The Interplay of Personality Traits and Generational Identity in Shaping Social Media Usage

Aishwarya Vishwakarma Neeta Sinha***

Abstract

This study examines how personality traits and generational identity jointly influence social media usage among Generation Z and Millennial users in Gujarat. Guided by the Big Five framework and Uses and Gratifications Theory, the research responds to gaps in person-centered approaches that consider personality configurations rather than isolated traits. A cross-sectional survey of 248 active social media users was analyzed using Latent Profile Analysis and hierarchical regression. Two profiles emerged: Agreeable & Open and Moderate & Reserved. The former was more prevalent among Generation Z and females, while the latter dominated among Millennials. Regression models showed that the combination of personality profiles and demographic factors explained 11.38% of variance in social media use, with generation emerging as the strongest predictor. Profile 1 users typically reported moderate usage (3–4 hours), whereas Profile 2 demonstrated higher proportions of heavy users (5–7+ hours). Findings highlight that digital behavior is best understood through the interaction of psychological tendencies and generational context. Implications point to profile-based digital well-being strategies tailored to distinct motivational needs.

Keywords: Big Five personality, Generation Z, Millennials, Latent Profile Analysis, social media usage, Uses and Gratifications Theory

About Authors: *Research scholar (corresponding author) **Scholer, Pandit Deendayal Energy University, Raysan, Gandhinagar, India

Introduction

Social media has become central to communication, identity formation, and information exchange. Beyond interpersonal contact, platforms influence self-presentation, emotional expression, and social comparison. Personality traits shape how individuals use these spaces, yet most studies analyze traits in isolation rather than in meaningful configurations.

The Big Five model offers a comprehensive framework to understand differences in behavior online. However, generational context also matters. Generation Z grew up immersed in digital media, while Millennials navigated the transition from analogue to digital environments. Few studies integrate personality clusters with generational identity using person-centered methods like Latent Profile Analysis (LPA).

This research addresses that gap by examining profiles derived from Big Five traits and their relationship with social media usage across generational cohorts.

Objectives

1. To identify latent personality profiles based on Big Five traits among social media users.
2. To examine differences in profile membership between Generation Z and Millennials.
3. To determine the extent to which profiles and demographics predict daily social media use.

Hypotheses

H1: Distinct latent personality profiles will emerge from Big Five traits.

H2: Profile membership will significantly differ by generational cohort.

H3: Combined profiles and demographics will significantly predict social media usage.

Method

Design

A quantitative cross-sectional design was used, integrating Latent Profile Analysis and hierarchical regression.

Participants

The sample comprised 248 active social media users (63.3% female), aged 18–40

years. Seventy-nine percent were Generation Z and 21% were Millennials, all residing in Gujarat and proficient in English.

Measures

Personality was measured using a validated Big Five questionnaire (5-point Likert scale). Daily social media use was reported in categories: 0–2, 3–4, 5–6, and 7+ hours, excluding work/academic/OTT time.

Demographics included gender and generational cohort.

Procedure

Participants completed an online consent-based survey. Ethical approval was granted by the institutional review board.

Statistical Analysis

Gaussian Mixture Modelling tested one–six profile solutions using AIC, BIC, and entropy to determine best fit. Hierarchical regression examined predictive contributions of profiles and demographic variables.

Results

Descriptive statistics

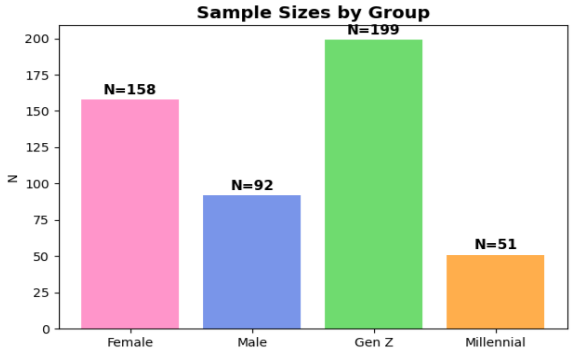

Figure 1 *Distribution of participants by gender and generational cohort.*

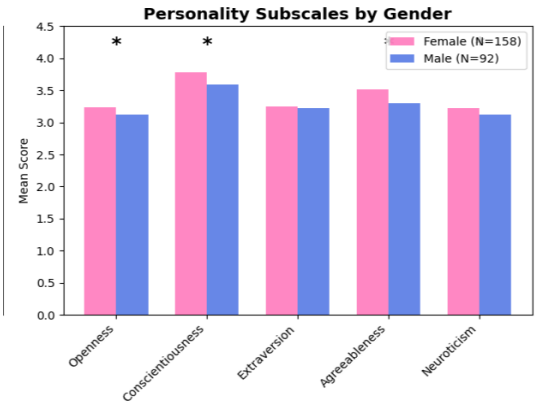

Figure 2 *Mean Big Five trait scores across gender groups.*

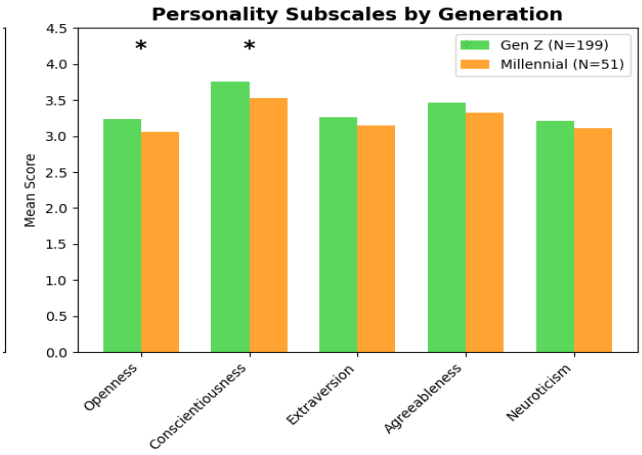

Figure 3. *Mean Big Five trait scores by generational cohort.*

LATENT PROFILE ANALYSIS

Key variables of the LPA generated were Subscales of Big Five personality questionnaire, Gender, and generation. The following tools of LPA were used to analyze the dataset.

Figure 4

AIC, BIC and log likelihood of 6 profiles generated by LPA

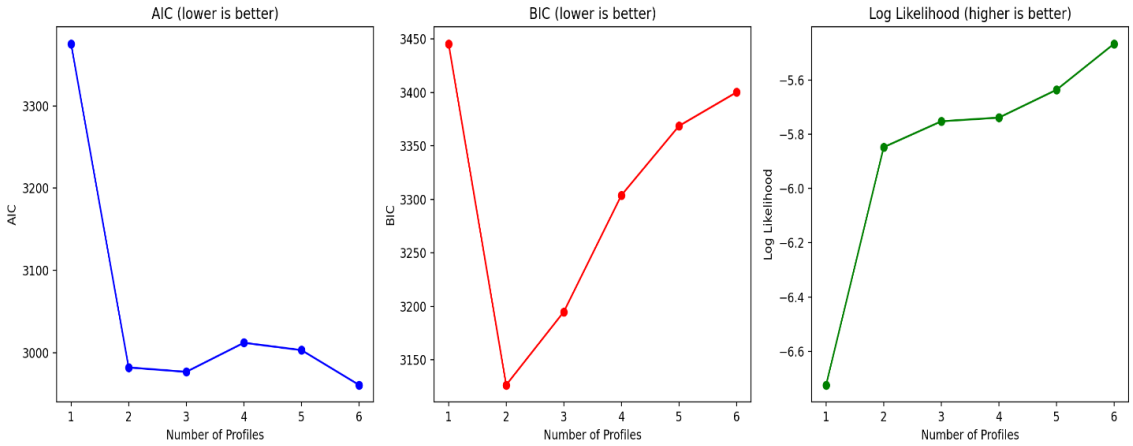

Figure 4 shows the AIC and Log-Likelihood both suggest that the model with 6 profiles is the best. This is because both criteria are less stringent on model complexity (the number of profiles) than BIC. They favor the model with the best fit, even if it has more parameters.

The BIC, however, suggests that the model with 2 profiles is the most appropriate. This is because BIC applies a heavier penalty for increasing the number of parameters. It seeks to find the simplest model that can adequately explain the data, which in this case is the 2-profile model.The analysis identified 2 distinct personality profiles with excellent classification certainty (92.8%).

MODEL FIT RESULTS

Model Fit Indices:

Table 1: Model fit indices for latent profile solutions

Number of Profiles	AIC	BIC
1	3375.35	3445.62
2	2982.28	3126.34
3	2976.96	3194.79
4	3012.25	3303.87
5	3003.32	3368.71
6	2961.03	3400.20

The two-profile solution was selected as the optimal model based on the principle of parsimony, as indicated by the lowest BIC value. The BIC, which heavily penalizes model complexity, decreased from 3445.62 for the one-profile solution to a minimum of 3126.34 for the two-profile solution. For all subsequent models (three through six profiles), the BIC values consistently increased, indicating that the added complexity of these models was not justified by a significant improvement in fit. While the AIC reached its minimum for the six-profile solution (2961.03), the BIC's strong preference for the two-profile model provides a more conservative and robust estimate of the true number of underlying profiles, mitigating the risk of overfitting.

Classification Quality:

Table 2: Mean entropy, classification probability, and classification certainty for two profiles.

Profile	N	Mean Classification Probability	Mean Entropy	Classification Certainty
1	148	0.98	0.02	0.95
2	100	0.95	0.13	0.80

Analysis of Classification Quality Metrics

Profile 1: With a sample size of 148, this profile shows a very high Mean Classification Probability of 0.98. This indicates that individuals assigned to Profile 1 have a near-certain probability of actually belonging to that group. The Classification Certainty of 0.95 is also very high, reflecting a strong and unambiguous classification for this profile. The low Mean Entropy of 0.02 further confirms this, as entropy measures the uncertainty of classification, and lower values are better.

Profile 2: This profile has a sample size of 100. Its Mean Classification Probability of 0.95 is also very high, meaning members are confidently classified. The Classification Certainty is 0.80, which is robust, although slightly lower than Profile 1's. The higher Mean Entropy of 0.13 suggests there is a bit more classification uncertainty for this profile compared to Profile 1, but it is still well within an acceptable range for a well-defined profile.

The high mean classification probabilities for both profiles (0.98 and 0.95) demonstrate that the individuals are not ambiguously assigned. Similarly, the high classification certainty values (0.95 and 0.80) and low mean entropy scores (0.02 and 0.13) for both profiles collectively indicate that the solution is robust, the profiles are distinct, and there is minimal overlap between them. Therefore, the model effectively separates the sample into two clearly defined and stable groups.

PROFILE CHARACTERISTICS

PROFILE 1: "Agreeable & Open" (n = 148, 59.7%)

Table 3 Mean and standard deviation of Big Five subscales for Profile 1.

Trait	Mean (M)	Standard Deviation (SD)
Extraversion	3.11	0.67
Agreeableness	3.79	0.58
Conscientiousness	3.29	0.65
Neuroticism	3.33	0.73
Openness to Experience	4.08	0.49

Analysis of Profile 1: "Agreeable & Open"

This profile, representing 59.7% of the sample, is characterized by significantly higher scores in Agreeableness (M = 3.79) and Openness to Experience (M = 4.08) compared to other traits. The standard deviations are relatively small (SD = 0.58 and SD = 0.49, respectively), indicating a high degree of consensus among members on these traits. The profile's scores on Extraversion, Conscientiousness, and Neuroticism are around the midpoint of the scale, suggesting they are not primary defining characteristics for this group.

PROFILE 2: "Moderate & Reserved" (n = 100, 40.3%)

Table 4 Mean and standard deviation of Big Five subscales for Profile 2

Trait	Mean (M)	Standard Deviation (SD)
Extraversion	3.04	0.20
Agreeableness	3.04	0.19
Conscientiousness	3.06	0.20
Neuroticism	3.03	0.24
Openness to Experience	3.28	0.66

Analysis of Profile 2: "Moderate & Reserved"

This profile, comprising 40.3% of the sample, is defined by its moderate to low scores across all traits, with a slightly higher score in Openness to Experience (M = 3.28). A key feature of this group is the exceptionally low standard deviations for all traits, particularly Extraversion (SD = 0.20), Agreeableness (SD = 0.19), Conscientiousness (SD = 0.20), and Neuroticism (SD = 0.24). This indicates that members of this profile are highly homogeneous, consistently exhibiting reserved and moderate behaviors.

DEMOGRAPHIC ASSOCIATIONS

Table 5 Distribution of participants across profiles by gender (percentages and frequencies).

Gender	Profile 1	Profile 2	Total
Female	101 (64.3%)	56 (35.7%)	157
Male	47 (51.6%)	44 (48.4%)	91
Total	148	100	248

The analysis reveals a notable association between gender and profile membership.

Profile 1: "Agreeable & Open" is predominantly female, with females making up 64.3% (n = 101) of this profile's members. Conversely, males constitute a smaller proportion, with 51.6% (n = 47) of them being in this profile.

Profile 2: "Moderate & Reserved" shows a more even distribution between genders, although it is more common among males. 48.4% (n = 44) of males fall into this profile, compared to 35.7% (n = 56) of females.

Table 6 Distribution of participants across profiles and generational cohorts (percentages and frequencies).

Generation	Profile 1	Profile 2	Total
Gen Z	137 (69.5%)	60 (30.5%)	197
Millennial	11 (21.6%)	40 (78.4%)	51
Total	148	100	248

A very strong and distinct association exists between generational cohort and profile membership.

Profile 1: "Agreeable & Open" is overwhelmingly associated with Gen Z. A vast majority, 69.5% (n = 137), of Gen Z individuals belong to this profile. In sharp contrast, only 21.6% (n = 11) of Millennials are in this profile.

Profile 2: "Moderate & Reserved" is strongly associated with Millennials. An overwhelming 78.4% (n = 40) of Millennials are members of this profile. Conversely, only 30.5% (n = 60) of Gen Z individuals fall into this group.

Final description of Profiles based on LPA and demographic associations

Profile 1: The "Agreeable & Open" Gen Z Female

This profile represents the larger segment of the sample, comprising 59.7% (n = 148) of individuals. The defining characteristics of this profile are exceptionally high scores in Agreeableness (M = 3.79) and Openness to Experience (M = 4.08), indicating that members are cooperative, trusting, imaginative, and intellectually curious. Their scores on other traits—Extraversion, Conscientiousness, and Neuroticism—are around the sample's average, making them less central to this profile's identity.

Demographically, this profile is strongly associated with females and Generation Z. The majority of females in the sample (64.3%) belong to this profile, and it is the dominant profile for Gen Z, with nearly 70% of that generation falling into this group. This suggests a pattern of personality that is particularly prevalent among young female individuals in the sample.

Profile 2: The "Moderate & Reserved" Millennial

This profile constitutes 40.3% (n = 100) of the sample. It is primarily defined by its consistent and moderate scores across all personality traits, with a slightly higher score on Openness to Experience (M = 3.28) than the other traits. A key feature of this group is the low standard deviations for all traits, which indicates a high degree of homogeneity and internal consistency. Members are not defined by any single

dominant trait but rather by their overall balanced and reserved nature.

Demographically, this profile is overwhelmingly associated with Millennials, with over three-quarters (78.4%) of this generational cohort belonging to this group. The gender distribution is more balanced than in Profile 1, though it is slightly more common among males (48.4%). This profile therefore represents a distinct personality type characterized by moderation, which is highly characteristic of the Millennial population.

In summary, the LPA identified two distinct personality profiles. The "Agreeable & Open" profile was primarily composed of younger, female, and Gen Z participants, suggesting a modern personality cluster. In contrast, the "Moderate & Reserved" profile was more common among the Millennial generation. These findings highlight the significant influence of demographic factors on the expression of personality traits within the sample.

Regression analysis to Understand which profile predicts more use of social media

This analysis examines the relationship between distinct user profiles and social media usage patterns. The primary objective was to determine the predictive power of latent user profiles and other key variables on the frequency of social media engagement.

Predictive Modeling and Model Comparison

A regression analysis was conducted to predict social media usage, with models built to progressively assess the predictive value of user profiles and other variables. The analysis compared three hierarchical models, with the results summarized in the table below.

Summary of Regression Models Predicting Social Media Usage

Table 7 Predictor variables and R^2 values for models predicting social media usage

Model	Predictor Variables	R^2
1	Profile only	0.0356
2	Profile + Personality	0.095
3	Profile + Demographics	0.1138

The final model, which incorporated both user profiles and demographic information (Model 3), demonstrated the highest predictive power, explaining 11.4% of the variance in social media usage. This finding indicates that while user profiles contribute to understanding usage patterns, demographic factors are a more significant predictor, with generation identified as a particularly strong contributing variable.

Effect Size and Profile-Based Differences

The overall difference in social media usage between the two identified profiles was found to represent a small effect size, as measured by Cohen's d = -0.39. This indicates a statistically meaningful but modest difference in social media usage patterns between the groups.

Detailed Social Media Usage Patterns by Profile

A detailed breakdown of daily social media usage hours for each profile reveals distinct consumption patterns.

Daily Social Media Usage by Profile

Table 8 Distribution of daily social media use by profile

Hours Per Day	Profile 1 (n=148)	Profile 2 (n=100)
0-2 Hrs	38 (25.7%)	18 (18.0%)
3-4 Hrs	71 (48.0%)	36 (36.0%)
5-6 Hrs	30 (20.3%)	33 (33.0%)
7+ Hrs	9 (6.1%)	13 (13.0%)

Profile 1 is characterized by a concentration of users in the moderate usage category (3-4 hours per day), accounting for nearly half of its members. In contrast, Profile 2 shows a more pronounced pattern of heavy usage. A notable finding is that Profile 2 has a higher proportion of users in the most extreme categories: both heavy users (13% for 7+ hours, compared to 6.1% in Profile 1) and moderate-heavy users (33% for 5-6 hours, compared to 20.3% in Profile 1).

Discussion

This analysis demonstrates that a combination of personality profiles and demographic variables provides a more robust explanation for social media usage patterns than either set of variables alone (Correa et al., 2010; Hughes et al., 2012). The finding that the model including both profiles

and demographics accounted for the largest amount of variance in social media usage ($R^2 = 0.11$) highlights the interconnected influence of internal traits and external factors, consistent with the Uses and Gratifications Theory framework which posits that individual differences drive media consumption behaviors to satisfy specific psychological needs (Katz et al., 1973; Ruggiero, 2000).

Specifically, the distinct characteristics of the two identified profiles are strongly linked to their observed usage behaviors through different gratification-seeking patterns. Profile 1, defined as "Agreeable & Open," is primarily composed of younger, female, and Gen Z participants. Their usage patterns are concentrated in the moderate range (3-4 hours), suggesting a balanced approach to social media that aligns with Uses and Gratifications Theory's social integration and entertainment gratifications (Whiting & Williams, 2013). This behavior may be consistent with their agreeable and open nature, engaging with social platforms primarily for social connection, information seeking, and self-expression gratifications (Sheldon, 2008; Smock et al., 2011), but without an overall tendency toward excessive use that might indicate problematic gratification-seeking behaviors.

Conversely, Profile 2, characterized as "Moderate & Reserved," is strongly associated with the Millennial generation and exhibits usage patterns that suggest different gratification motivations. This group exhibits a higher proportion of heavy users, with a notable concentration in the 5-6 hours and 7+ hours categories, potentially reflecting Uses and Gratifications Theory's escapism and habit gratifications (Papacharissi & Rubin, 2000; LaRose & Eastin, 2004). This suggests that while they may be generally reserved in personality, their engagement with social media serves as a compensatory mechanism for social interaction needs and entertainment gratifications that may be less readily fulfilled through offline channels (Kuss & Griffiths, 2011; Ryan & Xenos, 2011). This finding underscores a generational divide in social media consumption habits, with personality traits potentially moderating these gratification-seeking patterns in ways consistent with the theory's emphasis on active audience selection of media to satisfy specific psychological and social needs (Rubin, 2009; Sundar & Limperos, 2013).

Conclusion

The Results provide a nuanced understanding of social media usage by demonstrating that latent profiles, rooted in personality traits and demographics, are significant predictors of usage patterns. The predictive power of the model is strongest when combining profiles with demographic information, particularly generation. The "Agreeable & Open" profile, predominantly comprised of Gen Z females, represents a group of moderate users, while the "Moderate & Reserved" profile, strongly associated with Millennials, is more likely to contain heavy users. Which might indicate that in context of uses and gratifications theory more reserved and older personality profiles engage more in social media possibly due to a sense of escapism as suggested in the theory, whereas more agreeable and open yet young profiles might not need that escapism through social media because of their personality traits.

Limitations

The cross-sectional design restricts causal inference and self-report measures may introduce bias. Findings reflect English-proficient users from one region.

Implications

Insights can inform targeted educational, counselling, and platform-based interventions promoting balanced media engagement.

Future Research

Future research should include longitudinal designs, cross-cultural samples, and behavioral usage analytics.

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