

ARTICLE

## Exploring Items for Measuring Social Media Construct: An Exploratory Factor Analysis

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**Abstract:** Exploratory factor analysis (EFA) is a technique for determining a measure's factor structure and assessing its internal consistency or reliability. EFA is essential for determining which components should be included in the study instrument. Social media is one of the most critical factors that affect online shopping behaviour. Thus, this study aims to use exploratory factor analysis to validate an instrument measuring social media in the context of online shopping. The questionnaire used in this study is adapted from previous studies. The researchers utilised a cross-sectional research design to conduct the EFA, collecting data from 100 respondents using a structured survey. The result shows that the construct has one component. The KMO is 0.892, and the outcome of Bartlett's Test of Sphericity was significant (Chi-square = 510.816, p-value 0.000; this indicated that the data are okay to proceed. Cronbach's Alpha was higher than 0.7, meaning that all items are reliable. The study concludes that the instruments used to measure social media in this research are valid and reliable.

**Keywords:** Social media; Online shopping; Exploratory factor analysis; Instrument

### 1. Introduction

The most intriguing new media type has been social media <sup>[1]</sup>. Social media are new communication technologies that enable people to make more social connections while sharing material, participating in discussions, and controlling content through networks <sup>[2]</sup>. This means that social media are social communication tools that give users to find and share information and engage. As a result, social media has played a dynamic role in transforming the internet from a medium that primarily deals with the

transmission or broadcast of information to allow users to participate in creating their own content <sup>[3]</sup>. Social media has transformed communication, and one part of communication where social media has had a greater influence is online shopping.

Because of social media, businesses and customers' interaction and influence have changed tremendously <sup>[4]</sup>. Whether via speech or passive observation, social interaction comprises acts that influence others' decisions and purchasing patterns <sup>[5]</sup>. Muller and Peres <sup>[6]</sup> stated that social interactions rely significantly on the structure of

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social networks and provide quantifiable benefits to online businesses<sup>[7]</sup>. Researchers have long recognised the role of social media in influencing consumer decisions in social media studies<sup>[7]</sup>. According to a new study, people's connection patterns and social ties may reflect the intensity of social interactions<sup>[8-10]</sup>.

Online firms may now better manage customer relationships and make better business decisions because of the availability of social media data<sup>[11]</sup>. While acquiring and producing value using social media data represents the development of a new strategic resource that has the potential to improve marketing outcomes<sup>[12]</sup>, it can also be used for consumer analysis, market research, and crowd-sourcing new ideas<sup>[13]</sup>. There is a lot of research on social media in relation to different fields, but the standard questionnaire items on social media are not much in the literature. As a result, this paper aims to use exploratory factor analysis to validate an instrument measuring social media in online shopping. Exploratory Factor Analysis was used to examine the validity and reliability of the data collecting instrument<sup>[14]</sup>, which was adapted and modified from a prior study. The items would aid researchers in adopting or adapting the questionnaire related to social media.

## 2. Literature Review

### 2.1 Social Media

Social media is a platform that will enable people to share content<sup>[15]</sup>, such as films, personal information, documents, and images, quickly and electronically<sup>[16]</sup>. According to Wereda<sup>[17]</sup>, individuals or organisations can utilise social media as online or mobile-based platforms to connect interactively and share user-generated content<sup>[18]</sup>. The way we all connect online has altered due to social media. It enables us to learn about what's going on in the world in real-time, to interact with one another and keep in contact with long-distance pals, and to have instant access to an infinite variety of information<sup>[18]</sup>. In many instances, social media has made the globe seem more reachable by allowing more individuals to communicate online<sup>[19]</sup>. Therefore, a business needs to use social media to promote their product and services and at the same time to give feedback to the consumers.

### 2.2 Social Media and Online Shopping

Social media originated as a way for friends and family to stay in touch, but it was rapidly adopted by businesses searching for a new way to communicate with customers<sup>[20]</sup>. The power of social media is the ability to connect and exchange information with everyone in the world or

a large number of individuals at once. Social media has overtaken the globe, with more than 3.8 billion users and counting<sup>[21]</sup>. The importance of social media in assisting businesses cannot be overstated. Social media enables the blending of social interactions on online retailers by facilitating contact with consumers and aids in promoting products and services by allowing targeted, timely, and exclusive promotions and coupons to be distributed to potential customers<sup>[22]</sup>.

Social media is a must-have tool for online retailers. Companies use social media to identify and engage with customers, enhance sales through advertising and marketing, track consumer trends, and give customer service or support. Online shops also use social media to target their customers directly on their phones and laptops<sup>[23]</sup>. Recently, online stores and companies constantly improved consumer interactions, and social media is excellent. According to Dolega, et al.<sup>[24]</sup>, a transactional web presence can help online shops better meet their consumers' demands<sup>[25]</sup>. Social media gives retailers the option to reply promptly to customer inquiries while also making it easy to detect and respond to nasty comments.

Currently, most businesses and organisations rely on social media advertising and promotion techniques since they appear to be more effective and efficient than traditional advertising and marketing methods<sup>[25]</sup> because it is reasonably economical and allows businesses to communicate a message to customers/clients and engage with their stakeholders.

## 3. Methodology

The study used a quantitative approach. The data were collected through a self-administered questionnaire. In social sciences, the quantitative approach is most typically used to analyse numerical data collected in the field. A questionnaire is utilised to gather data<sup>[26]</sup>. The target population of this study is online shoppers from Nigeria. A simple random sampling technique was used to select respondents. One hundred questionnaires were distributed to the respondents. This study uses structured questionnaires for data collection. The questionnaire is based on prior research. The questionnaire was adapted and modified to fit the research topic. As a pre-test for this questionnaire, content validity, face validity, and criteria validity were performed by content experts, face validity by English language experts, and criterion validity by a statistics expert.

### 3.1 Research Instrument

A research instrument is a tool used in quantitative research to collect and observe data. It contains specific

questions and possible responses that have been adopted, adapted, and adjusted to fit the needs of a particular study [27]. The questionnaire is an instrument for this study. To commence Exploratory Factor Analysis, the study adopts and modifies the questionnaire.

### 3.2 Exploratory Factor Analysis

The most commonly used of the two types of factor analytic approaches is exploratory factor analysis [28] exploratory structural equation modeling (ESEM). These techniques include principal-components analysis and principal-axes analysis [29]. The items utilised in this study were taken from instruments developed by previous researchers, with some statements modified to fit the current study's needs. If a researcher updates statements suited to the present study and adjusts the instruments already set by the researchers, they must use the EFA technique [30].

## 4. Results and Discussion

### Social Media Construct

The social media construct was assessed using eight (8) items labelled SOM1 to SOM8, each with a 10-point Likert scale ranging from strongly disagree to strongly agree. Each item's item code, item statement, mean, and standard deviation are displayed in Table 1.

The KMO value for social media is 0.892, and the result of Bartlett's Test of Sphericity was significant (Chi-square = 510.816, p-value 0.000), as shown in Table 2. Both results suggested that the data is acceptable for moving forward with the EFA reduction procedure.

Table 3 reveals that, based on the computed Eigenvalue > 1.0, only one component resulted from the EFA development. 63.513 is the total variation explained when measuring social media. Once the overall Variance explained surpasses 60%, it is suitable.

**Table 1.** Mean and Std. Deviation.

Item Code	Item Statement	Mean	Std. Deviation
SOM1	My shopping behaviour is influenced by knowledge notifications obtained from my social media accounts.	8.47	1.350
SOM2	Unintentionally, social media advertisements lead me to purchase a product from an online store	8.56	1.372
SOM3	I used to make decisions based on messages on my social media accounts.	8.15	1.501
SOM4	When I plan to purchase a high-priced item, I look at social media and see what people say about the product.	8.36	1.460
SOM5	My view of online stores has changed as a result of social media.	8.29	1.540
SOM6	Details found on social media pages may be used to purchase products or services from online retailers.	8.16	1.582
SOM7	My social media friend's recommendations and testimonials inspire me to buy online.	8.16	1.754
SOM8	When I need facts about a product or service, I go to social media forums and groups.	8.72	1.204

**Table 2.** KMO and Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.892
Bartlett's Test of Sphericity	Approx. Chi-Square	510.816
	Df	28
	Sig.	.000

**Table 3.** TVE.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.081	63.513	63.513	5.081	63.513	63.513

Extraction Method: Principal Component Analysis.

The scree plot in Figure 1 demonstrates that the EFA has just one component. Hence all elements in this construct will belong to that component.

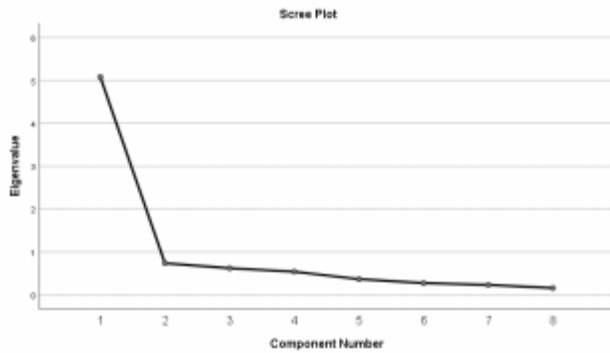


Figure 1. Scree Plot.

Table 4 shows each item’s component, and the items are all part of the same component. Each item’s factor loading must be higher than 0.6 to be preserved. As a result, all items were accepted since they matched the requirements.

Table 4. Component Matrix.

	Component
	1
SOM1	.817
SOM2	.676
SOM3	.850
SOM4	.831
SOM5	.840
SOM6	.864
SOM7	.775
SOM8	.702

Extraction Method: Principal Component Analysis.

a. 1 component extracted.

**Reliability**

The ability of an instrument to consistently show the same result over time is referred to as its reliability. It demonstrateshow the instrument taps the variable consistently and reliably [31]. Reliability analysis aims to see if there is much agreement across several attempts to calculate the same theoretical constructs [32]. A reliability test was conducted using Cronbach’s Alpha coefficient for the lower bound, which was determined to be more than or equal to 0.7, to guarantee the instrument’s capacity to measure what it intends to measure consistently [33]. The Cronbach’s Alpha value is shown in Table 5 based on the results collected; the social media constructs in this study

had high-reliability coefficient values and were eligible for further investigation.

Table 5. Reliability.

No	Constructs	Items	Cronbach’s Alpha
1	Social Media (SOM)	08	.917

**5. Conclusions**

The present study contributes to measuring social media construct, particularly online shopping. This research established the new instrument’s validity and reliability. Eight (8) items measured the social media construct, and the reliability measures showed a high Cronbach’s Alpha. The KMO and Bartlett’s Test of Sphericity outcome were significant, indicating that the data is okay to proceed. According to the study’s thorough scale development and validation methods, the new SOM instrument is internally consistent and stable.

**Implications**

This research work attempts to contribute to an under-investigated arena of social media construct concerning advertising and online shopping. Eight items were developed which could be used to investigate the influence of social media on various variables. This scale will help researchers examine the impact of multiple functionalities of social media platforms and their effect on different antecedents of online shopping. This scale will help marketers access the impact of functionalities on various other variables and help web developers understand how consumers perceive these functionalities. This will help them eradicate the weak links in the functionalities and provide inputs for improvement. Therefore, this scale can be used by social media developers to update and improve their websites for a better consumer experience.

**Conflict of Interest**

No conflict of interest.

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