








Social Media Use and Consumption Culture: Evidence from a Cross-Sectional Survey and Machine Learning Approach of College Students

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Abstract. As an essential information tool for daily lives, social media has profoundly affected the consumption of college students. However, no study has investigated the mechanism. This paper bridges the gap by testing a dual mediation path model in a sample of undergraduate students ($N = 713$), and using machine learning to explore the relationship between social media use, upward social comparison, self-disclosure and consumption culture. As predicted, upward social comparison and self-disclosure, both independent and serially, mediated the positive association between social media use and consumption culture.

Keywords: consumption culture · social media use · cross-sectional survey · machine learning

1 Introduction

With the popularization of mobile terminals and the maturity of Internet technology, social media, as a basic information tool, is gradually embedded in all aspects of people's daily work, entertainment and social interactions, and young people are particularly keen on social media. According to GWI Research Report, people aged 16 to 24 spend the longest time on social media every day, reaching nearly three hours a day. Among them, college students regard social media as the main platform for disseminating information, maintaining relationships, emotional expression and self-presentation. The impact of social media use on college students has also attracted widespread attention from scholars at home and abroad. At the same time, the invasion of Contemporary Western Consumerism has brought about great changes in people's consumption structure. For college students whose minds are not yet fully mature, will media use have

an impact on their consumption culture? In this regard, an online questionnaire survey was conducted, and machine learning methods were used, in an attempt to explore the relationship between social media use and college students' consumption culture.

2 Literature Review

Consumption culture is the penetration of human culture in the field of consumption, which is specifically manifested as the reflection of consumption in people's conceptual forms. The factors that promote its formation are diverse. Dong established four dimensions: symbolization, rationalization, entertainment and enjoyment. Robust findings in the literature have shown that mass media use has positive affect on the value orientation of consumption concept. As such the first hypothesis is offered:

H1: College students' consumption culture will be positively associated with their social media use.

Festinger divides social comparison into upward social comparison, downward social comparison and parallel social comparison [1]. Upward social comparison is simply comparing with someone who is better than yourself. This is manifested in consumption as, in order to obtain a higher level of group identity, people will observe and imitate the consumption behavior of those who are higher-level than themselves in the social sphere [2]. Research has shown that with more social media use, more upward comparison behaviors will be generated [3]. Chan and Prendergast found that adolescents' materialistic tendency is positively correlated with social comparison [4]. Therefore, we offer the following hypothesis:

H2: Upward social comparison will mediate any observed relationship between college students' social media use and consumption culture.

Self-disclosure is a kind of communication behavior which individuals reveal their thoughts, feelings, experiences and other personal information to others in order to maintain interpersonal contact [5]. Compared with face-to-face condition, self-disclosure on social media is more likely to be chosen and edited. [6]. Robust findings have shown that social media use can promote people' self-disclosure [7]. In social interaction, people always compare with groups similar to themselves, showing and sharing new things becomes an important motivation for self-disclosure [8]. When it comes to the goods they owned, the initial motivation of social media use affecting consumption forms. Accordingly, the third hypothesis is proposed:

H3: College students' social media use affects their consumption culture through the mediating role of self-disclosure.

Social media allows and encourages users to express their ideas, so as to present themselves from multiple perspectives. Individuals can complete self-evaluation and self-affirmation by observing and comparing others' presentations, which provides incentives for social comparison behavior [9]. They will unconsciously make upward comparison in the process of browsing, and it is positively correlated with the time spent on social media [10]. Meanwhile, upward social comparison can also make people more inclined to show their good side, in order to obtain positive feedback and recognition from friends, family or even fans. To a certain extent, this provides more self-disclosure information on social media. Based on above, we offer the following hypothesis:

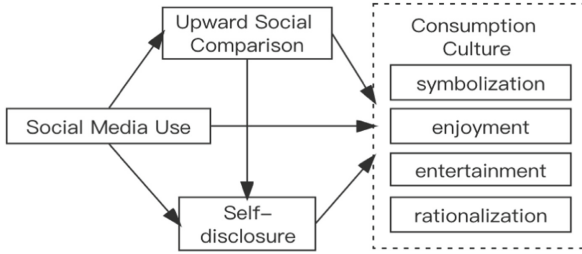


Fig. 1. Research Hypothesis Model.

H4a: Upward social comparison will positively predict self-disclosure.

H4b: Upward social comparison and self-disclosure play a serial mediating role in the relationship between social media use and college students’ consumption culture.

The purpose of the present study is to establish a path model to determine whether upward social comparison and self-disclosure, independently and serially, would mediate the association between social media use and college students’ consumption culture. Consumer culture is further divided into four dimensions: symbolization, rationalization, entertainment and enjoyment. The following multiple mediation model is shown in Fig. 1, using SPSS23.0 for correlation analysis, deep neural network for serial mediation effect analysis, and AMOS24.0 to verify it.

3 Methods

3.1 Cross-Sectional Survey

According to the current national education system, we comprehensively considered grades, types, and geographical distribution to select target, and generated Internet questionnaires after a preliminary survey. 814 samples from different universities were recovered, a total of 713 undergraduate students (54.05% females) in China completed an online questionnaire following informed consent. The measures on a 7-point Likert-scale from 1(strongly disagree) to 7(strongly agree) are as follows:

Social media use was assessed through a measure designed by Ellison [11] through five items. The scale showed high internal consistency (Cronbach’s $\alpha = .870$).

Upward social comparison was assessed through a measure designed by Gibbons and Buunk [12] through the average of five items. The scale showed high internal consistency (Cronbach’s $\alpha = .927$).

Self-disclosure was assessed through an index compiled by Miller with five items limited to “social media friends”. The scale showed high internal consistency (Cronbach’s $\alpha = .884$).

Consumption Culture: Symbolization, rationalization, enjoyment, and entertainment were all measured using Dong’s consumption culture scale with a total of 10 items. The scale showed high internal consistency (Cronbach’s $\alpha = .893$).

Common method bias test: Harman’s single factor test method was used to improve the rigor. In SPSS23.0, the data collected by the four scales were used for exploratory factor analysis. Result shows that there is no obvious common method bias in this study.

3.2 Machine Learning

For feature extraction of large-scale data samples, machine learning approach based on existing frameworks is computationally more convenient. For data with high correlation, the initial random weights can be converted to the global maximum immediately, which is suitable for dealing with more complex regression problems. At the same time, we also used the traditional cross-sectional research method to verify it, to avoid the impact of common machine learning problems such as overfitting caused by data offset on the accuracy of the results.

4 Conclusions

Table 1 lists the Mean, Standard deviation and Pearson product coefficient of the college students' social media usage, upward comparison, self-disclosure and consumption culture. Correlation analysis show that social media usage was positively associated with all variables.

Using the neural network model shown in Fig. 2, a regression analysis was performed on the relationship between social media use, upward social comparison, self-disclosure, and consumption culture. Specifically, this study uses social media use (S) as an independent variable, upward social comparison (C) and self-disclosure (L) as mediating variables, and consumption culture (Y) as an outcome variable to examine the paths of action among the variables, and analyze the direct effects, total effect and mediating effect among them. C0 represents the upward social comparison part that is not affected by self-disclosure, and L0 represents the self-disclosure part that is not affected by upward social comparison; S0 and S1 both represent the original values of social media use, which are used as common influencing factors to participate in the calculation of subsequent hidden layers.

At the same time, a structural equation model was tested in which upward social comparison and self-disclosure were mediators, social media use was the predictor, and consumption culture was the outcome. Fitting indexes of the model were: $\chi^2/df = 3.998$, GFI = 0.92, CFI = 0.95, NFI = 0.94, IFI = 0.95, RMSEA = 0.065, the 90% confidence interval of RMSEA was [0.059, 0.071]. The model fitting indexes are reliable.

Figure 3 stated the direct effect of social media use on consumption culture was significant, $\beta = 0.29$, $p < 0.01$. Social media use significantly predicted up social comparison ($\beta = 0.40$, $p < 0.01$) and self-disclosure ($\beta = 0.34$, $p < 0.01$); upward social

Table 1. Descriptive Statistics and Correlation Analysis.

	M ± SD	SMU	USC	SD	CC
Social Media Use	5.046 ± 1.496	1			
Upward Social Comparison	3.581 ± 1.688	.417**	1		
Self-disclosure	3.594 ± 1.540	.471**	.494**	1	
Consumption Culture	4.098 ± 1.222	.471**	.445**	.543**	1

** P < 0.01. N = 713

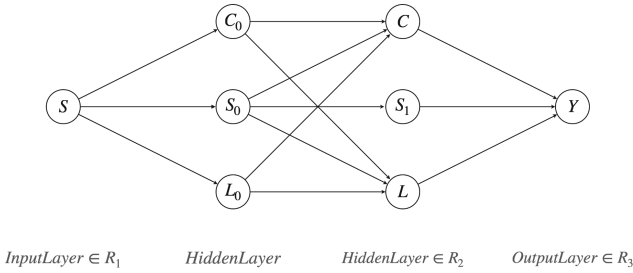


Fig. 2. Schematic diagram of neural network model.

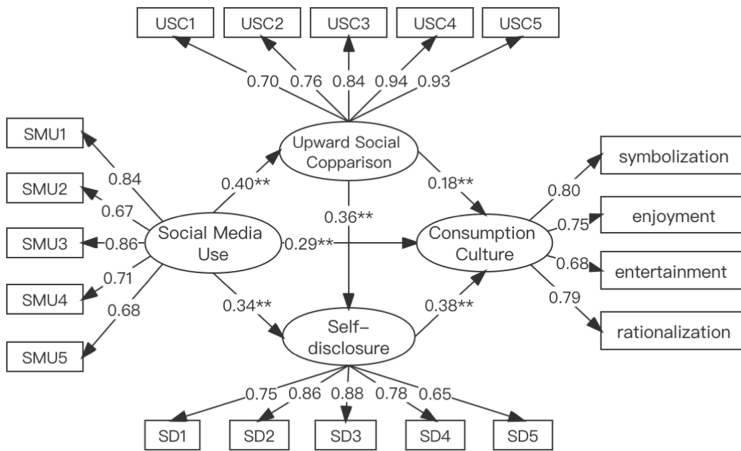


Fig. 3. Structural equation model.

comparison also predicted self-disclosure significantly ($\beta = 0.36, p < 0.01$). As expected, both up social comparison ($\beta = 0.18, p < 0.01$) and self-disclosure ($\beta = 0.38, p < 0.01$) predicted consumption culture.

A serial mediation effect analysis utilizing the Bootstrap method (sample size = 5000) was conducted on PROCESS plug-in. The mediation effect test is significant when it does not contain zero under the 95% confidence interval. The effect value, effect amount and upper and lower limit of 95% confidence interval of each path are shown in Table 2.

A serial mediation model allows the isolation of the indirect effects of up social comparison and self-disclosure. All three-regression coefficient estimates and hypothesized indirect effects based on the use of 95% bias corrected bootstrapped confidence intervals were significant: (1) social media use \rightarrow upward social comparison \rightarrow consumption culture ($\beta = 0.07, 95\% \text{ CI} = [0.03, 0.12]$), (2) social media use \rightarrow self-disclosure \rightarrow consumption culture ($\beta = 0.13, 95\% \text{ CI} = [0.07, 0.20]$), and (3) social media use \rightarrow upward social comparison \rightarrow self-disclosure \rightarrow consumption culture ($\beta = 0.05, 95\% \text{ CI} = [0.02, 0.10]$). These results suggest that all paths are significant and the first, second,

Table 2. Serial mediation effect analysis.

Route	Effect	95% CI		%
		<i>LLCI</i>	<i>ULCI</i>	
Direce	0.29	0.21	0.37	53.70%
Indirect	0.25	0.10	0.40	46.30%
Ind1 ^a	0.07	0.03	0.12	12.96%
Ind2 ^b	0.13	0.07	0.20	24.08%
Ind3 ^c	0.05	0.02	0.10	9.26%

N = 713; ^aInd1 = SMU-USC-CC; ^bInd2 = SMU-SD-CC; ^cInd3 = SMU-USC-SD-CC.

and third indirect effects account for roughly 12.96%, 24.08%, and 9.26% of the total effect, respectively.

5 Discussions

College students' consumption culture is closely related to their social environment, lifestyle, group communication and individual psychology. Previous literature mostly focused on the impact of external factors such as family economic status, parents' education, and urban-rural differences. This research started from the internal mechanism of action and explored the relationship between upward social comparison and self-disclosure in the relationship between social media use and college students' consumer culture.

While the mediating effect of the two mediators is partial, complete mediation is only to be expected when effects are small, as associations between psychological variables are often accompanied with a large number of mediators. These present findings in the dual mediation model suggest that social media use is associated with consumption culture, part of which is mediated by more upward social comparison and self-disclosure independently. Moreover, the serial mediation is also significant, suggesting that social media use is associated with more up social comparison, and that up social comparison subsequently enables self-disclosure, thus predicting consumption culture.

We explored the association between social media use and college students' consumption culture, which has great enlightenment for reasonable guidance of their consumption behavior. However, there are still some limitations. Future studies could employ longitudinal designs or experimental research to investigate the directionality between the study variables. Besides, social media use can also be divided into active and passive use which have different effects on individual's upward social comparison tendency and self-disclosure level. Other variables should be considered to investigate the mediating mechanism, or even continue to study from a perspective of moderating effect.

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