebook encourage greater self-disclosure and public interactions. With millions of users actively participating, it is important to identify what types of individuals are most likely to rely on social media as a primary communication tool. This section highlights the importance of understanding how personality may influence online behavior.

The Big Five Personality Traits model (Costa & McCrae) enables the examination of how individual differences shape social media experiences. The model identifies five key dimensions, openness, conscientiousness, extraversion, agreeableness, and neuroticism (OCEAN) that influence behavioral patterns both offline and online. Research indicates that social media activity is often associated with these traits,

and digital behaviors can reflect underlying personality characteristics (Matz, Kosinski, Nave, & Stillwell, 2017).

The degree of anonymity individuals maintain online may interact with specific personality traits, especially extraversion. Studies have found a positive association between extraversion and the frequency of image posting and content creation (Eftekhar, Fullwood, & Morris, 2014). However, self-presentation online does not always align with offline identity, indicating that behavior may be adapted to fit the digital environment.

Individuals lower in extraversion may spend more time on social media through passive activities, such as consuming content (e.g., watching videos), whereas extraverts may engage less overall due to a preference for face-to-face interaction. Variations within other traits may also influence usage; for example, an individual high in extraversion but low in agreeableness may be more skeptical of online interactions. This highlights the limitations of predicting behavior solely from personality traits.

Social media platforms are intentionally designed to encourage prolonged use (BBC, 2018). Features such as continuous content feeds and notifications can promote habitual engagement. In an interview, former Facebook employee Sandy Parakilas described attempts to stop using social media as “like trying to wean off cigarettes,” suggesting that usage may not be determined entirely by personality, but also by the reinforcing nature of the platforms themselves.

There is evidence of a connection between extraversion and key neurochemicals, particularly dopamine, which is linked to motivation, and oxytocin, which plays a role in social bonding (Wacker & Smillie, 2015; Andari, Schneider, Mottolese, Vindras, & Sirigu, 2014). This suggests that extraverted individuals may respond more strongly to rewarding or social experiences.

However, research on the biological basis of extraversion is mixed. Studies examining dopamine-related genes, the structure of dopamine-rich brain regions (like the striatum and ventral prefrontal cortex), dopamine receptor availability, and frontal alpha asymmetry have produced inconsistent results. While some evidence supports a link between extraversion and heightened reward sensitivity, other findings do not, highlighting that the relationship is complex and not yet fully understood.

These findings imply that individuals who are more responsive to dopamine-related activities may experience social media as especially rewarding, and in some cases, even potentially addictive. Yet, this idea remains speculative and requires further investigation to clarify how neurochemical sensitivity influences social media use across different personality types.

Therefore, a non-directional hypothesis will be adopted: there will be a difference in levels of social media use between introverts and extraverts. This reflects the mixed evidence in existing research, as both groups may experience high engagement due to the wide variety of platforms and individual motivations for use.

Method

Extraversion was measured using the Extraversion subscale of the Big Five Inventory (BFI; John et al., 1991), which assesses core traits such as sociability, talkativeness, assertiveness, and energy. Participants rated eight statements (e.g., “I see myself as someone who is talkative” or “I am full of energy”) on a five-point scale ranging from “strongly disagree” to “strongly agree.” Item scores were summed to produce an overall extraversion score, with higher scores indicating greater levels of extraversion.

Social media use was assessed using the nine-item Social Media Use Questionnaire (SMUQ; Xanidis & Brignell, 2016). Participants indicated how often they engaged in behaviors such as checking social media or feeling anxious when unable to access it, using a five-point scale from “never” to “always.” Scores were combined to produce an overall engagement measure, with higher scores indicating more frequent use.

Participants were recruited via the University’s Experiment Management System (EMS). They accessed the study through a survey link using a survey design called Qualtrics Survey System. They were first presented with an information sheet outlining the study purpose, procedures, and the option to withdraw at any time, along with a contact email for assistance. After providing consent, participants completed basic demographic questions, including age and gender. They then completed the extraversion questionnaire, followed by the social media use

questionnaire. Upon finishing, participants were shown a debriefing page thanking them for their participation and providing further study information.

This procedure allowed for the systematic collection of personality and social media use data while ensuring informed consent and ethical participation. The design also enabled an examination of potential relationships between extraversion and social media engagement, highlighting how personality differences may be associated with patterns of digital behavior.

Results

An independent-samples t-test was conducted to examine whether there was a difference in overall social media use (SMU) between the two groups. The results showed no significant difference between the groups,

These results suggest that the two groups did not differ meaningfully in their social media use. The negative t-value indicates the direction of the difference, but the p-value is above the conventional .05 threshold, meaning the difference is not statistically significant. The 95% confidence interval for the mean difference (-7.58 to 2.53) includes zero, indicating that any observed difference could be due to chance.

$t(32) = -1.019, p = .316$.

Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
SMU_Total	Equal variances assumed	1.667	.206	-1.019	32	.158	.316	-2.52747	2.48106	-7.58124	2.52629
	Equal variances not assumed			-1.061	28.861	.149	.297	-2.52747	2.38160	-7.39940	2.34446

Figure 1

Group Statistics					
	Ex_groups	N	Mean	Std. Deviation	Std. Error Mean
SMU_Total	1.00	13	12.6154	6.27878	1.74142
	2.00	21	15.1429	7.44504	1.62464

Figure 2

Discussion

As outlined above, the hypothesis appears reasonable given that individual patterns of social media use are highly variable and often unpredictable. Social media platforms are deliberately designed to be engaging, using features that can create an addictive feedback loop. According to Bruce Goldman (2021), these platforms leverage dopamine-driven mechanisms that encourage repeated interactions. Each user's experience is personalized through algorithms that analyze previous behavior, tailoring content consumption to individual preferences and increasing engagement, which, in turn, reinforces habitual use. This variability in user behavior makes predicting social media use challenging and underscores why examining its

relationship with personality traits, such as extraversion, is both complex and nuanced.

Despite these insights, this study has several limitations. The sample was drawn exclusively from university students, limiting the generalizability of the findings. While examining extraversion within this group provides useful information, it does not account for how individuals from other regions, occupations, or age groups might interact with social media differently. Future research could benefit from including participants from more diverse backgrounds to better understand how extraversion influences social media use across broader populations.

Age distribution also presented a limitation. While there was some variety, participants aged 28 and older were underrepresented, with only a few individuals in this age group. In contrast, younger participants, who typically spend more time on their phones and are often more engaged with social media, may have disproportionately influenced the overall results. This imbalance could lead to skewed findings, suggesting that the observed trends might reflect the behaviors of younger users more than those of the broader population.

Additionally, this study focused solely on overall social media use, without distinguishing between different platforms or types of activity. Future investigations could examine whether certain social media platforms are more strongly associated with personality traits or whether specific behaviors, such as passive scrolling versus active posting, have distinct psychological impacts. Including these finer distinctions may provide a more nuanced understanding of how extraversion and other

personality traits relate to social media engagement. More research should be conducted on the relationship between people with low extraversion and apps that allow anonymity.

In conclusion, while the study offers insight into social media use among university students, its findings are limited by sample characteristics and measurement scope. Expanding participant diversity and incorporating more detailed behavioral metrics in future research will be essential for drawing more generalizable conclusions about the relationship between personality traits and social media use.

References

- John, O. P., Donahue, E. M., & Kentle, R. L. (1991). *The Big Five Inventory*--Versions 4a and 54. Berkeley, CA: University of California, Berkeley, Institute of Personality and Social Research.
- Xanidis, N., & Brignell, C. M. (2016). The association between the use of social network sites, sleep quality and cognitive function during the day. *Computers in Human Behaviour*, 55(Part A), 121-126. <https://doi.org/10.1016/j.chb.2015.09.004>
- Andersson, H. (2018, July 4). Social media apps are “deliberately” addictive to users. *BBC News*. <https://www.bbc.co.uk/news/technology-44640959>
- Bowden-Green, T., Hinds, J., & Joinson, A. (2002). *How is extraversion related to social media use? A literature review*. School of Management, Information, Decisions and Operations Division, University of Bath.

- Correa, T., Hinsley, A. W., & de Zúñiga, H. G. (2009, October 25). *Who interacts on the Web?: The intersection of users' personality and social media use* Computers in Human Behavior; Center for Journalism & Communication Research, School of Journalism, University of Texas at Austin, USA.

www.elsevier.com/locate/comphumbeh

- John, O. P., & Srivastava, S. (1999, March 5). The Big-Five Trait Taxonomy: History, Measurement, and Theoretical Perspectives [Review of The Big-Five Trait Taxonomy: History, Measurement, and Theoretical Perspectives].

- Wacker, J., & Smillie, L. D. (2015). Trait Extraversion and Dopamine Function. *Social and Personality Psychology Compass*, 9(6), 225–238.

<https://doi.org/10.1111/spc3.12175>

- Card, K. G., & Skakoon-Sparling, S. (2023). Are social support, loneliness, and social connection differentially associated with happiness across levels of introversion-extraversion? *Health Psychology Open*, 10(1).

<https://doi.org/10.1177/20551029231184034>

- Goldman, B. (2021, October 29). Addictive potential of social media, explained. *Stanford Medicine News Center*.

<https://med.stanford.edu/news/insights/2021/10/addictive-potential-of-social-media-explained.html>

