

Fake news and youngsters' decision journey: An evaluation of the influence of misinformation on social media

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Abstract

Purpose: Social media has changed the way users interact with each other, and has become an important part of numerous lives. However, there is an increasing flow of implausible content circulating on social media, which points to the need for some categorization and regulation. This study will examine how the proliferation of fake news on social media impacts students and their choice of university. To answer this question, market research was conducted on the precedents that affect the acceptance of fake news among university students when choosing to study for a master's degree that will help them in their professional careers.

Design/methodology: The study used a quantitative method. A parsimonious model of causal relationships was proposed based on scales taken from the literature, assessed by a convenience sample of students, and adjusted by structural equation modelling (SEM).

Findings: Results show that the parsimonious model explains 35% of fake news acceptance and that media dependency (ISMD) and parasocial interaction (PSI) are the main direct effects, while perceived media richness (PR) has a significant indirect influence on the attitude towards fake news and, consequently, on its acceptance. Furthermore, fake news literacy plays a correct moderating role with the most relevant source of influence, SNS dependency.

Research limitations/implications: A convenience sample was used, and a parsimonious model with three antecedent factors and one mediating factor was proposed. Other social factors could have been considered, including multicultural variables.

Practical implications: The results point to students' expressed dependence on social networks as the main factor explaining their attitude towards fake news, negatively moderated by students' level of knowledge about the importance of this phenomenon in social networks. Therefore, it is relevant to promote knowledge about this phenomenon among students to reduce its influence on decision-making processes.

Originality/value: This paper provides a novel context for the study of the proliferation of fake news on social networks: the process of choosing a university by students addicted to the news circulating on social media.

Keywords: Fake news, Universities, Social media, SNS, Influence, Misinformation

Jel Codes: I23, D91, O33

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1. Introduction

In the era of globalization, the rise of the Internet, and social networks, there is a belief that rapid information sharing improves our life (Lee & Choi, 2018), and more specifically, that an environment that facilitates interaction between different users, between users and companies, and even with social organizations, education centers, and public organizations (Wang, Hu, Li & Yang, 2021), is a breeding ground for the development of digital business (Kingeski & Nadal, 2020).

In fact, social networks are expected to become a massive investment market, as an escape route for capital held back by a difficult economic climate (Prieto & Holado, 2019). Thus, it is estimated that the value of the Metaverse market will grow by 36.7% annually over the next seven years (CAGR 2023-2030) (Statista, n.d.). Originally, digital platforms were invented to simplify communication in the short term, but in the long-term view, they were also used as a marketing tool (Alves, Fernandes & Raposo, 2016). However, this open market full of investment opportunities has a dark side, manifested through the spread of fake news (Pennycook, McPhetres, Zhang, Lu & Rand, 2020), the proliferation of misinformation and disinformation (Tandoc, Lim & Ling, 2017), and the growth of cybercrime (Ajayi, 2016).

This environment poses a great social challenge, particularly in the decision-making processes of young people, who are strongly influenced by the information distributed online, and are unaware of the volume of fake news they consume (Kim, Song, Liu, Liu & Grimm, 2018; Ng, Lee, Wong & Lam, 2020). Regarding online news consumption, data from GlobalWebIndex (GWI) reveals young people aged 16-24, are the cohort that spends the most time-consuming social media, at 58% (GWI: Definitive Social Media Trends Report, 2023). This fact is of particular concern to colleges and universities, because of the effects that this dissemination of information could have on college applicants (Wineburg & McGrew, 2016).

The term “fake news” is defined as “*a form of falsehood intended to primarily deceive people by mimicking the look and feel of real news*” (Tandoc et al., 2017, pp. 141). Recently, we have seen explosive growth in the dissemination of fake news through social networks. For example, it is estimated that the spread of fake news through social networks grew by 365% in 2016-2017 (Hunt, 2017). One of the cases with the greatest media impact occurred during the 2016 US election (Clinton vs. Trump), where all available resources were used to disqualify the other candidate (Allcott & Gentzkow, 2017). That is, turbulence was the norm rather than the exception with “*8,711,000 shares, reactions, and comments on Facebook, ironically, larger than the total of 7,367,000 for the top twenty most-discussed election stories posted by 19 major news websites*” (Zhou, Zafarani, Shu & Liu, 2019, pp. 195).

The phenomenon of fake news and its exponential growth is increasingly attracting scholars and digital marketing practitioners, who are overwhelmed by the size of the phenomenon and baffled by the difficulty of finding ways to tell reliable and false information apart in the digital era (Cohen, 2017; Pennycook & Rand, 2018; Colliander, 2019; Talwar, Dhir, Singh, Virk & Salo, 2020; Tejedor, Portalés-Oliva, Carniel-Bugs & Cervi, 2021). Despite the emergence and use of verifiers that analyze the nature of the information (Chen, Luo, Hu, Zhao & Zhang, 2021), some based on artificial intelligence algorithms, these are not infallible and allow many loopholes for fake news to slip through (Sáez-Ortuño, Forgas-Coll, Huertas-García & Sánchez-García, 2023). In addition, there is growing concern about the possible effects they could have on young people, who are assiduous users of

social networks and lack the life experience to tell true news from fake news (Chen, Sin, Theng & Lee, 2015; Ng et al., 2020). Therefore, given the permeability of barriers to fake news and the influence of misinformation on young people with difficulties in distinguishing truth and falsehoods (Taylor et al., 2005), only media literacy stands a chance of preventing users from being misled (Chen et al., 2021).

As Tejedor et al. (2021) point out, the proliferation and acceptance of fake news remain an understudied topic, especially its effect on young people's decision-making in their choice of university. Currently, there is increasing international mobility in academia, among both faculty and students (Kingeski & Nadal, 2020). Moreover, universities strongly committed to marketing themselves (Fader & Winer, 2012), with the aim of attracting as many applicants as possible, may resort to exaggerating data and presenting their institutions in the best possible way both on their websites and through social networks (Bland, 2020). Considering that some previous work shows that social networks have had a transformative effect on users' choice of destination (Binkley et al., 2012) it is very important for such users to be able to verify its veracity. Much of the previous work highlights the importance of the dissemination of online information for the education industry (Chen et al., 2015; Tejedor et al., 2021; Tess, 2013; Chen et al., 2021) and emphasizes the problems arising from the spread of misinformation by students (Tejedor et al., 2021; Evanson & Sponsel, 2019; Leeder, 2019; Horn & Veermans, 2019; Tejedor et al., 2021).

At the same time, several observations have emerged from the literature review. First, social media is seen to exert an increasing influence on consumers, which has led to a proliferation of assessments, comments, and ratings of all types of products and companies (Moon, Kim & Iacobucci, 2021; Wesel et al., 2016). However, empirical studies on specific implications in different types of industries, such as higher education, are still lacking (Lee & Choi, 2018; Leeder, 2019; Zanuuddin & Shin, 2020; Omar, Apuke & Nor, 2023). Second, it has been pointed out that the heterogeneous distribution of the population participating in different social networks may lead to a bias in the interpretation of opinions and ratings (Moon et al., 2021); e.g., Lazer, Kennedy, King and Vespignani (2014) warn that many of the forecasts and analyses generated by data from social media misrepresent the real world due to certain population groups being overrepresented or underrepresented on different platforms. For example, a study of the American market notes that Instagram tends to be comprised of young adults (aged 18-29), with a higher frequency of African Americans, Latinos, females, and urban dwellers, while Pinterest is frequented by young-adult females (aged 25-34) from upper-middle-class backgrounds (average annual household income of \$100,000) (Ruths & Pfeffer, 2014). Third, the proliferation of fake news or reviews made to distort the market and whose origin can come from consumers, companies, and competitors (Moon et al., 2021). Three lines of action are being proposed: (i) the development of mechanisms for their detection (Hooi et al., 2016; Pennycook & Rand, 2018); (ii) the analysis of their consequences for the market and society (Talwar et al., 2020); and (iii) the detection and analysis of the motivations that lead users both to generate fake news and to accept this news in the decision-making process (Horn & Veermans, 2019; Tejedor et al., 2021).

Choosing the right higher education institution for the student's characteristics is a huge opportunity (Casanovas, Vicens, Canals & Serra, 2022) to shape their personality (Bowen, 2018), increase their employability (Oreopoulos & Petronijevic, 2013), and improve their standard of living (Vrontis, Thrassou & Melanthiou, 2007) and their social status (Vieira, Vieira & Rego, 2018). Therefore, reading false or manipulated appraisals and accepting them as true can lead to making wrong decisions, which can result in a dissatisfied customer (Wineburg & McGrew, 2016). This study aims to extend knowledge about the third line of action in the context of college choice. Specifically, on the analysis of the factors (perceived richness, SNS dependency, and parasocial interaction) that lead users to accept fake news about university assessments. Moreover, many studies tend to adopt a uniform approach to pseudo-information consumers, whereas this study will analyze the moderating role of the degree of knowledge about fake news. Our project contributes to the broader understanding of fostering digital influence and awareness among young individuals, highlighting its potential as a significant threat. The most noteworthy aspect is its ability to track the synthesis of social behavior and media communication theories to conceptualize the exogenous impact of digital platforms on young individuals' choices.

The article is organized as follows: Section 2 provides a concise overview of the different theories and properties in both human behavior and social media theories for analyzing the role of fake news. Section 3 designs the

research hypothesis and model. Some techniques for analyzing the influence of fake news are briefly reviewed in Section 4. We present results derived from data analysis in Section 5. Our main findings are concluded in Section 6. The final section addresses specific limitations associated with these detection methods and highlights practical implications and future directions.

2. Theoretical background

2.1. Global concern about fake news on digital platforms

Today, social media has become one of the most important sources of information dissemination in society. According to a report by Datareportal (2022), 34.8% of news is generated and distributed through social networks. Moreover, it is mostly consumed by users under the age of 34, who use the internet every day, a minimum of 7-8 hours a week (Horn & Veermans, 2019; Zakharov & Maybee, 2019). Consequently, social media is the perfect breeding ground for a fake news story to get a large circulation in a few seconds.

But what is fake news? Pennycook and Rand (2018, pp. 389) define fake news as "*news content published on the internet that aesthetically resembles actual legitimate mainstream news content, but that is fabricated or extremely inaccurate. Also referred to as false, junk, or fabricated news*". Moreover, this news can have different destinations ranging from political manipulation to the defamation of public figures, and even public or private organizations and companies. Di Domenico and Visentin (2020) consider fake news to be one of the elements that make up problematic information. In other words, there are many forms of the creation and dissemination of fake news. On the one hand, there is misinformation, which is the dissemination of false information without a clear intention to mislead, and, on the other, disinformation, which involves an intention to manipulate (Sáez-Ortuño et al., 2023). Moreover, also among disinformation it is possible to qualify and distinguish between (i) disinformation created without a basis in fact (e.g., fake news) that may contribute to reinforcing prior beliefs, and (ii) disinformation created on the basis of real facts which are distorted in such a way that they alter the description of the central facts (e.g., conspiracy theories) (Di Domenico, Sit, Ishizaka, & Nunan, 2021).

This study considers the belief and acceptance of fabricated fake news with the intention to mislead, whether or not it has a factual basis, in the dissemination of ratings, reviews, or recommendations via social media posts with the intention of changing students' attitudes toward universities.

2.2. Mapping theories of social media studies and human decision-making

According to Wisdom, Chor, Hoagwood and Horwitz (2014), there are about twenty theoretical frameworks that attempt to explain the reasons and precedents for the acceptance of fake news. One of the most popular is the Theory of Reasoned Action (TRA), proposed by Ajzen and Fishbein (1973), which considers attitude as one of the basic antecedents of the intention to use or accept a social behavior. Also, within the field of social psychology is Bandura's (1989) Social Cognitive Theory (SCT), which considers that part of social knowledge is learned by observing other subjects during social relations and through experience with external means. Currently, social media configures a new social framework of a virtual nature, and therefore, some of the tools used to analyze socialization processes in physical environments can be replicated in virtual ones (Stephen, 2016).

Several theories have been developed relating to mass media and social media, and some of the most relevant are described below. According to Social Networking Site (SNS) dependency theory, as users share information on a social network they increase their engagement with the network community by building and strengthening ties with individual users (Lee & Ma, 2012). Uses and Gratifications Theory (UGT) proposes that users use mass media, such as social media, to enhance their well-being (Katz, Blumler & Gurevitch, 1973). However, it assumes that the audience will play an active role, in the sense that they consume media content to achieve some kind of desire or gratification and are therefore responsible for their consumption (Dhir, Khalil, Lonka & Tsai, 2017). Media System Dependency (MSD) theory, proposed by Ball-Rokeach and DeFleur (1976), allows conceptualizing long-term effects of mass media use and streaming from Uses and Gratification theory (Patwardhan & Yang, 2003), namely, "*individual-level and societal-level conditions that influence the degree of importance of media in individuals' everyday lives*" (Jung, 2017, p 9). Para-Social Interaction (PSI) theory discusses how different types of media

figures interact with consumers to produce various styles of relationships. It is necessary to clarify that what is meant by “media figures” are presenters, actors, and celebrities. Horton and Wohl (1956) define para-social interaction as a “simulacrum of conversational give-and-take” to express users' reception in a media context as a reaction to a media performer, commonly known as the “persona”. Having discussed para-social interaction, our research shall rely on the broad definition of Rubin, Perse and Powell (1985) who suggested even the label of “media interaction” as “*interpersonal involvement of the media user with what he or she consumes ... including seeking guidance from a media persona, seeing media personalities as friends...*” (Rubin et al., 1985, pp. 160).

Finally, young people facing the dilemma of choosing a university often seek news, comments, and ratings from other users on social media for advice (Ng et al., 2020). However, it is known that the same experience can have different effects on different consumers (Forgas-Coll, Huertas-Garcia, Andriella & Alenyà, 2023). To address this fact, the use of a moderating variable is proposed and, for its choice, the recommendation of Hayes (2018) to look for “for whom” this experience could generate different responses has been followed. Within the field of new technologies, Parasuraman and Colby (2015) propose the use of measures linked to familiarity or degree of consumer experience, which is a common factor in research on new technologies (Forgas-Coll et al., 2023). Although some authors consider students' media literacy to be quite low (Choi & Kim, 2017), this study considers that this attribute can play a moderating role. That is, to distinguish between fake and real news, individuals need to develop competencies and acquire skills to assess the veracity of published information (Kim et al., 2018; Zanuiddin & Shin, 2020).

3. Research model and hypothesis development

Based on previous theoretical propositions, this research proposes a parsimonious model to explain attitude change toward fake news and, thus, towards the acceptance of fake news in the context of college or university choice. In addition, the student's ability to detect fake news is proposed as a moderator of this relationship.

There is extensive research that has tried to explain the determinants of social media users' behavior (Jung, 2017), covering technological aspects of the media, the perceived level of interaction (Lee & Choi, 2018), criteria for value attribution and perception (Handarkho, Widyastuti & Harjoseputro, 2021), and different cultural attitudes (Wang, Riaz, Haider, Alam, Sheran & Yang, 2021). However, the scope is narrower when it comes to analyzing the spread of fake news in marketing and its effect on consumer decisions (Di Domenico et al., 2021), and particularly sparse in the area of its effects on university consumers (we have not been able to find any references). For example, Apuke and Omar (2020) propose a model based on six precedents to explain false COVID-19 information sharing behavior. However, some of their precedents, such as “Status seeking” or “Perceived herd”, are difficult to fit in the context of information-seeking for college choice. After reviewing previous literature, and following Lemon and Verhoef's (2016) recommendation to develop brief and comprehensive models, a synthetic model based on mass communication theory was proposed.

According to DeFleur & Ball-Rokeach's (1989) handbook on mass communication, information flows require a triangle of interactions between media, audiences, and the social environment. Therefore, in social media, as a communication medium, all three elements must be present for the dissemination of both true and false news. This study proposes a parsimonious model containing essential elements of the three components: media (Perceived Richness), audience (SNS Dependency), and social environment (Para-Social Interaction), to explain changes in attitudes towards fake news and its acceptance when talking about university schools while the student is considering different options. In addition, the audience's ability to detect fake news is considered as a factor moderating this relationship. The proposed model is depicted in the form of a path graph in Figure 1.

3.1. Perceived richness

According to Uses and Gratifications Theory (UGT), users of social media would use those platforms that bring them the most well-being or gratification (Katz et al., 1973). Therefore, the richness of a platform will depend on its ability (Zhu, Li, He & Hong, 2020) to attract and retain many internet users, in some cases, even from different backgrounds and cultures (Wang, Hu et al., 2021). That is, the richness of a platform will be linked to its distinctive image, its novelty for users, and its content (the quality of the information flow, its reliability and

appropriateness) (Giles, 2002). For this study, the definition of perceived richness suggested by Lee and Borah (2020) has been adapted where “the users perceive the platform can do something for their social interaction, and the concept is operated by the evaluations of easiness, enjoyment, effectiveness, flexibility, and communication apprehension when the users use the platform” (p.21). The characteristics of the source, its credibility, readability, and quality of the information are precedents for argumentation (Wang, Chao, Yu & Zhang, 2022). All these influences will contribute to improving a user's attitude towards dubious news coming from this platform.

Furthermore, since the ability to retain internet users is a component of platform richness, this leads to greater fluidity and exchange of content (Wang, Hu et al., 2021). That is, a higher level of 'perceived richness' has been associated with greater participation in information circulation (Talwar, Dhir, Kaur, Zafar & Alrasheedy, 2019), and thus will contribute to increased reliance. Thus, based on these propositions, the following hypothesis is put forward:

H1a - "Perceived richness " will have a positive effect on social media dependency.

H1b - "Perceived richness " will have a positive effect on attitude toward the use of fake news

3.2. Individual social networking site (SNS) dependency

Media dependency theory proposes that users become addicted to media because of the gratification they derive from the experience of exchanging news (DeFleur & Ball-Rokeach, 1989). As far as it is known, media dependency is defined as a relationship between users and media, where for users to benefit from the media, the media must be fully active, continuously creating, collecting, processing, or disseminating information (Kim, Shin, Cho, Jung, Shon & Shim, 2019). Furthermore, previous studies have shown that this dependency relationship with information flows from social networks influences internet users' ability to achieve their goals (Lee & Choi, 2018). From the user's perspective, dependency manifests itself through frequent use of social networks, the ease of sharing information they find relevant, and a concern with staying up to date and constantly informed (Apuke & Omar, 2020).

However, this dependence can have negative effects, as the need to consume and disseminate information published on social networks can contribute to the dissemination of false news, either consciously or unconsciously, due to a lack of verification (Ajina, Javed, Ali & Zamil, 2023). In the same line of opinion, Apuke, Omar, Tunca and Gever (2022) consider that one of the effects of platforms that do not use information filters is that they can become centers for the dissemination of false and destructive material. Based on the above arguments, we consider that dependency may contribute to a more positive attitude toward the sharing of fake news. Consequently, in the context of valuing universities, social networking site (SNS) dependency could drive a more favorable attitude toward the dissemination of fake news. Based on this, the following hypothesis is proposed:

H2: "Social networking site dependency" will have a positive effect on attitude toward the use of fake news.

3.3. Para-social interaction

Since its introduction by Horton and Wohl (1956), the concept of parasocial interaction has gained considerable recognition in the fields of both mass media and online media (Masuda, Han & Lee, 2022). According to this, mass media can generate parasocial interaction when the live broadcast of a message gives the receiver the illusion that they are having a face-to-face interaction with someone from their primary group (family and friends). Thus, illustrious people from distant countries (scientists, actors, singers, etc.) are perceived as if they were peers, since they come to life in these media in a particularly vivid and striking way (Horton & Wohl, 1956). That is, parasocial interaction refers to the perception of a familiar relationship between the audience and a media figure (Rubin et al., 1985). Moreover, this illusion of intimacy, which is initiated during viewing or through the exchange of messages, is often valued in the medium term as if it were a real interpersonal relationship (Dibble, Hartmann & Rosaen, 2016).

This same concept has been adapted for online environments. Thus, social network users can create this type of relationship with bloggers or influencers by subscribing to their channels or following their posts (Sokolova & Kefi, 2020). Furthermore, para-social interaction positively affects users' attitudes towards the use of services provided by social networks (Yuan, Kim & Kim, 2016), as well as to acceptance of published news regardless of its quality if it comes from prominent members of society or is relevant to them (Apuke & Omar, 2020). On this basis, the following hypothesis is proposed:

H3: Para-social interaction will have a positive effect on attitude towards the use of fake news.

3.4. Fake news attitude

The consumption of information from open sources has generated a great deal of debate about the consequences of exposure to fake news, as it can influence consumers' attitudes to purchasing a new service (Forgas-Coll et al., 2023) or evaluating a delivered service, and even change their intention to continue using it (Di Domenico et al., 2021). Attitude is defined as a mental construct of an emotional nature that reflects positive or negative affect towards an object (Campitelli & Labollita, 2010), as a diagnostic of previous perceptions and experiences (Bentler & Speckart, 1979), and which acts as a precedent for intention and behavior (Ajzen & Fishbein, 1973). The components that contribute to attitude shaping come from self-interest, social identification, feelings, beliefs, experience, and knowledge (Wang, Riaz et al., 2021).

In this study, attitude has been considered as a holistic element and a partial result, which is influenced by media, the audience, and the social environment, and all this can make students change their attitude towards the fake messages that are disseminated on social networks and, consequently, accept them during the process of choosing a university to continue their studies. This is one of the most widely used constructs in the processes of purchasing products, traditional services, and services linked to new technologies (Forgas-Coll et al., 2023). Based on the above discussion, the following hypothesis is put forward:

H5: Attitude towards fake news will positively influence the usage behavior to accept fake information, repost, or retweet.

3.5. Moderating role of fake news knowledge

The detection of fake news distributed through the internet and social media has attracted increasing attention in academia (Omar et al., 2023; Sáez-Ortuño et al., 2023), who often propose media literacy programs to minimize its social impact (Tandoc et al., 2017; Pennycook et al., 2020). Media literacy expert group (2021) defines media literacy as the provision of cognitive skills to increase the ability to access, critically understand and interact with the media. Apuke and Omar (2020) proposed that media literacy and the development of skills to discern fake news could be the strongest moderator regulating news sharing relationships in social networks.

This study finds that the degree of social media literacy among users and their ability to discern between fabricated and true stories can moderate the effects of perceived media richness, degree of audience dependence, and social influence on attitude formation towards fake news (Wei, Gong, Xu, Abidin & Apuke, 2023). That is, higher literacy will reduce the effect of precedent on attitude. Therefore, based on the above argumentation, the following hypotheses are proposed:

H4a: "Fake news knowledge" moderates the relationship between perceived richness and attitude toward fake news use.

H4b: "Fake news knowledge" moderates the relationship between social networking site dependency and attitude toward fake news use.

H4c: "Knowledge of fake news" moderates the relationship between para-social interaction and attitude toward fake news use.

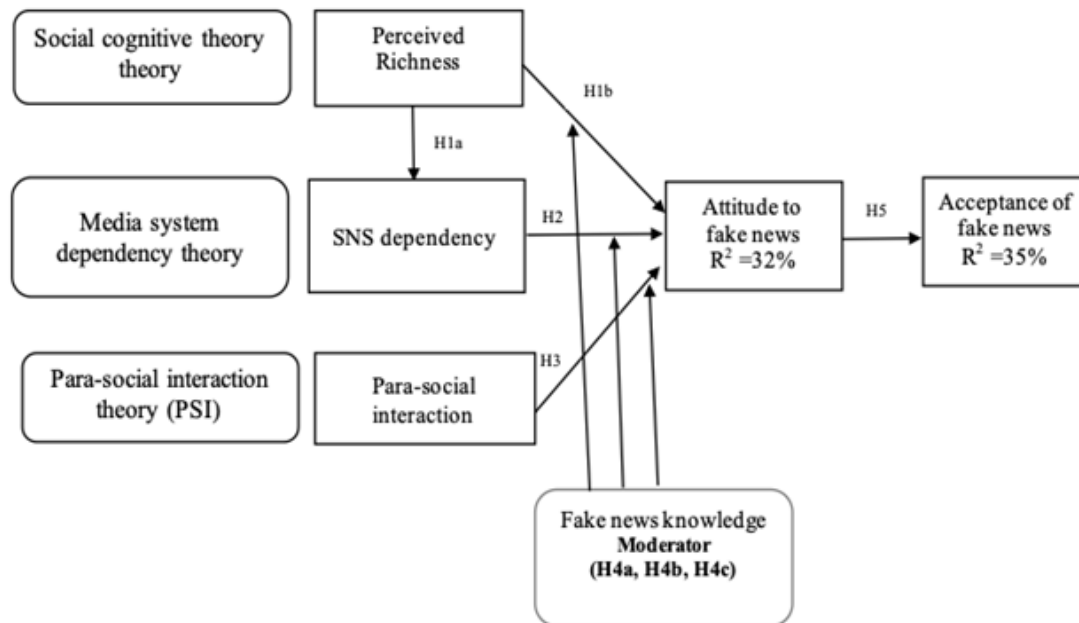


Figure 1. The theoretical framework of the empirical case based on the literature review. Source: by the authors

4. Methodology

To test the parsimonious model, a two-stage quantitative investigation is proposed: an offline pre-test to detect possible translation and comprehension errors of the scales used, and an online test to validate the proposed causal relationship, as well as the weight of the moderating factor considered.

Procedure and data collection. For the fieldwork, a survey was organized using the Google Form platform. The target population was international students of Business Administration degrees at Spanish universities, and given the difficulties in obtaining a representative sample of the population, a convenience sample was used, made up mainly of international students from a private business school. A total of 250 questionnaires were collected, 205 of which obtained valid and complete responses, of which 55% were female and 45% male (mean age = 21 years, age range = 18-29). Data collection took place in October 2022.

Measuring instruments and analytical procedure. Scales from previous literature were used and adapted as estimators of the media (perceived richness), audience (SNS dependence), and social environment (parasocial interaction) factors, as well as the moderating factor related to media literacy, that explain attitude change towards fake news in an environment of choosing a business school for an MBA master's degree. Specifically, Parasocial Interaction (PI) (four items) and Individual Dependence on Social Networks (ISMD) (three items) were adapted from Apuke and Omar (2020). Perceived Richness (PR) was measured with four items taken and adapted from Wang, Riaz et al. (2021). Finally, consumer attitude and behavior were assessed using three and four items, respectively, from the scale developed by Wang, Hu et al. (2021). For a moderator, the fake news knowledge scale was taken from Tejedor et al (2021). A total of 23 items were measured using a 7-point Likert scale (1-totally disagree to 7-totally agree) (Annex 1 lists all constructs and items used).

However, to test the questionnaire, and to correct translation and comprehension problems, a pre-test was carried out. For this purpose, 24 volunteers (international students with different levels of education, origin, gender, and experience in the use of social networks) from private universities in Spain were invited to fill out the questionnaire, and consultations were answered to help shape the questionnaire.

According to Pui-Wa Lei and Qiong Wu (2007), SEM is a large sample technique (usually $N > 200$) and the sample size required is somewhat dependent on model complexity, the estimation method used, and the distributional characteristics of observed variables. Even so, Hair, Hult, Ringle, Sarstedt, Danks and Ray (2021) provided another parameter for sampling saying that a sample of 150 is acceptable when the model has 7 or

fewer dimensions (*no more dimensions need to be under-identified). In summary, the required sample size for research utilizing SEM has a minimum requirement of 200. Therefore, our study included a total of 205 respondents. We opted to employ Structural Equation Modeling (SEM) due to the exploratory nature of our research (Wei et al, 2023; Handarkho et al, 2021; Wang, Hu et al., 2021; Apuke and Omar, 2020; Kim et al, 2019). Structural Equation Modelling (SEM), based on variance matrices with EQS version 6.1, was used to evaluate the psychometric characteristics of the scales, adjust the model, and test the proposed hypotheses.

5. Results and discussion

The analysis of the data in an SEM model requires two steps: (1) the psychometric analysis of the observed variables (items) with respect to their latent variables (constructs) and (2) the estimation of the proposed parsimonious model.

Measurement analysis

For the psychometric analysis, the reliability and validity of the measurement instruments were estimated following the usual procedures outlined by previous literature (Fornell & Larcker, 1981). However, they were first tested for normality, using the Kolmogorov-Smirnov test, and the results verified the null hypothesis that the data come from a normal distribution at a significance level of 0.001.

Exploratory Factor Analysis (EFA) allowed the identification of the latent variables explained by the correlations of the observed variables. In addition, following the recommendation of Ladhari (2010), items with low levels of communality (loadings below 0.50) were removed, which in this study were two items of the construct "False new knowledge": FNK1 (0.460), FNK2 (0.411). On the other hand, the confirmatory factor analysis (CFA) examines whether there is empirical evidence to support the theoretical factor structure proposed to test our hypothesis. The Kaiser-Meyer-Olkin values = 0.735 exceed the threshold recommended by the literature and the Barlett's test of sphericity was 1816.49 (df 205) with a significance less than 0.001. Again, some items from the latent variables: Fake news acceptance behavior, FNAB3 (0.501), FNAB4 (0.464), and Parasocial interaction, PI4 (0.484), were eliminated due to low communality.

The characteristics of the measurement instruments, item weights, Cronbach's alpha coefficient, composite reliabilities, and average variance extracted (AVE) of the constructs are shown in Table 1. The individual reliability of each item concerning its latent variable was assessed by examining the factor loadings of the items (must be above 0.5). To estimate the precision with which the observed variables measure the same construct, Cronbach's alpha coefficient was used and values above 0.7 were accepted. In addition, the internal consistency of the items was also estimated using composite reliability (CR), and, again, values above 0.7 were accepted. The convergent validity of the constructs was estimated by means of the AVE and values above 0.5 are accepted. As shown in Table 1, the item weights range between 0.631 and 0.853, Cronbach's alpha between 0.724 and 0.805, the CRs between 0.804 and 0.876, and finally the AVE values between 0.565 and 0.590. Notably the model fits Chi-square (χ^2): df: 2.51, CFI=0.9, RMSEA=0.083, GFI= 0.904, MFI= 0.8.

To corroborate the discriminant validity of the constructs, the square root of the AVE of each latent variable was calculated and it was verified whether it was greater than the correlations with the rest of the latent variables. This is a test proposed by Fornell & Larcker (1981) and is shown in Table 2. The results show that in no case is the correlation with another construct higher than the square root of the AVE and discriminant validity can be accepted.

In summary, the results of the psychometric analysis suggest that the measurement instruments are adequate and, having secured this first step, it is possible to go on to evaluate the structural model.

Factor	Items	Factor loading (>0.5)	Cronbach's alpha (>0.7)	CR Composite reliability (>0.7)	AVE Average variance extracted (>0.5)
Perceived richness	PR1	0.631	0.765	0.837	0.565
	PR2	0.785			
	PR3	0.637			
	PR4	0.796			
Parasocial interaction	PI1	0.690	0.743	0.876	0.588
	PI2	0.708			
	PI3	0.801			
Fake news knowledge	FNK3	0.753	0.772	0.806	0.581
	FNK4	0.797			
	FNK5	0.709			
SNS dependency	ISMD1	0.853	0.805	0.811	0.590
	ISMD2	0.767			
	ISMD3	0.676			
Fake news attitude	FNA1	0.703	0.777	0.806	0.582
	FNA2	0.760			
	FNA3	0.821			
Fake news acceptance behavior	FNAB1	0.758	0.724	0.804	0.579
	FNAB2	0.798			

Note: The model fits Chi-square (χ^2): df:2.51, CFI=0.9, RMSEA=0.083, GFI= 0.904, MFI= 0.8

Table 1. Measurement of discriminant validity

Constructs	PR	SNS dependency	PI	FNA	FNAB	FNK
Perceived richness	0.752					
SNS dependency	0.455	0.768				
Parasocial interaction	0.372	0.463	0.766			
Fake news attitude	0.377	0.626	0.411	0.763		
Fake news acceptance behaviour	0.286	0.569	0.217	0.549	0.762	
Fake news knowledge	0.453	0.092	0.148	0.084	0.080	0.761

Significant at *** $p < 0.001$. #In the main diagonal is the square root of AVE that shows a correlation estimated between the factors. Below the diagonal: correlation estimated between the factors

Table 2. Discriminant validity

Structural model

The results of a structural model provide, on the one hand, the predictive capacity of the proposed model as measured by the coefficients of determination (R^2), and, on the other hand, the weight of the paths of the different latent variables. The goodness of fit for the attitude towards fake news is 0.32 and for acceptance 0.35. Therefore, they have acceptably high values for the sample size, indicating good predictive power (Hayes, 2018). In our study mostly, there is a low level of collinearity. For all independent variables variance inflation factor (VIF) is lower than 5 that threshold claimed by Hair et al. (2021). The path loadings indicate the strength of the relationships between the independent variables and the dependent variable. At the top of the model, Perceived Richness shows a significant positive effect with SNS dependence [$\beta = .331$, $p < .001$], confirming H1a, and points towards a negative effect on attitude to fake news [$\beta = -.204$, $p < .001$], accepting H1b. However, it turns our initial concept from a positive relation PR and FNA to a negative one, and the coefficient is statistically significant, therefore this result is acceptable. Also, SNS dependence has a positive and significant effect [$\beta = .556$, $p < .001$] on attitude towards fake news, confirming H2. These results together indicate the existence of a mediating role of SNS dependence between Perceived Richness and attitude towards fake news (Hayes, 2018). Defining the indirect mediation effect as the product of the two paths (a = from Perceived Richness to SNS Dependency, b = from SNS Dependency to Attitude to Fake News), $0.331 \times 0.556 = 0.184$. Applying the Sobel test for 0.95% gives a confidence interval of $0.077 < ab < 0.290$, and since 0 is not within this interval, there is evidence of an indirect effect (Hayes, 2018). Furthermore, Parasocial Interaction [$\beta = .186$, $p < .001$] has a positive and significant effect on attitude towards fake news, confirming H3. Thus, SNS dependence revealed a medium-

level mediation effect. Additionally, the combined variance effect of all exogenous variables (PI, ISMD, PR) on FNA is 0,32, 32 percent, and finally, FNA justifies 0,35, 55 percent of variance effect on behavior. The effect size of moderations on the relationships studied in the hypotheses H4a, H4b and H4c is low. Finally, as expected, attitude is a predictor of acceptance [$\beta=0.334$, $p<.001$], confirming H5.

In addition, this study investigated the moderating effect of fake news literacy on the three antecedents explaining attitudes toward fake news. That is, the interaction between fake news knowledge and perceived richness (H4a), SNS dependency (H4b), and parasocial interaction (H4c). Higher literacy was expected to reduce the effect of the independent variables on attitudes toward fake news. However, only one of the hypotheses, H4b, "knowledge of fake news" moderates the dependence on social networks by reducing its impact on attitude [$\beta= -0.236$, $p<.001$]. In the remaining cases, our original suggestion is contradicted, therefore hypotheses H4a and H4c were rejected, i.e. knowledge of fake news does not moderate the relationship between "perceived richness", parasocial interaction, and attitude towards fake news. Figure 2 and Table 3 show the results obtained. In summary, the proposed parsimonious model supports most of the hypotheses H1a, H1b, H2, H3, H4b, and H5, and its results will be discussed below. In the SEM model examining the relationships between variables PI, PR, SNS dependency, and FNA, we report the 95% confidence intervals for the paths connecting independent variables to the dependent variables.

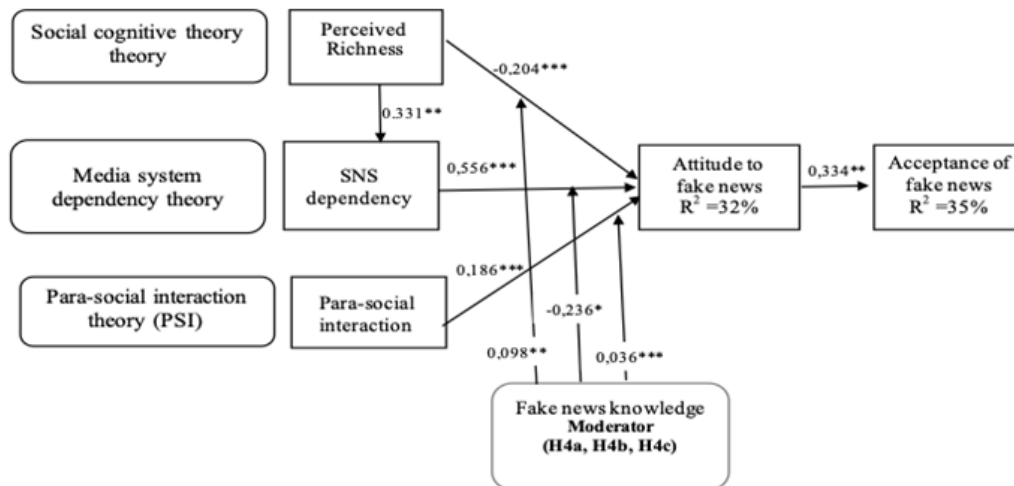


Figure 2. Structural model for fake news influence

Hypotheses	Relationship	Coefficient (β)	C.R. (t-value)	R2	Hypothesis results
H1a	"Perceived richness" → "SNS dependency"	0.331	4.03***		Supported
H1b	"Perceived richness" → "fake news attitude"	-0.204	-2.18**		Supported
H2	"SNS dependency" → "Fake news attitude"	0.556	6.49***		Supported
H3	"Para-social interaction" → "Fake news attitude"	0.186	1.895***	0.32	Supported
H4a	"Fake news knowledge" → "perceived richness"	0.098	3.03**		Rejected
H4b	"Fake news knowledge" → "SNS dependency"	-0.236	-1.96***		Supported
H4c	"Fake news knowledge" → "para-social interaction"	0.036	1.023***		Rejected
H5	"Fake news attitude" → "Fake news acceptance"	0.334	0.264***	0.35	Supported

Significant at * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3. Hypothesis results

Discussion

The aim of this study was to analyze the acceptance of fake news by considering as precedents elements of the triangle of mass communication interactions (DeFleur & Ball-Rokeach, 1989): media (perceived richness), audience (dependence on social networks) and social environment (parasocial interaction), to explain changes in attitudes towards and acceptance of fake news in a context of choice of higher education institution.

First, in general, the results indicate that the proposed parsimonious model, which is the result of combining propositions from different theories (TRA, SCT, SNS, UGT, and MSD), is an acceptable model to study the acceptance of fake news about universities. The R^2 is relatively good for the sample size (205 participants), 35% in acceptance of fake news, and all the drivers have significant effects. For example, if we compare this result with the one obtained by Apuke and Omar (2020), they needed almost three times the sample size (650 participants) to obtain a predictive ability of 78% probability of sharing fake news about COVID-19.

Second, we found that the main antecedents of attitude towards the use and distribution of fake news are SNS dependency and Parasocial Interaction, in this order. Regarding SNS dependency, it has been previously noted that it is strongly linked to the frequent use of social media, the ease of sharing relevant posts or information, as well as the need to be updated (Apuke & Omar, 2020; Handarkho et al, 2021). In our study, SNS dependency demonstrates a medium level of mediating effect, consistent with prior research by Handarkho et al., 2021. This indicates that the Perceived Richness of a platform directly influences the attitude towards fake news as well as indirectly through SNS dependency. Parasocial Interaction, which refers to the propensity of social media users to develop an emotional bond with an influencer or prominent media figure (Tsai & Men, 2017), is the second factor that explains the acceptance of fake news. In other words, the fact that a fake news story about the attributes of a university is spread by an influencer will contribute to its acceptance and dissemination. These results are like those obtained by Apuke and Omar (2020) and Handarkho et al. (2021) regarding the spread of fake news about COVID-19. As Stever and Lawson (2013) point out, social media users are more inclined to accept news shared on social networks if it comes from prominent figures in society or media celebrities on Twitter or TikTok. However, this study has shown an indirect mediating effect between Perceived Richness and SNS Dependency and Attitude to Fake News. Previous work has found a positive relationship between platform richness and attitude toward information sharing (Wang, Hu et al., 2021), but a negative one with respect to the spread of fake news (Talwar et al., 2019). These findings reveal a predominantly negative effect of Perceived Richness on Fake News Attitude. Moreover, the interaction with SNS dependency and fake news attitude is proved, but it exhibits a negative effect in contrast to the expected positive influence in a prior study (Wang, Riaz et al., 2021). However, none of these cases considered the indirect mediating effect of Perceived Richness on SNS Dependency. Similarly, Attitude toward Fake News acts as the main antecedent of its acceptance.

Third, media literacy and the ability to detect fake news did not fully play the proposed moderating role. In particular, FNK does not moderate in the intended sense the relationships between PR and attitude, nor the relationships between PI and attitude. In the latter case, the result goes against the findings of previous studies (Apuke & Omar, 2020; Bago, Rand & Pennycook, 2020; Pennycook et al., 2020; Omar et al., 2023).

Overall, the results obtained support the objectives of this study to analyze the acceptance of fake news in the context of the university choice process.

6. Conclusion

This research has focused on the main drivers that motivate Generation Z (Sáez-Ortuño et al., 2023) to accept and replicate fake news about the image of universities, whether public or private. Analyzing previous models (Apuke & Omar, 2020; Wang, Riaz et al., 2021) we observe a tendency to look for multiple precedents, without a holistic view of mass communication, and, moreover, paying little attention to possible mediating and moderating factors. In this study, in line with DeFleur and Ball-Rokeach (1989) and following the recommendation of Lemon and Verhoef (2016), a parsimonious model is proposed with a holistic view. The model explains 35% of the acceptance of fake news, and the results are of great interest to both academia and practitioners to understand the precedents that condition it.

Moving on to the academic results of this research, this study has demonstrated the mediating effect of SNS Dependence between Perceived Richness and Attitude to Fake News, and that the main factor explaining Attitude to Fake News is SNS Dependency. Although the latter result differs from previous work, e.g., Apuke and Omar (2020), who estimate "Social tie strength" and "Perceived herd" as more important effects than SNS Dependency, their findings are somewhat confusing. Although the requirements of multicollinearity control (HTMT) are met, the items that make up the construct "Social tie strength", which refers to the strength of the emotional bond of the source, is strongly linked to "Parasocial interaction" and, on the other hand, "Perceived herd", which refers to the trust derived from the fact that the news is shared by many users, is strongly linked to SNS Dependency. In other words, the use of multiple precedents does not always guarantee a coherent explanation of constructs. Another relevant result is the moderating role of media literacy on fake news (Tejedor et al., 2021) and its effect on SNS Dependency, a result in line with previous studies (Apuke & Omar, 2020). Findings point towards fostering critical thinking because the quality of social media content often needs verification and digital skills.

7. Implications and limits

Implications for practitioners: As we have seen, the richness of the media platform attracts users and, although this attractiveness does not have direct effects on attitude, it does have indirect effects through media dependency. Therefore, it is important to develop educational policies to reduce over-dependence on social media and to increase the training of students to be able to distinguish between fake and authentic news. However, universities can always use their position in world university rankings as a means to advertise their educational value, despite the criticism they receive for their exclusionary practices (Amsler & Bolsmann, 2012). On the other hand, it is also important to disseminate true information through conventional and online media to help counteract the pernicious effects of false information. A summary of the contributions regarding the impact of false information has facilitated the conceptualization of a multi-dimensional model of online social interaction with predictable outcomes. Moreover, it might enhance scholars' knowledge of critical evaluation strategies associated with the accurate identification of such fake stories and prevent their dissemination.

This research has some limitations. Firstly, the sample only considered international university students from private universities resident in Spain; therefore, the sample could be extended to include students from public universities, and even consider other cohorts, such as high school students seeking information to choose a university. Another relevant factor to consider in future research would be the cultural variable of the students. That is, one could compare several samples of students from different cultures and compare how the proposed parsimonious model fits. Other lines of research could consider different personality traits, especially those linked to social media addiction, and see their effect on the acceptance of fake news. However, it is important to acknowledge the limitations of this point in an exploratory study. Firstly, it employed convenience sampling, a non-probability sampling method. Instead of aiming for a representative sample that would allow for generalization to the broader population, the study's primary objective was to propose and test hypotheses concerning relationships between variables. Future research should aim for larger sample sizes and consider different population groups to validate these findings.

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ANNEX 1

Survey

Invitation to participate in a survey on

How fake news distributed on social media influences university choice: fake news effects on the students' decision making.

Section A. Demographic characteristics

Please tick your answer for the questions below

1. Sex

Male

Female

2. Age

18-19

20-25

26-30

30+

3. Highest academic degree

-high school graduate

-some college, no degree (includes some community college)

-four-years college or university degree/Bachelor's degree (e.g., BS, BA, AB)

-postgraduate or professional degree, including master's, doctorate (MA, MS, PhD, JD)

4. Country of your birth _____

Section B. Nature of misinformation and its influence

Below are the statements on the nature of content for informational websites.

Please tick/circle the appropriate number using the offered scale

Please tick (✓) the relevant box							
Questions	1 Strongly disagree	2 Disagree	3 Slightly disagree	4 Neither agree nor disagree	5 Slightly agree	6 Agree	7 Strongly agree
Para-social interaction (PI) (Apuke & Omar, 2020)	1 Strongly disagree	2 Disagree	3 Slightly disagree	4 Neither agree nor disagree	5 Slightly agree	6 Agree	7 Strongly agree
PI1. I have no problem using information shared on social media about my chosen university, if it was shared by someone I admired and respect	1	2	2	3	4	5	6

PI2. I consider the opinion about my chosen university of a public figure whom I admire and respect	1	2	3	4	5	6	7
PI3. I seek the opinion of a public figure whom I admire and respect related to my chosen university	1	2	3	4	5	6	7
PI4. I usually base my ideas on information about a chosen university obtained from its social media pages	1	2	3	4	5	6	7
Individual social media dependency (ISMD) (Apuke & Omar, 2020)	1 Strongly disagree	2 Disagree	3 Slightly disagree	4 Neither agree nor disagree	5 Slightly agree	6 Agree	7 Strongly agree
ISMD1 I frequently obtain information about a chosen institute through social media	1	2	3	4	5	6	7
ISMD2. I make use of the information related to a chosen institute found on social media	1	2	3	4	5	6	7
ISMD3. I immediately update information about a chosen institute received from social media	1	2	3	4	5	6	7
Perceived Richness (PR) (Wang, Hu et al., 2021)	1 Strongly disagree	2 Disagree	3 Slightly disagree	4 Neither agree nor disagree	5 Slightly agree	6 Agree	7 Strongly agree
PR1. Social media provides a variety of information according to my requirements related to a chosen university	1	2	3	4	5	6	7
PR2. Social media is an internet-based form of communication with a huge number of diversified users, having different opinions about a chosen university	1	2	3	4	5	6	7
PR3. In social media I get a quick response, comments, and feedback from others on my shared content about a chosen university.	1	2	3	4	5	6	7
PR4. With the help of social media, I can share all kinds of information and content about a chosen university with multiple users at a time	1	2	3	4	5	6	7
Fake news sharing attitude (FNA) (Wang et al., 2022)	1 Strongly disagree	2 Disagree	3 Slightly disagree	4 Neither agree nor disagree	5 Slightly agree	6 Agree	7 Strongly agree
FNA1. I think social media is the most convenient way to share information and content about my university	1	2	3	4	5	6	7

FNA 2.I like to share pictures, videos and information about my university via social media platforms	1	2	3	4	5	6	7
FNA3.I have a positive attitude towards sharing content about my university on social media in the future	1	2	3	4	5	6	7
Fake news acceptance behavior (FNAB) (Wang, Hu et al., 2021)	1 Strongly disagree	2 Disagree	3 Slightly disagree	4 Neither agree nor disagree	5 Slightly agree	6 Agree	7 Strongly agree
FNAB1. I regularly use social media as a source of communication about my university and share information with others	1	2	3	4	5	6	7
FNAB2. From time to time I get involved in group discussions on social media about a chosen university	1	2	3	4	5	6	7
FNAB3. Most of the time on my social media account I upload useful documents and files about a chosen university to share with others	1	2	3	4	5	6	7
FNAB4.If social media introduces any new application for smooth exchange of content about a chosen university, I will use it, definitely.	1	2	3	4	5	6	7
Fake news knowledge (FNK) (Tejedor et al, 2021) <u>Fake news knowledge/</u> <u>Identification of fake news.</u>	1 Strongly disagree	2 Disagree	3 Slightly disagree	4 Neither agree nor disagree	5 Slightly agree	6 Agree	7 Strongly agree
FNK1. Headlines that are too alarmist, ridiculous or unlikely	1	2	3	4	5	6	7
FNK 2. The medium in which it is published	1	2	3	4	5	6	7
FNK 3. Common sense/logic/coordination	1	2	3	4	5	6	7
FNK 4. The unreality of the content	1	2	3	4	5	6	7
FNK 5. Sources of information are cited	1	2	3	4	5	6	7

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