Validation of a Facebook Word-of-Mouth communication Scale in the South African Context

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***Abstract*:** *This paper describes the process undertaken to validate Facebook word-of-mouth communication as a three dimensional structure in the South African context. A self-administered questionnaire was used to gather data from a convenience sample of 268 students registered at the campuses of the three main categories of public higher education institutions in South Africa, namely traditional universities, universities of technology and comprehensive universities. The questionnaire included scales designed to measure opinion giving, opinion seeking and product information sharing behaviour on Facebook. The captured data was analysed using Pearson's Product-Moment correlation analysis and structural equation modelling. The proposed measurement model of Facebook word-of-mouth communication being a three-dimensional structure exhibited good internal-consistency reliability, composite reliability and construct validity (that is, nomological validity, convergent validity and discriminant validity). In addition, the goodness-of-fit indices produced by AMOS suggested a well-fitting model. The results of the structural model indicate that opinion seeking behaviour and opinion giving behaviour are significant positive predictors of product information sharing behaviour on Facebook.*

Keywords: *Scale validation, word-of-mouth communication, Facebook, South Africa*

1. Introduction

Word-of-Mouth communication, which has long been recognised in consumer behaviour texts as having a powerful influence on the consumers' purchase behaviour [1]-[4], has taken on greater significance in the digitally-connected world of contemporary society [5]-[8]. The advent of the Internet and subsequent development of a plethora of online communication channels such as email, blogs, chat rooms, product review sites and forums, virtual brand communities and social networking sites have facilitated the spread of electronic word-of-mouth communication [6], [7], [9]. These platforms have facilitated the rapid spread of word-of-mouth communication to a large geographically dispersed audience [8].

Social networking sites, of which Facebook is the largest both globally [10] and in South Africa [11] are particularly suitable for the diffusion of electronic word-of-mouth communication [6]. Facebook users can post status updates on their thoughts, opinions, activities and concerns. They can upload photographs, pictures, videos and quotes that they find interesting. In addition, they can accept friend requests and make friend requests [12]. Importantly from a marketer's perspective, Facebook users can also add organisations to their list of friends by 'liking' their page [8]. They are then able to 'like', comment on and/or share the content posted by their Facebook friends [12], including content from organisations that form part of their list of friends. This content may then be 'liked', commented on and/or shared with each of those respective friends' list of friends. As such, while communication on Facebook may occur in real time, the extent and duration of that communication digital footprint is indefinite.

Given that word-of-mouth communication may be positive or negative and that the benefits or consequence of both are significant [2], it is essential that marketers understand the Facebook word-of-mouth communication process [8]. This necessitates having a valid and reliable multi-item scale for capturing word-of-mouth communication in social networking sites such as Facebook.

In the literature, electronic word-of-mouth communication is conceptualised as having the three dimensions of opinion giving behaviour, opinion seeking behaviour and product information sharing behaviour [5], [6], [8]. Individuals who exhibit a high level of opinion giving behaviour are referred to as opinion leaders [6]. Opinion leaders attempt to influence the consumption attitudes and behaviours of others directly through word-of-mouth communication [13]. They share consumption-related information with those who seek them out as sources of such information [14]. In contrast, individuals with a high level of opinion seeking behaviour, known as opinion

http://dx.doi.org/10.17758/ERPUB.ER715202

seekers, actively seek the opinions and advice of others who they perceive as having more knowledge and experience than themselves in order to reduce their risk when making both brand and store choices [13].

The first version of a self-designated multi-item scale measuring opinion leadership appeared in the early 1960s [15], which was then modified in 1970 to be applicable across consumer product categories [16]. While both of these scales were intended to differentiate opinion leaders from opinion followers [15]-[16], it was only in the mid-1990s that a self-designated scale measuring word-of-mouth communication was developed and validated as a two-dimensional structure comprising opinion seeking and opinion leadership behaviour [13].

In the mid-2000s, these two scales were adapted to make them applicable for measuring word-of-mouth communication in the online environment. In addition, a third dimension – opinion passing – was added to take into account the convenience of sharing product information over the Internet, and this dimension was hypothesised as being the behavioural consequence of electronic opinion seeking and giving behaviour [5]. In 2011, these three scales were adapted further to make them specifically relevant for measuring word-of-mouth communication in social networking sites [6].

While the dimensions of opinion seeking behaviour, opinion giving behaviour and product information sharing behaviour have proven to be a valid measure of electronic word-of-mouth communication in studies conducted in other countries [5], [6], [8], a search of four large online academic databases (Google Scholar, EbsoHost, Sabinet Reference and Emerald) revealed no evidence of this measurement model having ever been validated in the South African context, even though empirical evidence suggests that word-of-mouth communication in online social media sites tends to differ from country to country [17].

2. Purpose of the study and research questions

In order to address the shortfall in the literature, the purpose of the study reported in this paper was to validate a Facebook word-of-mouth communication as a three dimensional structure comprising opinion giving, opinion seeking and product information sharing behaviour amongst African Generation Y students in the South African context.

African Generation Y university students were deemed a suitable sample for validating the Facebook word-of-mouth communication scales for several reasons. Members of the Generation Y cohort, who are defined as individuals born between 1986 and 2005 [18], are the dominant age demographic of the Facebook population, both globally [19] and in South Africa [20]. In South Africa, black Africans made up an estimated 84 percent of the country's Generation Y cohort in 2014 [21], which render them an important market segment. The focus on university students was deliberate and based on the assumption that they continue to be heavy users of social networking sites, as indicated in a 2013 study across seven public universities in South Africa [22].

As such, the research questions addressed in this study are as follows:

- Is Facebook word-of-mouth communication amongst African Generation Y students a three dimensional structure comprising opinion seeking behaviour, opinion giving behaviour and product information sharing behaviour?
- Are opinion seeking behaviour and opinion giving behaviour significant positive predictors of African Generation Y students' product information sharing behaviour on Facebook?

3. Methodology

3.1 Sampling method

The target population for the study was specified as 18 to 24 year old male and female African students registered at South African public higher education (HEIs). The initial sampling frame included the 28 public HEI campuses located in Gauteng. Using the judgement sampling approach, this sampling frame was narrowed down to include the campuses of three HEIs situated in the Gauteng province – one from a comprehensive university, one from a traditional university and one from a university of technology.

From this sampling frame, a non-probability convenience sample of 300 students across the three campuses was taken. The selected sample size of 300 meets the criteria of having between 150 and 300 cases for testing structural equation models with seven or fewer latent factors that are not under-identified; that is, do not have latent factors with fewer than three indicators [23]. In order to ensure that data collection did not breach any ethical boundaries in terms of information privacy, a senior academic employed at each of the three campuses

was contacted and asked if they would act as the gatekeeper to students registered at their campus. These three academics were shown a copy of the questionnaire and permission was requested to allow the questionnaire to be distributed to students registered at their campus. Thereafter, fieldworkers were used to distribute the questionnaires to students at the three campuses. Participation in the study was voluntary and an assurance of full confidentiality was given concerning the information provided by the participants, including the name of the HEI where they were registered.

3.2 Research instrument

The required data was collected using a self-administered survey questionnaire. African Generation Y students' opinion giving behaviour, opinion seeking behaviour and product information sharing behaviour on Facebook were measured using existing scales, which were adapted for measuring word-of-mouth communication within online social networking environments [6]. All scaled responses were measured using a six-point Likert scale that ranged from strongly disagree (1) to strongly agree (6). In addition, the questionnaire included demographic questions relating to mother-tongue language, province of origin, age and gender.

The questionnaire was pilot tested on 44 students registered at a campus that did not form part of the sampling frame. The Cronbach alpha values returned for the individual constructs in the pilot study ranged between 0.828 and 0.936, thereby suggesting satisfactory internal-consistency reliability [24]. The captured data was analysed using the Statistical Package for Social Sciences (IBM SPSS) and Analysis of Moment Structures (IBM AMOS), Version 22.

4. Results

After the distribution of the 300 questionnaires across the three selected campuses, 268 usable questionnaires were returned, which represents a response rate of 89 percent. Even though convenience sampling was used, the sample was deemed sufficiently representative of the specified target population in that it included participants from each of South Africa's 11 official language groups, all of its nine provinces and each of the seven specified age categories. The sample comprised more females (59.7%) than males (40.3%), with the majority (68.6%) reporting being 19 to 21 years of age. A large percentage of the population indicated their mother-tongue language as Sesotho (28.7%) and their province of origin as the Gauteng Province (54.1%). Table 1 outlines a description of the sample.

TABLE I: Sample Description

Age	(%)	Gender	(%)	Language	(%)	Home province	(%)
18	16.8	Male	40.3	Afrikaans	1.1	Eastern Cape	5.6
19	34.3	Female	59.7	English	5.2	Free State	7.8
20	22.0			Ndebele	1.5	Gauteng	54.1
21	12.3			Xhosa	11.9	KwaZulu-Natal	4.1
22	9.7			Zulu	14.2	Limpopo	16.4
23	2.6			Sepedi	9.7	Mpumalanga	4.9
24	2.2			Sesotho	28.7	North West	5.6
				Tswana	13.1	Northern Cape	0.4
				Swati	3.0	Western Cape	1.1
				Venda	6.7		
				Tsonga	4.9		

In order to assess the nomological validity of the proposed measurement model and to check for multicollinearity, a correlation matrix using Pearson's Product-Moment correlation was constructed. This correlation matrix is reported in Table 2.

TABLE II: Correlation Matrix

	Opinion seeking	Opinion giving
Opinion seeking		
Opinion giving	0.707	
Product information sharing	0.630	0.682

* Significant at the a=0.05 level

As is evident from Table 2, there is significant positive correlation between each of the pairs of latent factors proposed for inclusion in the model, which infers nomological validity [23]. Furthermore, there are no obvious signs of multicollinearity given that none of the correlations are above the recommended cut-off point of 0.80 [25].

Structural equation modelling, using the maximum likelihood approach, was then conducted using AMOS, where model fit was assessed using the Chi-square, the Goodness-of-Fit index, Incremental Fit Index (IFI), the Tucker-Lewis Index (TLI), the standardised Root Mean Square Residual (SRMR) and the Root Mean Square Error of Approximation (RMSEA). A non-significant Chi-square value, together with GFI, IFI and TLI values of 0.95 or above, and a SRMR value lower than 0.05, as well as a RMSEA value less than 0.08 suggest good model fit [26]. A measurement model was specified that included the three latent factors of opinion seeking (three indicators), opinion giving (three indicators) and product information sharing (three indicators). For model identification purposes, the first loading of each of the three latent factors were fixed at 1.0, which resulted in 45 distinct sample moments and 21 parameters to estimate, leaving 24 degrees of freedom (df) based on the over-identified model.

The model was inspected for any problematic estimates, including negative error variances (Heywood cases) and any standardised factor loadings below -1.0 or above 1.0 [23].

Table 3 reports on the standardised factor loadings, error variances, correlations, and composite reliability (CR), average-variance-extracted (AVE) and Cronbach alpha values.

TABLE III: Measurement Model Values

Latent factors	Indicators	Standardised factor loadings	Error variances	CR values	AVE values	√AVE values	Cronbach alphas
Opinion seeking	D1	0.825	0.680	0.885	0.720	0.85	0.906
	D2	0.927	0.859				
	D3	0.880	0.775				
Opinion giving	D4	0.856	0.733	0.910	0.771	0.88	0.885
	D5	0.834	0.696				
	D6	0.856	0.733				
Product information sharing	D7	0.776	0.602	0.865	0.681	0.83	0.861
	D8	0.871	0.759				
	D9	0.826	0.681				
Correlations	F1↔F2	0.787					
	F1↔F3	0.709					
	F2↔F3	0.756					

The information provided in Table 3 shows that there were no problematic estimates in terms of Heywood cases or standardised factor loadings below -1.0 or above 1.0. With Cronbach alpha values and CR values above the 0.70 level, there is evidence that each of the latent factors exhibit internal-consistency reliability and composite reliability. Concerning construct validity, convergent validity is evident from all factor loadings exceeding 0.70 and all AVE values exceeding 0.50. Discriminant validity is also in evidence given that the square root of each of the latent factors' AVE values is larger than the correlation values [27].

In terms of the model fit indices, a significant Chi-square value of 58.582 with 24 degrees of freedom was computed. Despite this suggesting poor fit, it is well known that this statistic is highly sensitised to sample size [26]-[27]. In contrast, the other fit indices suggested a well-fitting model with GFI=0.956, IFI=0.981, TLI=0.971, SRMR=0.031 and RMSEA=0.073.

As the specified measurement model was found to be a well-fitting model that demonstrated acceptable internal-consistency reliability, composite reliability, convergent validity and discriminant validity, it was deemed suitable for structural model testing.

The structural model hypothesised that opinion giving and opinion seeking behaviour have a direct positive effect on product information sharing behaviour in the Facebook environment. This structural model, illustrated in Figure 1, indicates the resulting regression path estimates.

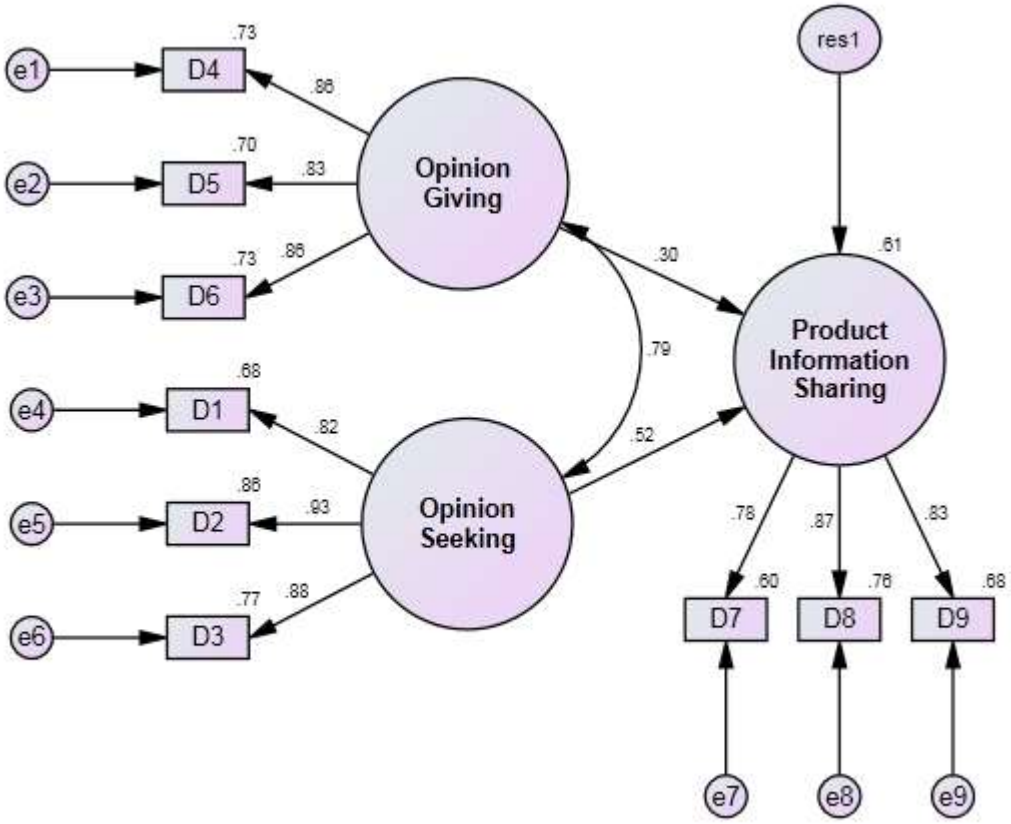

Fig. 1: Structural model

Given that the correlational relationships in the structural model differ to those in the measurement, it is important to check the model fit indices of both models. The closer the structural model fit is to the measurement model fit, the better the fit of the structural model in that the measurement model provides the upper boundaries to the fit indices of a customary structural model [23]. Compared to the fit indices of the measurement model, those computed for the structural model remained unchanged with a chi-square (58.582 (df=24), $p<0.05$), GFI=0.956, IFI=0.981, TLI=0.971, SRMR=0.031 and RMSEA=0.073, thereby again indicating good model fit.

In terms of the regression paths, both opinion seeking behaviour and opinion giving behaviour are significant predictors of African Generation Y students' product information sharing behaviour in the Facebook environment. As shown in Figure 1, at the 0.05 significance level, opinion seeking (path estimate=0.52, $p=0.000<0.05$) is significant in determining product information sharing on Facebook. Similarly, opinion giving (path estimate=0.30, $p=0.001<0.05$) has a significant effect on product information sharing in the Facebook environment. The squared multiple correlation coefficient for product information sharing is 0.79, indicating that the two exogenous latent factors of opinion seeking and opinion giving behaviour collectively explain 79 percent of the variance in African Generation Y students' product information sharing behaviour on Facebook.

5. Conclusion

The results of the structural equation modelling using an African Generation Y student sample verifies that Facebook word-of-mouth communication is a three-dimensional structure comprising opinion seeking behaviour, opinion giving behaviour and product information sharing behaviour. The Facebook word-of-mouth measurement model exhibits internal consistency reliability, composite validity and construct validity. In addition, there was no evidence of multicollinearity between the dimensions. The goodness-of-fit indices indicate good model fit for both the measurement model and the structural model. Furthermore, both opinion seeking behaviour and opinion giving behaviour were found to be significant positive predictors of African

Generation Y students; product information sharing behaviour on Facebook. While the findings of this study infer that this three-dimensional scale is a valid measure of Facebook word-of-mouth communication in the South African context, one important caveat is that a convenience sample was used and, as such, caution should be exercised in generalising the results to the wider South African university student population.

6. Acknowledgements

This study forms part of a wider research project at the North-West University (Vaal Triangle Campus) that aims to profile the consumer psychology of the South African Generation Y cohort (ProGenY).

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