How Social Media Marketing Drives e-Learning Platform Adoption: A Multigroup Approach

Inés Requez-Cipriano and Martín Mauricio-Andía
Department of Communications, Universidad Peruana de Ciencias Aplicadas, Lima, Perú

u201113556@upc.edu.pe
pccmmmau@upc.edu.pe (corresponding author)

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Abstract: Technological advancements have been instrumental in the evolution of the educational landscape, particularly with the proliferation of electronic learning platforms, which have witnessed significant growth in recent years, offering individuals a diverse array of customised courses. In this vein, the present study seeks to elucidate the impact of social media marketing activities on electronic word-of-mouth and student intention to engage with these platforms. Specifically, we aim to investigate how activities such as entertainment, interaction, trend analysis, personalisation, and advertising, conducted by leading digital e-learning platforms on social networks, shape user behaviour. Furthermore, we endeavour to assess the mediating role of electronic word-of-mouth, with a particular emphasis on the educational attainment level of respondents. To achieve these objectives, we conducted a cross-sectional quantitative study involving a sample of 303 participants, all of whom were users of at least one electronic learning platform. Structural Equation Modelling (PLS-SEM) was employed to analyse the proposed model comprehensively. Our findings underscore the substantial influence of social media activities on both electronic word-of-mouth and students' propensity to utilise these platforms. Notably, our multi-group analysis, stratified by educational level, reveals nuanced patterns. Specifically, university and technical users demonstrate a heightened association between social media marketing activities, electronic word-of-mouth, and intention to use, reflecting their urgency in accessing the service and thereby exhibiting a greater receptivity to digital platform activities. Conversely, postgraduate users place greater significance on electronic word-of-mouth, underscoring the importance of authentic user perceptions in shaping their engagement decisions.

Keywords: e-Learning, Electronic word of mouth, Intention to use, Social media marketing activities, Multigroup analysis

1. Introduction

The accelerated development of information and communication technologies, the Internet, and web-based applications has given rise to e-learning (Liu, Liao and Pratt, 2009). E-learning encompasses various forms of teaching and has become an effective means of facilitating online learning processes (Troussas, Krouska and Sgouropoulou, 2021). It has gained great acceptance due to benefits such as cost-effectiveness, collaboration, personalized learning, and others and has become the learning system for future generations (Talebian, Mohammadi and Rezvanfar, 2014).

The growth of e-learning in recent years in global markets has improved corporate competencies and individual talent preparation, with government initiatives promoting the entry of global companies into the market (Ghewari and Anute, 2021). The global e-learning market is projected to reach over $243 billion in the next few years (Korhonen, 2024), with the United States and Europe currently leading the way in this area (Barbour *et al.*, 2020). However, the impact of e-learning is not limited to these regions; in Latin America, the number of users of learning platforms has grown exponentially, reaching figures in the thousands in some countries. This trend highlights the relevance of studying users' motivations and their interaction with learning platforms (Stanley and Montero Fortunato, 2022). Therefore, understanding students' perceptions is essential for identifying key opportunities for improvement in the relationship between users and e-learning platforms, which in turn can facilitate the adoption of effective strategies for student retention and the enhancement of the online learning experience (Mukhtar *et al.*, 2020; Sun *et al.,* 2008)

One of the key factors in assessing the perceived acceptance of e-learning is social media marketing activities, facilitated by the sense of community that social networks provide academically and professionally (Al-Shdayfat, 2018). This type of marketing has been identified as an important catalyst for the development of user loyalty towards educational platforms (Mujica, Villanueva and Lodeiros-Zubiria, 2021). In social media, electronic word-of-mouth (WOM) is generated as a result of users' interactions with educational brands, subsequently affecting their intention to use. Users' intentions are influenced by the opinions of others, and there is the possibility of receiving a positive response from the company if a favourable perception of the brand is obtained (Erkan and

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Evans, 2016; Goh *et al.*, 2017). This phenomenon is particularly relevant in the context of e-learning, where trust in learning platforms can determine technological adoption (Zandi, Lahrash and Shakhim, 2022).

Over the years, research on the relation between social media marketing activities and the intention to use has been developed in various industries (Kim and Ko, 2012; Chen and Lin, 2019). Other studies have highlighted the importance of social media marketing activities in generating electronic WOM (Sharma *et al.*, 2021). From a theoretical perspective, this relationship can be explained through the Uses and Gratifications Theory (U&G) (Katz, Blumler and Gurevitch, 1973), which posits that individuals use media based on their needs and expectations, obtaining specific gratifications. In the context of e-learning, marketing activities on social media can influence usage intention by fulfilling users' informational, social, and entertainment needs. By providing valuable content, facilitating interaction with other users, and creating engaging learning experiences, these activities can strengthen participation and commitment to digital platforms. This theoretical approach further justifies the examination of digital marketing activities as a key element in the e-learning landscape.

In the field of education, emphasis has been placed on the effectiveness of social media marketing activities in accepting online education at different levels of education (elementary, technical, and university) (Shams *et al.*, 2022; Shehzadi *et al.*, 2021). In addition, its importance in the digital ecosystem is underscored by its connection with the intention to use, reducing the user abandonment rate (Tan *et al.*, 2014). Similarly, the exposure of social media marketing activities to electronic WOM is noted, underscoring the importance of its relationship with learners' genuine perceptions of learning platforms (Shehzadi *et al.*, 2021).

However, studies on the mediating role of electronic WOM have been neglected. Some references have mentioned its positive influence as an intermediary among satisfaction, loyalty, and fidelity (Hasan, Al-Dmour and Al-Dmour, 2020; Wei *et al.*, 2021). This emphasizes its importance in the exchange of online options generated by social media marketing activities and its impact on the intention to use in the academic context (Al-Shdayfat, 2018; Sharma *et al.*, 2021).

Despite these findings, the role of eWOM in mediating the relationship between social media marketing activities and usage intention in e-learning platforms has not been sufficiently explored, representing a gap in the literature that this study seeks to address. In this context, the present study has two main objectives: (1) to analyse the relationship between social media marketing activities (SMMA), electronic word-of-mouth (eWOM), and usage intention (UI) in e-learning platforms, and (2) to evaluate the mediating role of eWOM in this relationship. The justification for this analysis lies in the recognition that, in the highly competitive and rapidly changing e-learning environment, platforms must explore the underlying motivations of users to optimize their adoption. To achieve these objectives, the following research questions will be formulated:

- RQ1: To what extent do social media marketing activities influence the usage intention of e-learning platforms?
- RQ2: What is the impact of eWOM on the usage intention of these platforms?
- RQ3: Does eWOM act as a mediator in the relationship between social media marketing activities and usage intention in the context of e-learning?

This research will contribute to the field of e-learning by providing empirical evidence on the impact of digital marketing strategies on the acceptance of these platforms, enabling educational institutions and online service providers to optimize their student acquisition and retention strategies.

2. Literature Review and Hypotheses Development

2.1 Social Media Marketing Activities

Social media marketing is a space that involves information and ideas through social networks, promoting the feeling of closeness (Ibrahim, Aljarah and Sawaftah, 2021). It allows for the sharing of common interests, thoughts, and ideas among people (Li, Larimo and Leonidou, 2021). This leads consumers to follow the brand through online media (Chen and Li, 2019) enabling them to connect with organizations and stimulate their engagement through the creation of communities in real-time or asynchronously (Carr and Hayes, 2015). The goal is to create value and achieve a significant impact on their reputation (Kim and Ko, 2010).

In recent years, research has been conducted to analyse the acceptance of social media marketing activities and their impact on users' responses. This involves their involvement in the analysis process to define the intention to use (Wibowo *et al.*, 2021), demonstrating its contribution to creating this intention among consumers and communities in social networks (Cheung, Pires and Rosenberger, 2020). This impact has been studied across

various fields and environments such as social networks (Chen and Lin, 2019), e-commerce (Yadav and Rahman, 2017). These studies have revealed direct effects on business results, sales volume, profits, and growth rates (Bronnenberg, Kim and Mela, 2016). This is attributed to the constant communication it facilitates with consumers (Breitsohl, Kunz and Dowell, 2015), collectively enabling the effective execution of social media marketing activities as an integral part of a marketing strategy (Li, Larimo and Leonidou, 2021). This enables companies to acquire a functional role to frame, define, and effectively implement activities on these platforms (Kim and Ko, 2012).

In the field of e-learning, a sense of community in social networks is key to its success (Khurshid *et al.,* 2023). Research has mentioned that students exhibit intentions to use influenced by social networks in terms of academic and professional contexts (Al-Shdayfat, 2018). This influence is attributed to the valuable information provided by social media marketing activities available on the social networks of e-learning platforms (Ghewari and Anute, 2021). In addition, interaction with social media marketing activities in the context of e-learning can significantly improve student participation and enable active feedback (Troussas, Krouska and Sgouropoulou, 2021), fostering alliances in e-learning where people create and maintain personal and commercial relationships (Vate-U-Lan and Masouras, 2018).

In the business context, social media marketing activities allow for a more comprehensive understanding of significant digital trends that e-learning platforms should incorporate into their marketing strategy to stand out (Kumar, 2021).

One of the initial studies on social media marketing activities has grouped them into entertainment, interaction, trending, personalization, and WOM communication within the premium brand category (Kim and Ko, 2012). Subsequently, the same activities were expanded to include entertainment and promotion in a study focusing on their implementation in a brand's social networks in the consumer category (Bilgin, 2018). In 2017, other authors incorporated this information in a study that tested its influence on brand equity and the intention of use in e-commerce (Yadav and Rahman, 2017). Later, activities such as entertainment, interaction, trend, personalization, and perceived risk were grouped in a study on the airline industry, revealing that people's engagement and intention to use can increase with frequent utilization (Seo and Park, 2018).

As can be observed, research has been conducted on the acceptance of social media marketing activities in different settings (Chen and Lin, 2019).

Therefore, for this study, the aforementioned research is taken as a reference. The dimensions of social media marketing activities are classified as follows: entertainment, interaction, advertising, personalization, and trend.

Entertainment

Entertainment in social networks has a great power to satisfy needs, as it allows a strong emotional connection between the brand and consumers (Panigyrakis, Panopoulos and Koronaki, 2020). It is one of the most important activities in social networks because it facilitates acceptance within the integration of a group of people (Khan *et al.*, 2022). This could create relationship with a brand, generating a positive WOM and possible intention to use it (Ibrahim, Aljarah and Ababneh, 2020; Seo and Park, 2018). In addition, users could positively generate electronic WOM as a declaration of their endorsement (Liu, Shin and Burns, 2021).

In the context of e-learning, entertainment enables a better adoption of e-learning (Yan, Eng and Seong, 2024) due to the state of attention it generates in people, similar to the one generated by online games (Lashari *et al.,* 2024). Likewise, entertainment is an indicator of learning performance because the use of social networks is ideal for knowledge sharing and student learning (Eid and Al-Jabri, 2016).

Interaction

Several authors have agreed that interaction within social networks motivates users to create their content and share it online (Kamboj *et al.,* 2018; Hajli *et al.,* 2017). Social networks must be perceived as sincere to consistently convey the brand's values and generate electronic WOM (Hennig-Thurau *et al.*, 2004). This is achieved by fostering customers' understanding through their interaction with the brand (Cheung, Pires and Rosenberger, 2020), enabling the entry of new customers through the exchange of opinions (Lee and Shin, 2014). Accordingly, social networks are designed to persuade online social interaction (Xu, Lovett and Law 2022). Positive emotions generated in the user increase willingness to engage in interactions, thereby triggering intentions to use the brand (Kramer, Guillory and Hancock, 2014). In the context of e-learning, interactions on social networks allow learners to easily exchange ideas, documents, and audio-visual material, forming an effective participatory community (Greenhow and Lewin, 2016; Salloum and Shaalan, 2019).

Advertising

Advertising is a media activity performed by a company or agent in one or more channels (Stephen and Galak, 2012) to persuade a close environment to make a purchase (Stafford et al., 2022). Social networks are those that establish a relationship between professionals and other consumers to create new opportunities to increase brand and consumer awareness through advertising (Tran, Muldrow and Ho, 2021). Subsequently, it became the main generator of positive perceptions that simultaneously increase the brand image value and intention to use (Rusfian and Alessandro, 2021) . The ability of advertising to generate electronic WOM on different platforms helps to effectively position the brand image (Kaplan and Haenlein, 2010). In the context of e-learning, advertising is part of the effective marketing products that help educational institutions attract and engage students (Khan and Joshi, 2006). Given its influence on building user attitude, it can be used to provide information to potential and former users about the benefits of using e-learning (Lee, 2010).

Personalization

Personalization is the extent to which services are tailored to meet consumers' personal preferences (Godey *et al.*, 2016). Several authors have mentioned that personalization in social networks is a tool that should provide attractive and useful information (Kim and Ko, 2010; Merrilees, 2016). Brands may personalize their online communication for certain people who frequently interact on the brand's social networks (Yadav and Rahman, 2018). Through personalization in social networks, users can freely express their thoughts and generate electronic WOM for the brand (Kim and Ko, 2010). The importance of flexibility in personalizing some products or services is considered to show an understanding of the intention to use by customers toward the brand and to garner a positive response (Anshari *et al.*, 2019). In the context of e-learning, it is convenient to develop personalized services to endorse users' intention to use (Kang, 2024), considering the positive impact of personalization in consumers' engagement with the brand (Shanahan, Tran and Taylor, 2019).

Trend

A brand's trend is defined as the speed with which it communicates current information (Naaman, Becker and Gravano, 2011). This capability captures customers' attention and associates the brand with positive feelings, thereby strengthening customer loyalty (Liu, Shin and Burns, 2021; Panigyrakis, Panopoulos and Koronaki, 2020). Furthermore, it contributes to the construction of a positive brand experience, enabling the perception of leadership. This, in turn, motivates others to learn about the brand and generates electronic WOM through discussions and comments (Chan *et al.*, 2014).

Studies have revealed that interaction through electronic word-of-mouth (eWOM) and digital trends directly influence consumer engagement with the brand, thereby strengthening brand recognition and generating intention to use (Cheung, Pires, and Rosenberger, 2020). However, while these findings are relevant, the existing literature in the context of online learning platforms (e-learning) has not adequately explored the specific factors influencing user adoption and engagement within this environment.

In the context of online learning, staying abreast of the latest technological trends is crucial, as users value innovative e-learning offerings, as highlighted by the adoption of emerging technologies that enhance the user experience (Cook and Triola, 2014). This involves integrating future digital tools into the learning process, such as augmented reality, which has shown a positive impact on student engagement and retention (Düking, Holmberg, and Sperlich, 2018).

Furthermore, the literature suggests that eWOM in the context of e-learning has the potential to modify students' perceptions of the quality and effectiveness of learning platforms. Experiences shared by other users, particularly on social platforms, can generate positive expectations that drive intention to use and student satisfaction (Wang *et al.,* 2023)**.** This dimension of eWOM requires more thorough analysis in the context of online learning, given its potential impact on the choice of educational platforms.

In conclusion, while existing research provides a general understanding of the influence of eWOM and technological trends on consumer engagement, there is a need for a more focused and critical analysis of the contextual factors affecting student adoption, engagement, and satisfaction on e-learning platforms.

Accordingly, the following hypotheses are postulated:

H1: Social media marketing activities impact the formation of positive WOM in e-learning users.

H2: Social media marketing activities positively impact e-learning users' intention to use.

2.2 Electronic Word-of-Mouth

WOM is defined as an informal communication about the use or characteristics of products or services shared with other customers (de Matos and Rossi, 2008). It influences the development of consumer attitudes and their intentions to use products or services (Chatterjee and Kumar Kar, 2020). With the advent of the Internet, electronic WOM has been referred to as the communication by potential or actual customers of a brand or company that maintains a presence in social networks (Chu, Lien and Cao, 2019; Kara *et al.*, 2018). This communication fosters closeness, loyalty, and an emotional relationship between brands and consumers (Brodie *et al.*, 2013). Consumers rely on this communication before making a product purchase. They seek information gathered online (Alrwashdeh, Emeagwali and Aljuhmani 2019), leading to the generation of conversations where they express their perceptions about the quality of the product and/or service through electronic WOM. This information is valuable in predicting their intentions to use (Jalilvand and Samiei, 2012; Zhao *et al.*, 2016).

The mediating role of electronic WOM is manifested as an important element between brand image and intention to use in consumer markets (Jalilvand and Samiei, 2012). It influences customers' value perception and loyalty intentions due to the exchange of opinions among customers (Kim and Hyun 2019). Studies have revealed that the generation of this communication positively impacts as an intermediary between satisfaction and loyalty of the e-consumer (Hasan, Al-Dmour and Al-Dmour, 2020).

However, in the e-learning context, only few studies have focused on the mediating analysis of electronic WOM. Nevertheless, the studies found in this context have revealed the important role of electronic WOM, as educational brands are more exposed to their users generating their opinions (Shehzadi *et al.*, 2021). Furthermore, e-learning presents a significant relationship with electronic WOM, as it allows the brand to have a positive perception by its students (Cole, Shelley and Swartz, 2014). Therefore, this study seeks to analyse the mediating role of electronic WOM between social media marketing activities and intention to use to know its level of influence between both variables in the context of e-learning.

Accordingly, the following hypothesis is postulated:

> *H3: Electronic WOM presents a mediating role between social media marketing activities and e-learning users' intention to use.*

2.3 Intention to use

In the marketing field, this variable has been extensively researched as a determinant of actual technology use in the context of technology adoption (Hoffman *et al.*, 2022; Lin *et al.*, 2020). Within the context of social networks, research has revealed that the content generated by social media marketing activities motivates interaction (Aji, Nadhila and Sanny, 2020), enabling seamless two-way communication for sharing information and opinions. This openness allows brands to be more transparent with consumers compared with traditional media, thereby increasing brand engagement and strengthening consumers' intention to use the brand (Yadav and Rahman, 2017).

In the context of online learning, the likelihood of adopting a learning platform increases when individuals perceive positive feedback through electronic word-of-mouth (e-WOM) (Noh, Jang and Jeon 2021). This suggests that user experiences, as communicated through e-WOM, play a significant role in shaping the intention to engage with these platforms (Zhang *et al.,* 2022).

While there is a substantial body of research examining the general relationship between e-WOM and consumer behaviour across various industries, the specific dynamics within the online learning sector remain underexplored. This relationship has been studied in diverse contexts, including the consumer industry (Aji, Nadhila, and Sanny, 2020), e-commerce (Goh et al., 2017), and social media (Erkan and Evans, 2016). However, the educational context, particularly online learning platforms, presents unique challenges and opportunities. Research indicates that online reviews are pivotal in influencing the adoption of online learning platforms and enhancing student satisfaction (Rabah *et al.,* 2024).

A more focused analysis is required to investigate the specific challenges and opportunities within online learning environments. Key factors, such as digital literacy, user interface design, and the role of social influence through e-WOM, warrant a more critical examination. Moreover, understanding how different types of e-WOM (e.g., peer reviews, instructor feedback) affect student engagement and their ongoing use of learning platforms could offer valuable insights for improving platform design and increasing student participation. A deeper exploration of these contexts will not only enrich the current literature but also contribute to the development of more effective strategies aimed at enhancing student interaction with online learning platforms.

Accordingly, the following hypothesis is postulated:

H4: Electronic WOM positively impacts e-learning users' intention to use.

Figure 1 below illustrates the hypotheses proposed in this research. The diagram serves as a visual representation of the hypotheses analysed in the study.

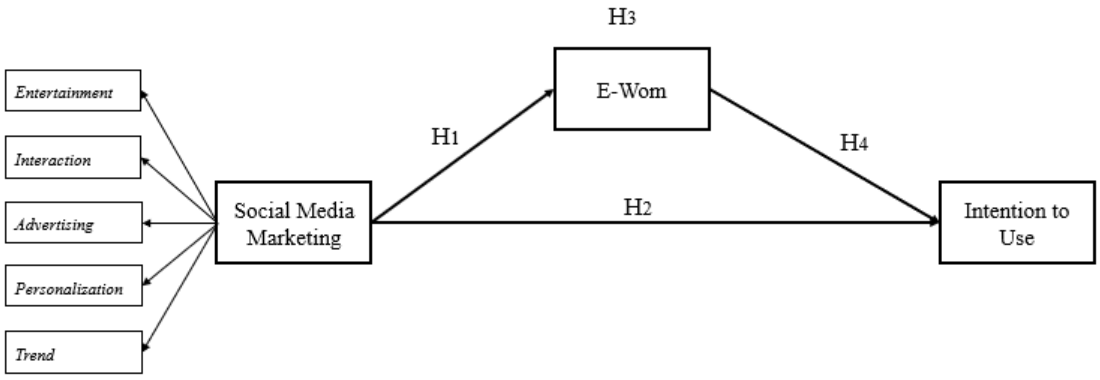

Figure 1*:* Research model

3. Method

3.1 Data Collection

The study population comprised technical, university, and postgraduate students who had taken an online course on an e-learning platform in the last six months. This last criterion was essential for completing the questionnaire; those who did not comply with this requirement were directed to complete it. The sampling procedure adopted was non-probabilistic, specifically convenience sampling, due to time and resource constraints in data collection. This approach allowed for quick access to a diverse group of participants based on their recent experience with online learning platforms (Etikan, 2016).

The sample comprised 303 people who had taken at least one e-learning course through an online platform(s) in the last six months. The most commonly used platforms included Udemy, Domestika, Coursera, and Crehana, selected for their popularity in technical, university, and postgraduate contexts. The demographic profile of the sample encompassed women (51.49%) and men (48.51%), with ages ranging from 18 to 25 years old (41.58%), and a significant portion studying and working (28.38%). Similarly, the educational levels of the participants varied, with the majority having a university background (55.00%), followed by technical (34.33%), and postgraduate (10.67%) qualifications. Table 1 presents the demographic results of the study.

Table 1*:* Demographic results

Variable	Category	Frequency	Percentage
Genre	Men	147	48.51%
	Women	156	51.49%
Age range	Under 18 years old	16	5.28%
	18 to 25 years old	126	41.58%
	26 to 35 years old	123	40.59%
	36 to 45 years old	32	10.56%
	46 to more	6	1.98%
Educational level	Technical	104	34,33%
	University	167	55,00%
	Post Graduate	32	10,67%

Variable	Category	Frequency	Percentage
Occupation	Studying	25	8,25%
	Working	85	28,05%
	Studying and working	86	28,38%
	Leading my own business	64	21,12%
	Looking for a job	43	14,19%

3.2 Measures

A questionnaire of 18 questions adapted to the field of study was translated into Spanish. For each question, a Likert-type scale format was used, comprising five (5) levels ranging from "strongly disagree" (1), "disagree" (2), "neither agree nor disagree" (3), "agree" (4), and "strongly agree" (5). The questionnaire was translated following a back-translation approach to ensure semantic and conceptual equivalence between the original and translated versions (Beaton *et al.,* 2000).

In the case of social media marketing activities, five dimensions were included: entertainment, interaction, trend, advertising, and personalization, making two items for each dimension, adapted from the study that aimed to assess the perception of each of them in social networks (Kim and Ko, 2012). For electronic WOM, four indicators were used, referring to a study with a similar objective, to assess its role in the electronic context (Hidayanto *et al.*, 2017). Likewise, for intention to use, four indicators were used, adapted from the study that sought to understand the impact of user behaviour on their intention to use online platforms (Alraimi, Zo and Ciganek, 2015). The use of the Internet for the research study through surveys was chosen due to the advantages it offers, enabling quick and cost-effective outreach to a larger audience, facilitating the adaptation of questions, and simplifying the management of data analysis (Evans and Mathur, 2005). However, this approach has limitations related to self-selection bias, as participants must have access to Internet-connected devices, which could exclude certain segments of the population.

4. Data Analysis

Partial Least Squares-Structural Equation Modeling was used for the analysis of results to analyse causal relationships between variables (Hair, Ringle and Sarstedt, 2011). This method was chosen due to its ability to handle complex models with multiple independent and dependent variables, even in small or medium-sized samples (Chin, 1998). Furthermore, unlike covariance-based SEM, PLS-SEM is more suitable when the primary goal is prediction and the exploration of emerging theoretical relationships (Sarstedt *et al.,* 2019). The partial least squares algorithm was used, employing an iterative approach to maximize the explained variance of the dependent variables. The model was run with 300 iterations and a 5% significance level for hypothesis testing, following the recommendations of Hair, Ringle and Sarstedt (2011). Considering the multidimensionality of social media marketing activity, it was measured as a second-order construct (Sarstedt *et al.*, 2019).

First-order measurement model

At the beginning of the process, EWOM 1 was eliminated due to its correlation with SMMA. Subsequently, the model was rerun to verify the reliability of each indicator. Its external loadings were evaluated considering the criterion that each must be greater than 0.7 (Hair, Ringle and Sarstedt, 2011). Cronbach's alpha and composite reliability scores were used to measure the internal consistency of the variables. The results surpassed the proposed threshold above 0.7 (Fornell and Larcker, 1981). In the same way, convergent validity was evaluated by the average variance extracted (AVE). A value greater than 0.5 indicates that at least 50% of the variance is explained by its indicators (Henseler, Ringle and Sarstedt, 2015). The results revealed values between 0.575 and 0.770, fulfilling this criterion. Table 2 presents the details of the reliability and convergent validity results of the first-order model.

Table 2: Reliability and convergent validity of the first-order model

Item	Loads	Variable	Cronbach's alpha	Composite reliability	AVE
ENT1	0,796	ENT	0,576	0,823	0,700
ENT2	0,875				
INT1	0,801	INT	0,536	0,811	0,682
INT2	0,850				
TRE1	0,809	TEN	0,583	0,826	0,704
TRE2	0,869				
PER1	0,842	PER	0,666	0,856	0,748
PER2	0,887				
ADV1	0,891	ADV	0,702	0,870	0,770
ADV2	0,864				
EWOM2	0,805	EWOM	0,702	0,834	0,626
EWOM3	0,803				
EWOM4	0,766				
IU1	0,757	IU	0,785	0,861	0,608
IU2	0,811				
IU3	0,801				
IU4	0,749				

The discriminant validity of the first-order model was admissible because the ratio between the Heterotrait–Monotrait (HTMT) correlations indicated in Table 3 was less than 0.9 (Henseler, Ringle and Sarstedt, 2015), confirming its consistency with the proposed parameters.

Table 3: HTMT

	IU	ENT	EWOM	INT	PER	ADV	TRE
IU							
ENT	0,798						
EWOM	0,814	0,716					
INT	0,747	0,693	0,866				
PER	0,762	0,830	0,811	0,852			
ADV	0,719	0,699	0,672	0,800	0,758		
TRE	0,829	0,879	0,870	0,829	0,862	0,799	

Second-order measurement model

The results of the evaluation of reliability, convergent and discriminant validity of the second-order mod was measured. In the case where only social media marketing, the results indicated that Cronbach's alpha (0.828) and composite reliability (0.879) demonstrated sufficient internal consistency. The HTMT criterion was used to evaluate the discriminant validity. As shown in table 4, the HTMT value of all variables was below 0.9, confirming that the discriminant validity of the model was admissible.

Table 4: Discriminant validity of the second-order model

	IU	EWOM	SMMA
IU			
EWOM	0,814		
SMMA	0,865	0,879	

Structural model analysis

The second stage of data analysis was evaluated through the structural model, with the objective of analysing the predictive capacity of the model and the relationships proposed in the study.

First, the collinearity of the exogenous constructs was excluded based on the values of the variance inflation factor, which were well below the threshold of 5. Therefore, no multicollinearity problem was observed. Regarding the analysis of the coefficients of determination, indicating the amount of variance explained by a construct (R^2), it can be observed that 52.2% of the variance of IU was explained by EWOM and SMMA. Furthermore, 45.4% of the variance of EWOM was explained by SMMA, with both values considered moderate (Chin, 1998).

The magnitude and statistical significance of the path coefficients, which specify the relationships of the structural model, were then assessed. To evaluate the significant effect, a test of bootstrapping of 5000 subsamples was performed with a p-value of 0.05 (Hair, Ringle and Sarstedt, 2011).

In relation to the first hypothesis, a positive and significant relationship was observed between SMMA and EWOM (β = 0.674; p-value = 0); thus, this hypothesis is statistically accepted. Regarding the second hypothesis, a positive and significant relationship was demonstrated between SMMA and IU (β = 0.530; p-value = 0), thereby accepting the hypothesis. In the fourth hypothesis, a positive relationship was observed between EWOM and UI; it was also significant (β = 0.250; p-value = 0.000). This confirmed the acceptance of this hypothesis. Finally, in relation to the third hypothesis, a positive relationship was observed in the mediating role of EWOM with SMMA and UI (β = 0.168; p-value = 0), confirming the approval of this hypothesis. Table 5 shows the hypotheses testing.

Table 5: Hypothesis test result

	Coefficient β	Statistics t	f^2	P-Values	Hypothesis
EWOM -> IU	0,250	3,958	0,071	0,000	Accepted
SMMA -> IU	0,530	9,705	0,321	0,000	Accepted
SMMA -> EWOM	0,674	17,569	0,833	0,000	Accepted
SMMA -> EWOM -> IU	0,168	3,830		0,000	Accepted

Multigroup analysis

Theoretically, multigroup analysis is the comparison of group-specific effects with the moderation of a variable (Baron and Kenny, 1986). Currently, this statistical technique is used to compare and contrast the relationships between variables from different groups and across different domains (Matthews, 2017). In addition, it allows researchers to test whether the relationships between variables are the same in different subgroups of a population (Yuan and Chan, 2016), affecting the direction and/or strength of the relationship between an independent or predictor variable. In line with this concept, group effects caused by the moderation of a variable express the degree of the group membership in each observation (Sarstedt, Henseler and Ringle, 2011). In this study, multigroup analysis was conducted using the permutation approach, which allows for the evaluation of significant differences between groups without requiring normal distributions (Chin and Dibbern, 2010). In the field of marketing, multigroup analysis is important for understanding and analysing the behaviour of various segments of one or more markets (Black and Babin, 2019).

Within the analysis, the comparison of relationships between the same variables based on educational level was evaluated. In the context of e-learning, the relationship between SMMA and EWOM considerably impacted users with a technical education level (β = 0.770), followed by university (β = 0.733) and postgraduate (β = 0.663) levels. Furthermore, the relationship between SMMA and UI was less significant for the postgraduate level of education (β = 0.460), being more significant for the university (β = 0.483) and technical (β = 0.483) educational levels. Similarly, the relationship between EWOM and UI, although to a lesser extent compared to the previous relationships, indicated its impact on users with university education (β = 0.292), followed by postgraduate (β = 0.308) and technical (β = 0.330) education levels. Table 6 shows the results of the multigroup analysis tests.

Table 6: Multigroup Analysis Result – Educational level

	β (Postgrad.)	Beta (Techn.)	Beta (University)	p-values (Postgrad.)	p-values (Techn.)	p-values (University)
SMMA→EWOM	0,663	0,770	0,733	0,000	0,000	0,000
SMMA → IU	0,460	0.483	0,483	0,000	0,000	0,000
EWOM → IU	0,308	0,330	0,292	0,007	0,002	0,010

5. Discussion of the Results

Within the context of e-learning, the study represents a contribution to the field of marketing. It evaluates the impact of social media marketing activities on electronic WOM generation and intention of use, offering a theoretical and practical approach that expands upon previous research on digital marketing and e-learning (Liaw, 2008; Ong and Lai, 2006; Roca, Chiu and Martínez, 2006; Tarhini, Hone and Liu, 2014). In view of the scarcity of studies in Latin America on e-learning, the present analysis is a contribution to the previous research and addresses a gap in the literature regarding the interactions between digital marketing and online education in this region (Azzari and Pelissari, 2020; Ramírez-Correa, Arenas-Gaitán and Rondán-Cataluña, 2015).

In this context, the study aims to enhance our understanding of the importance of the relationship between SMMAs in generating strong EWOM and its influence on students' UI. Differences were observed in the impact of specific digital marketing activities, with strategies that promote interactivity, personalization, and visually engaging content tending to generate a higher volume of positive EWOM. This supports and extends previous findings in digital marketing and consumer psychology (Aji, Nadhila and Sanny, 2020; Kim and Ko, 2010; Seo and Park, 2018; Sharma *et al.*, 2021) and aligns with findings from other authors in relation to the IU of users (Erkan and Evans, 2016; Goh, Heng and Lin, 2013; Knoll, 2016; Liaw, 2008). For instance, posts created by microlearning platforms on social media foster higher emotional engagement, a critical factor in the adoption of e-learning (Mujica, Villanueva and Lodeiros-Zubiria, 2021).

Establishing the relationship between SMMAs and EWOM enables companies to gain deeper insights into their audience and design more effective strategies for engaging users in educational contexts. This finding enhances the conceptual framework of digital marketing in e-learning, as users highly value interactive, accessible content that fosters an emotional connection with educational brands (Jalilvand and Samiei, 2012; Mujica, Villanueva and Lodeiros-Zubiria, 2021). Similarly, in the relationship between SMMAs and UI, students emphasized the importance of content generation in activities for creating an intention of use toward the brand (Knoll, 2016).

In addition, this research aims to fill a theoretical gap by demonstrating the mediation of EWOM between the SMMAs of e-learning platforms and the UI presented by students. The study concludes that EWOM serves as a pivotal mechanism for converting the positive perception of SMMAs into a stronger intention to use. This finding is consistent with existing literature that underscores the role of EWOM as a fundamental conduit between digital marketing strategies and consumer behavioural intentions (Lopes, 2011; Hasan, Al-Dmour and Al-Dmour, 2020; Jalilvand and Samiei, 2012), demonstrating the mediating role of EWOM is important for users to obtain genuine information from other users. This information allows users to recognize and confirm their expectations, in addition to resolving their doubts and forming their perceptions with less error rate in their intention to use (Cole, Shelley and Swartz, 2014; Hasan, Al-Dmour and Al-Dmour, 2020). This consistency aligns with previous research in the consumer marketplace (Jalilvand and Samiei, 2012) and consumer perceptions (Brunner, Stöcklin and Opwis, 2008).

Finally, with less significance in the results, it was possible to demonstrate the positive influence between EWOM and UI, as mentioned by several authors who indicated UI as one of the main consequences of generating EWOM (Jalilvand and Samiei, 2012; Pöyry *et al.*, 2012). This outcome allows students to reduce the risk when making a decision about their intention to use and allows companies to perform a predictive analysis of the intention to use of users, which is the basis for creating personalized marketing strategies for students (Wei *et al.*, 2021). Furthermore, this finding provides companies with a robust foundation for developing predictive models that incorporate the dynamics of EWOM, thereby enabling them to customize their digital marketing strategies to address the specific needs of students.

Multigroup analysis

In the multigroup analysis, the results have been classified according to the level of postgraduate, university, and technical education levels to measure their level of significance with the variables analysed in the study.

This indicates that, for postgraduate users, the relationships analysed between the variables were of lesser relevance. This is in comparison with technical users, who presented a higher level of significance among the relationships presented in the study. University users presented an intermediate level of significance in the relationship between the variables compared with technical and postgraduate users. The results and analysis of each relationship between the variables are described below:

The first relationship analysed between social media marketing activities and electronic WOM indicated greater significance among university students and professionals. This finding can be attributed to the professional and social development stage of these users, who are inclined to seek social validation and trusted sources of information when evaluating educational alternatives. This supports the idea that electronic WOM functions as a crucial mediator in educational decision-making, particularly in contexts where perceived risk is low due to minimal financial involvement. This suggesting that the information derived from electronic WOM, generated by the social media content of the institutions, was more relevant for them. It allowed them to evaluate course offerings and gain a genuine understanding of their target audience.

Similarly, for both educational levels, the relationship between social media marketing activities and the intention to use them was more important. This association may be attributed to the perceived accessibility, relevance, and personalization of the educational content delivered through digital platforms. Additionally, university and technical students tend to place greater importance on the institutions' ability to craft a coherent and compelling narrative that aligns with their professional aspirations. This suggests that the content generated by the institutions was more relevant. Moreover, they considered their communication in social media to be important, as it directly influenced the intention to use. This conclusion suggests that there was no fear of risk in the subsequent decision, likely attributed to the low monetary involvement associated with the educational service.

The level of technical education was more significant in the relationship between electronic WOM and intention to use, demonstrating the importance given to the information generated by other users. This can be explained by the fact that technical users, due to their limited prior experience with online education, are more dependent on electronic WOM to mitigate the uncertainty associated with the courses offered. This behaviour is consistent with technology adoption theories, such as the UTAUT2 model, which highlights the influence of social factors and performance expectations as critical determinants in the adoption decision (Tarhini *et al.,* 2017). This allowed them to obtain more honest and realistic information about the educational service and directly influenced their intention to use it in the future.

It also highlights a significant disparity in the relationship between variables for users with a postgraduate educational level, suggesting that the analysed e-learning method may not align with their expectations or their pursuit of online education. This inference may be attributed to their advanced level of education, as users with higher educational attainment are more likely to seek learning experiences that offer autonomy, competence, and a meaningful connection to their academic environment.. On the contrary, university students and technicians exhibited a higher affinity to study relations because they were in the process of continuing their professional growth and needed to strengthen their knowledge in a fast, adaptable, and inexpensive way. These features make the e-learning courses examined in this study attractive.

However, postgraduate users represented an intermediate level of significance between electronic WOM and the intention to use. This indicated the significance they attributed to the perception of other users in generating a subsequent intention to use. A pesar de su experiencia académica, este grupo demostró que confía en el WOM electrónico para validar las decisiones en entornos donde la calidad percibida de la educación en línea aún puede variar considerablemente. This highlights the necessity for institutions to adapt their marketing strategies to this demographic, focusing on attributes such as academic credibility, institutional reputation, and the perceived quality of content. This behaviour was driven by the authentic assessment users could obtain through their research of the platform in question.

6. Conclusion

The research provides us with an important perspective on the relationship between the variables analysed: social media marketing activities, electronic WOM, and intention to use, and the users of e-learning platforms. It also contributes to the analysis of the mediating role of electronic WOM in the context of e-learning platforms. Furthermore, this facilitates a more nuanced understanding of how these variables interact, offering valuable opportunities to optimize marketing strategies within the educational sector.

For the design of effective social media marketing campaigns, it is advisable to adopt strategies that prioritize the creation of engaging, relevant content that fosters user interaction. For instance, leveraging testimonials from successful students or positive experiences shared by current users can enhance the credibility of the content and facilitate positive eWOM. Moreover, implementing segmentation strategies based on users' educational level can improve the effectiveness of these campaigns, ensuring that the message is perceived as both relevant and personalized. Lastly, the development of free educational content series on platforms such as Instagram or TikTok can serve as a highly effective tactic for engaging younger audiences, who increasingly seek accessible and dynamic learning resources.In the multigroup analysis, the results have been classified based on the level of education, revealing greater importance among university students and technicians in the relationship between social media marketing activities and electronic WOM. This suggests that the information from electronic WOM generated by the social media content of the institutions was more relevant or them. It enabled them to evaluate course offerings and gain a genuine understanding of their target audience. Therefore, educational institutions can optimize their social media content by utilizing visual and narrative formats that highlight the practical and applied aspects of courses, which can be particularly appealing to technical and university students, as evidenced by the findings of this research.

In addition, the level of technical education significantly impacted the relationship between electronic WOM and the intention to use, reflecting the importance they attached to the information generated by other users. It allowed them to obtain more honest and realistic information about the educational service, directly influencing their intention to use it in the future. To maximize the impact of eWOM within this segment, it is recommended to create online communities where users can freely share their experiences. This will not only increase the volume of comments but also enhance trust in the platform.

It also highlights a significant disparity in the relationship between variables for users with a postgraduate educational level, suggesting that the analysed e-learning method may not align with their expectations or their pursuit of online education. This inference could be attributed to their already high level of education. On the contrary, university students and technicians exhibited a higher affinity to study relations because they were in the process of continuing their professional growth and needed to strengthen their knowledge in a fast, adaptable, and inexpensive way. These features make the e-learning courses examined in this study attractive. However, for postgraduate-level users, it would be prudent to explore marketing strategies that emphasize the depth and specialization of the courses, focusing on elements such as internationally recognized certification, opportunities for professional networking, and access to exclusive resources.

7. Limitations, and Suggestions for Future Research

The study has some limitations that should be considered for future research. First, the research focused on e-learning platforms with on-demand services. Accordingly, it is important to investigate other types of online educational services that allow enriching knowledge about the context to expand the information about the digital influence of these types of services.

Second, it would be beneficial to further investigate the dimensions of social media marketing activities and their relationship with each other in e-learning platforms to better understand how they may differentially influence the intention to use of users, including the mediating role of electronic WOM.

Third, the size of the sample analysed may be limited because it was reduced to residents of the metropolitan area of Lima. Therefore, future research could consider national and international participants, considering the cultural behaviour of each user.

Finally, the multigroup assessment was limited to the educational level of the sample. Accordingly, it would be interesting to examine other factors that represent a significant line of comparison, such as the influence of other more specific moderating variables, level of engagement, digital skills, and learning style through longitudinal studies to analyse how relationships evolve over time and whether differences exist between different life stages or educational contexts.

These recommendations can help to deepen the understanding of the effects of social media marketing in the context of e-learning and contribute to the development of more effective strategies in this area.

purposes. The study ensured strict adherence to ethical standards concerning human subjects, including the protection of participants' confidentiality and the anonymisation of all collected data.

AI Statement: In the preparation of this manuscript, the authors employed ChatGPT exclusively to enhance the linguistic quality and clarity of the text, as well as to assist in the translation process. The intellectual content,

including the conceptual development, analysis, interpretation, and conclusions, was entirely conceived and authored by the researchers. No AI-generated content was utilised in the formulation or execution of the research itself.

Ethics Statement: Prior to their participation, all individuals were fully informed about the study's nature, objectives, and potential implications. Informed consent was obtained, with participants explicitly assured that their involvement was entirely voluntary and that their responses would be used solely for academic research

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Appendix 1: Questionnaire

Social Media Marketing Activities (SMMA) (Aji et al., 2020)

Dimensions: Entertainment (ENT), Interaction (INT), Trend (TEN), Personalization (PER), and Advertising (PUB).

Entertainment (ENT)

ENT1: Interacting with the social media platforms of the e-learning platform is fun.

ENT2: The content of the e-learning platform on its social media is interesting to me.

Interaction (INT)

INT1: The e-learning platform's social media allows me to share information with others.

INT2: It is easy for me to express my opinion through social media about the e-learning platform.

Trend (TEN)

TRE1: The content shared by the e-learning platform on its social media appears to be in line with the current trend.

TRE2: Interacting with the social media platforms of the e-learning platform is what is commonly done nowadays.

Personalization (PER)

PER1: The e-learning platform's social media provides me with the information I need.

PER2: The e-learning platform's social media provides me with the information I need.

Advertising (ADV)

ADV1: I like the advertising on social media that the e-learning platform has posted; it catches my attention.

ADV2: I like the advertising on social media that the e-learning platform has posted; it catches my attention.

Electronic Word of Mouth (eWOM) (Hidayanto, et al., 2017)

eWOM1: Online course recommendations are useful to me.

eWOM2: Recommendations regarding online courses influence my choice of e-learning platform.

eWOM3: Recommendations regarding online courses would increase my interest in obtaining more information.

eWOM4: I can make the decision to choose a specific e-learning platform based on a recommendation I received.

Intention to Use (IU) (Alraimi, et al., 2015)

IU1: I intend to continue using the e-learning platform in the future.

IU2: I will continue using the e-learning platform in the future.

IU3: I will fully recommend the e-learning platform for others to use.

IU4: I will continue using the e-learning platform as regularly as I do now.