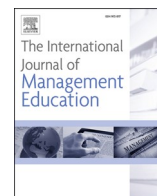


Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

The International Journal of Management Education

journal homepage: www.elsevier.com/locate/ijme

Students apprehension and affective inertia in a Twitter-based activity: Evidence form students of an economics degree

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ARTICLE INFO

Keywords:

Affective inertia
Perceived benefits
Enjoyment
Apprehension towards SNS use
Twitter

ABSTRACT

Students' affective inertia can lead to their resistance to conducting an activity. This article aims to identify the characteristics of an e-learning activity carried out via Twitter that can help teachers reduce the possible incidence of such inertia. The analysis, based on structural equation modelling and applied to a sample of 105 students, reveals that e-learning activities should be useful and enjoyable in order to reduce affective inertia. Furthermore, students that are more apprehensive towards using social networking sites (SNS) are more likely to experience affective inertia, and having high expectations regarding the activity's enjoyment are less likely to reduce their inertia, compared to those who are less apprehensive about SNS use. This research offers important implications for teaching practice on the designing of e-learning activities.

1. Introduction

Nowadays, academic institutions are increasingly using social networking sites (SNS) in e-learning activities, both in and outside of the classroom (Shah, Shabgahi & Cox, 2016). SNS are Web 2.0 technologies that allow users to share information, create content, and collaborate online with others (Eid & Al-Jabri, 2016; Evans, 2014; Moghavvemi et al., 2018). Examples of SNS are Facebook, Instagram, LinkedIn, Snapchat, Tinder, Twitter, and YouTube. They have become part of people's everyday lives, performing not only a social function but also a means of working and even learning (Denker et al., 2018; Haythornthwaite, 2016; Osgerby & Rush, 2015). Thus, teachers have incorporated SNS in their class activities as a means to engage students, motivate their learning and improve their business skills (Denker et al., 2018; Ersoy-Babula & Babula, 2018; Killian et al., 2019; Schwartz & Caduri, 2016; Staines & Lauchs, 2013).

However, students may refuse to take part in SNS-based e-learning activities because they do not find them useful, lose interest in them (Sun et al., 2008), were dissatisfied with previous experiences (Cole, 2009), are unfamiliar with SNS, or just experience negative emotions, such as stress or anxiety, when taking part in such activities (Deemer et al., 2021). These negative affective states make students reluctant to conduct new e-learning activities, and drive them to stick to established approaches, even if the new activity is a better alternative or gives them incentives to adapt thereto. Students derive comfort from maintaining the status quo and avoid changing to new activities (Lucia-Palacios et al., 2016). This persistence, which arises due to affective states, is known as affective inertia and can influence subsequent states over time (Koval et al., 2015; Polites & Karahanna, 2012). The experience of stress, anxiety,

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<https://doi.org/10.1016/j.ijme.2022.100683>

Received 18 January 2021; Received in revised form 18 April 2022; Accepted 21 June 2022

Available online 12 July 2022

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and negative affect during previous e-learning activities, or emotional reluctance to learn how to perform a new activity, are examples of affective inertia.

Previous research has studied affective inertia in the field of psychology, identifying it as a cause of depression and psychopathologies (Bos et al., 2019; Macini; Luebbe, 2016; Sperry & Kwapil, 2019). In the field of IT adoption, while some research has addressed the role of inertia, to the best of our knowledge no previous research has studied affective inertia (Fraj-Andrés et al., 2018; Stein et al., 2015).

In the learning context, little is known about affective inertia. An exception to this includes Deemer et al. (2021), who stated that inertia is related to students' chances of maintaining motivation for their current tasks during their academic career. However, the research did not consider affective inertia. Furthermore, some previous research has focused on the causes and consequences of inertia, without addressing how it can be overcome in e-learning activities (Hsieh & Lin, 2018; Ku & Hsieh, 2019; Lucia-Palacios et al., 2016). We only found a few studies that have examined how to avoid or reduce students' resistance to taking part in an e-learning activity (Lee, 2010; Sun et al., 2008; Wu et al., 2006)—though, again, without addressing the role of inertia. According to this research stream, some characteristics of the activity can reduce this resistance, such as perceived benefits and enjoyment (Fraj-Andrés et al., 2020); however, affective inertia has not been considered (Ku & Hsieh, 2019).

In addition, teachers' chances of reducing affective inertia in an e-learning activity may depend on the students' psychological traits (Fraj-Andrés et al., 2018; Weiser et al., 2018). In the case of SNS, a specific psychological trait has shown that people may feel anxious and awkward when using SNS, especially due to the implications for their personal image. This trait is called apprehension toward SNS (Denker et al., 2018; Kowalczyk, 2018). As a consequence, it seems important to incorporate this trait in order to examine how teachers can reduce affective inertia in an SNS-based e-learning activity.

The present research investigates how teachers can reduce students' affective inertia that leads to their failure to perform an e-learning activity conducted through Twitter, where this reduction occurs before students begin the activity. The general goal can be divided into two: first, we aim to understand how perceived benefits and enjoyment of the e-learning activity can help reduce students' affective inertia; second, we seek to examine how these relationships can reduce inertia depending on the students' psychological trait of apprehension toward social networking sites. To accomplish these objectives, we conducted an e-learning activity via Twitter with students of a "Fundamentals of Marketing" course in an economics degree. During the activity, students had to browse information online about a topic related to the course subject (mainly comprising examples of concepts previously discussed during lectures), post these on Twitter, and discuss the topic. We conducted a survey of 105 students to explore affective inertia and its potential diminishing forces, and applied structural equation modelling to conduct the analysis.

This paper contributes to the educational literature in three ways. First, this study contributes to furthering the literature on students' motivations. To the best of our knowledge, this article is the first to focus on the presence of affective inertia in e-learning activities. Second, our results provide insights into how affective inertia can be reduced so that students are motivated to continue the activity and do not lose interest in it. Third, the article considers the role that apprehension toward SNS use plays in the context of affective inertia against starting an e-learning activity. Digitalization of certain daily practices, in both business and academia, seems crucial since the COVID-19 pandemic to help students to remain focused and offer extra support in teaching. Thus, it is expected that in coming years, academic institutions will foster these types of e-learning practices even more to encourage students' motivation.

The remainder of the article is structured as follows. The following section provides a theoretical review of affective inertia, and proposes hypotheses regarding the effects of characteristics of the activity that may reduce inertia. This is followed by an explanation of the method, and the main results. Finally, the results are discussed and we present the study's main theoretical and practical contributions to teaching.

2. Theoretical background

2.1. Affective inertia

Inertia is the tendency to remain at rest or continue moving uniformly unless an external force changes this tendency (Deemer et al., 2021; Polites & Karahanna, 2012). Previous research on IT adoption has conceptualized inertia as having behavioural, cognitive and affective dimensions (Barnes et al., 2004; Oreg, 2003). Behavioural inertia means that a person continues conducting a previous activity instead of adopting a new one because it is what they have always done (Li et al., 2019). It is an unconscious mechanism. Cognitive inertia implies that an individual continues to conduct traditional activities even though they are aware that these activities are not the best or the most effective way of doing things (Kim, 2009). Affective inertia occurs when an individual does not want to take on a new activity because it is stressful (Polites & Karahanna, 2012). It is "the degree to which a person's affective states are persistent and resistant to change" (Bernstein et al., 2019, p. 2). It refers to the "lag effect" of a previous negative affective state, which can influence subsequent affective states over time (Koval et al., 2015; Wang et al., 2012).

While literature on affective inertia in education is scant, the topic has been studied in the fields of psychology, marketing and IT adoption and continuance usage (Bos et al., 2019; Hsieh & Lin, 2018; Patsiotis et al., 2013). Psychologists have found that high affective inertia, is associated with reduced psychological wellbeing, depression, instability, low self-esteem and pessimism (Houben et al., 2015; Koval et al., 2013, 2015). In the field of IT adoption, inertia has been considered an obstacle for users' adoption of new technologies and for their switching from an incumbent technology to a new one, as well as an explanation for the ongoing use of the incumbent technology (Hsieh & Lin, 2018; Ku, 2019; Lucia-Palacios et al., 2016; Polites & Karahanna, 2012).

In the educational context, this external force may be part of a targeted action, such as a change in a teaching methodology or the implementation of a new learning activity. Deemer et al. (2021) proposed the concept of academic inertia, defining it as "the tendency

to remain in a status quo state of academic behaviour.” Deemer et al.’s (2021) study focuses on academic inertia, relating this state to students’ motivation, and differentiates between high inertia and low inertia. The findings show that the relationship between both types of inertia is positive when students’ inspiration is low, while the relationship is not significant when inspiration is high. However, this study does not address the causes and consequences of inertia in learning environments, nor how teachers can reduce this inertia. Furthermore, it does not consider the affective dimension of inertia.

Students often feel that e-learning activities are stressful and require too much effort, which put students off conducting the activity (Fraj-Andrés et al., 2020; Huang et al., 2013; Yoo & Huang, 2011), so the persistence of affective states is important to explain students’ motivation to engage in new activities. An increase in students’ motivations to change and reduce their inertia is related to actions that motivate them (e.g., a game in the classroom or an enjoyable activity) or environmental conditions (e.g., technology resources in the room, or even sunlight) (Deemer et al., 2021; Osgerby & Rush, 2015). Performance expectancies, internal causal attributions and performance feedback can increase students’ motivation (Briki et al., 2013; Raab et al., 2012).

The present research focuses on how to reduce affective inertia with respect to participating in an e-learning activity conducted through Twitter. Previous literature has suggested that students’ utilitarian and hedonic motivations can influence their intention to continue using educational technology (Huang, 2020; Wu & Chen, 2017). This dual hedonic–utilitarian approach is grounded on the motivational model proposed by Davis et al. (1992), which indicates that both intrinsic and extrinsic motivations drive people’s decisions on IT adoption (Luo et al., 2011). According to this model, and focusing on our context, extrinsic motivations refer to the extent to which individuals perceive that an e-learning activity is useful to attaining a learning goal, while extrinsic motivations refer to the extent to which individuals perceive that the activity is enjoyable or entertaining (Fraj-Andrés et al., 2020; Shiao & Chau, 2016). Extrinsic or utilitarian motivations usually include perceptions of usability and ease of use. However, previous research has demonstrated that in studies with young students in higher education contexts, perceived ease of use is not significant for explaining their intentions to adopt IT or perform an e-learning activity (Fraj-Andrés et al., 2020; Lucia-Palacios et al., 2016; Shiao & Chau, 2016).

In addition, it is notable that students’ relationships with technology may vary depending on their attitude toward it (Denker et al., 2018; Wombacher, Harris, Buckner, Frisby, & Limperos, 2017). That is, if students feel anxiety or fear about conducting the activity, they could be apprehensive toward the SNS. This is a relevant psychological trait that could influence the effectiveness of the e-learning characteristics to reduce affective inertia, and is thus proposed as a moderating variable in our model. The subsequent section develops our theoretical model (summarized in Fig. 1), and proposes that the benefits and enjoyment students expect to derive from participating in the activity can reduce their levels of affective inertia. Furthermore, the model considers an attitudinal characteristic that may make students more reluctant to enrol in the activity: apprehension towards SNS use.

3. Hypothesis development

3.1. Expected benefits and enjoyment derived from the Twitter activity

People’s emotional states, such as affective inertia, result from their everyday life experiences and feelings (Alessandri et al., 2020; Koval & Kuppens, 2012; Polites & Karahanna, 2012). For example, the stress of using a new technology can give rise to a reluctance to change because of mere fear of the unknown, which prevents the individual thinking about the expected benefits related to it (Lucia-Palacios et al., 2016; Polites & Karahanna, 2012). Under this assumption, negative expectations, such as stress, depression or fear, are positively related to affective inertia (Koval & Kuppens, 2012). On the contrary, positive expectations, such as expecting the activity to be beneficial and enjoyable, can trigger negative effects on affective inertia (Morrison & O’Connor, 2005). Therefore, with the purpose of achieving the opposite – that is, building positive feelings regarding the activity – teachers who want to reduce affective inertia should seek to generate positive expectations. In particular, students who expect to derive benefits and enjoyment from the new activity could see their affective inertia reduced.

Expected benefits refer to students’ expectations that they will achieve more benefits than costs as a result of their experience with the learning activity (Fraj-Andrés et al., 2020). The use of new technologies for education purposes can contribute to increasing perceived benefits during learning activities (Michau et al., 2001). Social networking sites provide students with the chance to build and exchange knowledge, helping them to be active in creating and exchanging information (Moghavvemit et al., 2017). Expected benefits are related to the learning performance and the future perceived usefulness and helpfulness of the online learning activity, which are associated with a reduction in resistance to enrolling in the activity (Bhattacharjee et al., 2012; Fraj-Andrés et al., 2020; Lee

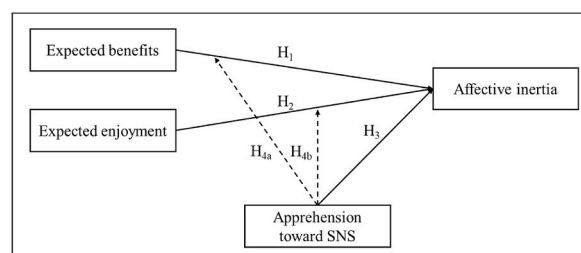


Fig. 1. Conceptual model.

et al., 2005).

Expected enjoyment refers to the extent to which students anticipate the activity to be an enjoyable, entertaining and amusing experience (Buil et al., 2019; Fraj-Andrés et al., 2018). Enjoyment in education has a positive effect on knowledge sharing in SNS that were not initially designed to develop learning activities (Moghavvemi et al., 2017). Enjoyment can reduce the inertia effect due to its motivating effect (Steelman & Soror, 2017) and it is positively associated with learning outcomes and academic results (Baek & Touati, 2017; Csikszentmihalyi et al., 1993; Pérez-López et al., 2020; Torres-Díaz et al., 2016). Hence, expected benefits and enjoyment may create a positive expectation that reduces fear to change, thereby negatively influencing affective inertia.

H1. Expected benefits will have a negative and direct effect on affective inertia.

H2. Expected enjoyment will have a negative and direct effect on affective inertia.

3.2. The role of apprehension towards SNS use

Apprehension towards SNS use is an attitudinal trait regarding online communication conducted via SNS (Denker et al., 2018; Hunt et al., 2012). Thus, it represents an internal cognitive-affective orientation to use (or avoid) communication through SNS (Ledbetter, 2009). People who are apprehensive towards SNS use experience anxiety and perceptions of awkwardness when using them, or even when thinking about them (Ledbetter, 2014; Thatcher & Perrewé, 2002). As a consequence, apprehension towards SNS can be defined as an attitudinal trait characterized by emotional fear and anxiety felt by individuals when using SNS (Sullivan & Koh, 2019).

This anxiety may stem from worries about the possibility of not knowing how to use the specific SNS, about data privacy, or about controlling the users' self-image and managing their profile (Denker et al., 2018; Huang et al., 2013; Kowalczyk, 2018). Furthermore, apprehension arises in relation to receiving information online that users do not want (Ledbetter, 2009), to possibilities for comparison between oneself and others in the community (Lin et al., 2019), and to the fact that immediate reactions of others to comments posted are not visible. In addition, some users may experience apprehension toward SNS due to the fact that they experience anxiety when communicating with other people via such media (Hunt et al., 2012).

Although previous research on apprehension toward SNS is scarce, we have identified some consequences of individuals' anxiety when using SNS from previous research (Denker et al., 2018; Lin et al., 2019; Primack et al., 2017; Sullivan & Koh, 2019; Wall et al., 2016). Those who are anxious when using Facebook find it difficult to monitor their behavior because they often react defensively, which distorts their information processing capabilities (John & Robins, 1994; Wall et al., 2016). Anxious SNS users tend to seek social support when performing activities on SNS, which is associated with perverse behaviors (Lin et al., 2019). Denker et al. (2018) found that anxious students were more likely to communicate with their instructor during a Twitter-based activity than non-anxious students. Social media anxiety can cause people to perceive higher complexity, reducing perceptions of enjoyment and usefulness (Sullivan & Koh, 2019), and can lead to a reduction in the number of platforms used (Primack et al., 2017).

SNS, such as Twitter or Facebook, are online media platforms to which apprehension may be especially relevant, since users' control over their personal profile is reduced. Other users may add information that can affect personal profiles, such as comments on status messages, tagged pictures, etc., which makes it more difficult for users to manage their profiles (Ledbetter, 2014; Walther et al., 2009). Furthermore, Twitter users' followers include very diverse groups of acquaintances – such as friends, relatives, classmates – and people who are not known to them, such as individuals that just like the users' comments (Stephansen & Coudry, 2014). This makes it difficult for users to manage their impressions and self-presentation, since different types of audiences overlap. The tension produced is especially important for teenagers, who often have very different relationships with friends, parents and teachers compared to people of other ages (Boyd & Marwick, 2011).

Prior research has addressed online apprehension, which is related to computer-, Web- and SNS-related anxiety (Denker et al., 2018; Lin et al., 2019). Students that suffer from computer anxiety experience this anxiety over time and across different situations, both inside and outside the classroom environment (Wombacher et al., 2017) and are less likely to participate in online communication through SNS (Ahn et al., 2015). This anxiety influences students' abilities and experience in online classrooms (Meer & Chapman, 2014; Saadé & Kira, 2009) and prevents them from taking part in online discussions (Sherblom et al., 2013).

Those who are apprehensive about using SNS may prefer to continue conducting activities via traditional media that are perceived as more controllable, such as e-mail, because their data and conversations are not publicly accessible (Ledbetter, 2009; Walther, 1994). Denker et al. (2018) found that apprehension towards online communication is a negative antecedent of relational motives to communicate with the course instructor. Apprehensive students often feel nervous and awkward, and avoid online communication (Stefanone et al., 2013), which makes them less likely to initiate online communication with the instructor, and to interact with the instructor in a formal setting. As a result, we propose that apprehension towards SNS use will make students perceive the e-learning activity as more stressful, so that this individual trait will have a positive effect on affective inertia.

H3. Apprehension towards SNS use will have a positive and direct effect on affective inertia.

According to social learning theory (SLT), anxiety and self-efficacy are closely related. SLT suggests that as individuals experience higher anxiety, they also perceive that their abilities to deal with the object of this anxiety are reduced. However, when their levels of self-efficacy rise, the anxiety experienced decreases (Bandura, 1997). Although we acknowledge this reciprocal relationship, following previous research we propose that beliefs are the primary determinant of behaviour, and that traits and orientations can modulate this relationship (Thatcher & Perrewé, 2002). So, we propose a moderating role of apprehension towards SNS in the effects of expected enjoyment and expected benefits on affective inertia.

Students that are anxious about online communication may feel that they do not have the requisite abilities to take part in the

Twitter activity, or that their performance will not be acceptable (Wombacher et al., 2017). Apprehensive students will perceive the e-learning activity as more complex leading to affective inertia, since they experience concerns about the risks associated with social media. In this context, these worries will make the activity seem less enjoyable and less important, reducing its perceived benefits thereby influencing their behaviour (Sullivan & Koh, 2019). In this line, Hunt et al. (2012) found that those who are apprehensive toward SNS experience less entertainment when using them and are more reluctant to express themselves through them. Apprehensive people experience a reduced sense of social connection and reduced self-esteem when using SNS (Krishnan & Atkin, 2014), which can lead them to perceive the characteristics of an e-learning activity differently compared to non-apprehensive individuals. Thus, we expect that apprehension toward SNS use will reduce the effect of expected benefits and enjoyment on affective inertia.

H4a. Apprehension towards SNS use will reduce the negative effect of expected benefits on affective inertia.

H4b. Apprehension towards SNS use will reduce the negative effect of expected enjoyment on affective inertia.

4. Activity description

The project was implemented in the subject 'Fundamentals of Marketing,' which is taught as the first course of the economics degree at a large Spanish university. This seems an appropriate context, since in Spain, Twitter (64%) is the third most well-known SNS after Facebook (91%) and Instagram (74%). Data show that 85% of Spanish Internet users are social network users, and out of Twitter users, 72% are between 16 and 24 years old (IAB, 2021). Thus, it was expected that university users who participated in this study would be familiar with Twitter.

Prior to the beginning of the first activity, the teachers created a Twitter account, with a nickname, in order to follow the activities in Twitter, intervene, interact with the students and encourage the debate. The account was administered by two teachers. Furthermore, the teachers explained how to use the SNS and what the activities would consist of, as well as their programming during the course. Students were instructed to communicate their nicknames to the teachers during this preliminary stage. Furthermore, the teachers explained the project via an example activity that was conducted in class. After completing this example activity, the teachers conducted a survey that aimed to identify details on the students' previous use of Twitter, their competences and perceptions about this technology, and their expectations about the project.

A statement of the activities was distributed via Moodle, which is a popular platform through which students of this university can access information, materials and details on their subject. The statement contained a video or image showing a concept or a phenomenon that had been previously explained in theory classes. Thus, the first activity included a video that exemplified how a company could use neuromarketing technique, the second showed an image of a failed product and the third shown an image of a pop-up store. In each statement, students were asked about what the image or video was about and what a company might be aiming for by using it, or how they might be affected by it. Students were asked to provide the answer to these statements via Twitter; following this first answer, the debate continued. For example, Fig. 2 shows a debate about the neuromarketing technique outlined in the first statement.

The activities were conducted over one week. After the first answers were given to the statement posted on Moodle, the teachers were able to approve the messages by liking and retweeting them. Furthermore, the students could like, retweet and comment on their peers' messages. The activity ended when the teacher provided students with the correct answers to the initial statements and additional questions that had naturally arisen during the debate.

The participation via Twitter used hashtags that teachers had already communicated to the students in the classroom. All tweets were to include two hashtags, which were used to track the activity. One hashtag referred to the activity (#uzimk1, #uzimk2 or #uzimk3) and the other identified the group of students, named after animals (#bear, #parrot, etc.). This allowed teachers to monitor the activity and the participants, obtaining participation statistics. The tool Keyhole¹ provided information on the impact of each Tweet and the activity, such as the number of posts for each activity, the number of users that participated, the reach of the activity and its impressions. For example, Fig. 3 shows this information for activity 1, related to the hashtag #uzimk1. 112 posts were tweeted in a week by 37 users, reaching 2387 users that could potentially have seen the Tweet and 6058 impressions (where impressions equate to the number of times a Tweet with the hashtag of the activity was shown on a user's newsfeed). The participation was higher during the weekend and after questions or comments were posted by a teacher.

5. Method

5.1. Data collection

Structural Equation Modelling was applied to test our hypotheses, so data were collected through a questionnaire. After the first activity, which was used as an example, had been explained, a survey was conducted to identify the students' expectations of the project. Consequently, the study employed the convenience sampling technique. This technique has been widely used in educational research and seemed appropriate for the purposes of our study, as the sample obtained was representative of college students (Peterson & Merunka, 2014; Rivera, 2019; Toker & Baturay, 2019). A total of 116 students completed the questionnaire; after eliminating

¹ The tool Keyhole is a real-time hashtag tracker for Twitter Analytics that enables the measurement of social media impact and to monitor activities based on hashtag searches (<https://keyhole.co>).

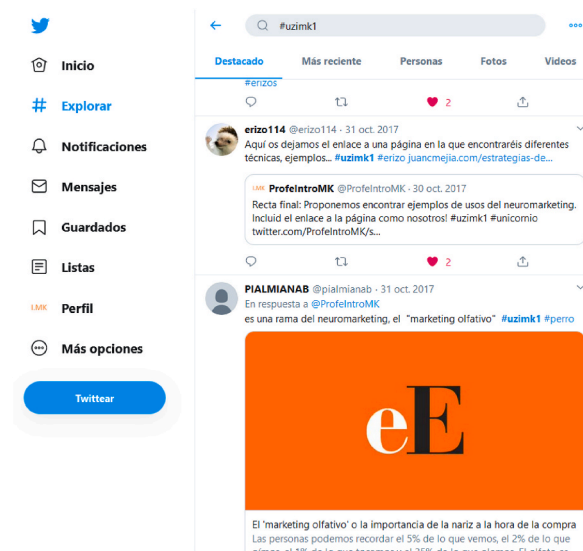


Fig. 2. Debate about neuromarketing techniques (activity 1).

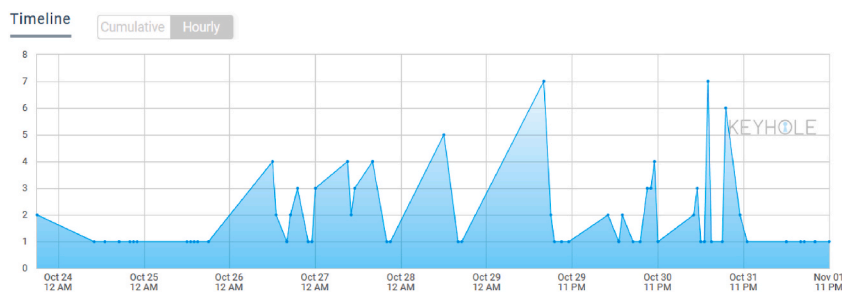


Fig. 3. Intensity of participation in activity 1.

incomplete questionnaires, 105 formed the valid sample.

5.2. Measurement of variables

Measurement of the variables was carried out following previous research (see Appendix). The constructs were measured using a seven-point Likert scale (ranging from 1 = “completely disagree” to 7 = “completely agree”). All variables were adapted from previous research and measured using reflective constructs. Affective inertia was measured using three items adapted from Polites and Karahanna (2012). Expected benefits was a reflective construct formed of seven items adapted from Lee et al. (2005) and Bhattacharjee et al. (2012). Enjoyment was measured using a reflective construct of three items used in previous research (Fraj-Andrés et al., 2018; Koufaris, 2002; Lee et al., 2005), while apprehension towards SNS use was a reflective construct consisting of seven items proposed by Denker et al. (2018). Frequency of Twitter use was included as a control variable measured through a seven-point scale (1 = “never” and 7 = “very often”).

5.3. Common method variance

Because all data were derived from a survey, common method variance could have posed a serious problem. Harmon’s one-factor test was conducted for the whole sample. The results showed that a single factor explained 30% of the variance; when all factors in the model were considered, the variance explained increased to 73%. Thus, there was no indication of common method variance.

6. Results

6.1. Descriptive results

Our sample comprised students who were in the first year an economics degree at a Spanish university, so most were aged 18 or 19

years old (Table 1). Further, 57.8% of the respondents were male. As expected, most were heavy SNS users. Regarding frequency, 82.9% of the students that participated in the activity indicated that they used SNS frequently, very often or always. Interestingly, with regard to Twitter, the percentages for frequency were the inverse down, with 61.9% of respondents stating that rarely or never use Twitter. Finally, those that had previously used Twitter reported using it for information and entertainment purposes. Only 4.2% stated that they had previously used Twitter for learning purposes.

6.2. Validation of the measurement model

Unidimensionality of constructs was addressed by conducting exploratory factor analysis with varimax rotation in SPSS. This analysis reported four reflective constructs: affective inertia, enjoyment, expected benefits and apprehension towards SNS use. Results were derived from confirmatory factor analysis conducted using the software SmartPLS 3.0 (Ringle et al., 2015).

Regarding item reliability, all items loaded highest on their respective latent variables, and these loadings were above 0.7. There were three exceptions – EB2, APP7 and APP8 – whose loadings were below 0.7; we decided to eliminate these from further analysis (see Table 2). Following their elimination, the Cronbach's alpha and AVE values increased. Composite reliability was found to be adequate, since both the Cronbach's alpha and composite reliability values were above 0.7 for all constructs (Nunnally, 1978). The AVE values were above 0.5 (Fornell & Larcker, 1981), which demonstrates convergent validity.

Discriminant validity was verified through two criteria. First, regarding the criterion of Fornell and Larcker (1981), squared roots of AVE values were higher than correlations between variables for each pair of constructs (Table 3). Second, the HTMT (Hetero-trait-monotrait ratio of correlations) criterion provided by SmartPLS 3.0 (Henseler et al., 2015) calculates correlations between variables based on item weights instead of their loadings. These correlations were below the threshold of 0.85 (Henseler et al., 2015).

6.3. Hypotheses testing

Structural Equation Modelling was applied to test our hypotheses. We calculated four models to test our hypotheses using SmartPLS 3.0 software (Table 4). The first model only included direct effects of the expected benefits, enjoyment and apprehension towards SNS use, on affective inertia. The second model also included the moderating effect of apprehension towards SNS use on the relationship between expected benefits and affective inertia, and the third model contained the moderation in the relationship between expected enjoyment and affective inertia. The fourth model included all moderating effects.

To test predictive relevance, SmartPLS 3.0 provides the Q^2 value recommended by Stone (1974) and Geisser (1974). The Q^2 values for the dependent variable, affective inertia, were positive for all models, ranging between 0.167 and 0.188. Furthermore, the percentage of this variable explained by the model was 28.1% in model 1, increasing to 33.2% in models 3 and 4, including the moderating effects.

Regarding hypotheses testing, H1, H2 and H3 are confirmed. Both expected benefits and expected enjoyment are found to have a negative effect on affective inertia, while apprehension towards SNS use has a positive effect on the dependent variable. Our results show clear support for the moderation of apprehension towards SNS use in the effect of expected enjoyment on affective inertia, wherein this effect is reduced. This confirms H4b. However, the results for H4a are not consistent, since the moderating effect of apprehension on the relationship between expected benefits and affective inertia is slightly significant in model 2 and non-significant in model 4. Although non-significant, this moderating effect shows the expected direction, being positive (Fig. 4). Fig. 5 shows that apprehension towards SNS use exerts a positive moderation diminishing the effect of expected enjoyment on affective inertia for those with high apprehension towards SNS use.

7. Discussion, theoretical and practical implications, limitations, and future lines of research

This article had two main goals. First, it aimed to address whether expected benefits and enjoyment could reduce students' affective inertia when faced with a new activity conducted through Twitter. Second, it sought to examine whether the positive effects of expected benefits and enjoyment on reducing affective inertia vary depending on apprehension towards SNS use. This theoretical proposal was investigated using a learning experience comprising three debate activities conducted via Twitter with students in their first year of an economics degree at a Spanish university.

Previous research has shown that affective inertia is an important aspect to take into account when analysing peoples' willingness

Table 1
Sample characteristics.

Age (%)	Gender (%)		Frequency of use (%)			Type of Twitter use (%)		
18–19	67.6	M	57.8	SNS	Twitter	Information	77.8	
20–21	23.6	F	42.2	Never	8.9	38.1	Education	4.2
>21	8.8			Rarely	0	23.8	Entertainment	77.8
				Occasionally	2.9	7.6	Work	5.6
				Sometimes	5.6	7.7		
				Often	24.7	3.8		
				Very often	28.5	11.4		
				Always	29.4	7.6		

Table 2
Measurement model.

	Loadings	Cronbach's alpha	Composite reliability	AVE
Affective inertia (AI) AI1	0.792	0.757	0.861	0.673
AI2	0.831			
AI3	0.838			
Enjoyment (EJ) EJ1	0.953	0.935	0.958	0.885
EJ2	0.954			
EJ3	0.915			
Expected benefits (EB) EB1	0.722	0.854	0.889	0.572
EB2	Eliminated			
EB3	0.770			
EB4	0.864			
EB5	0.742			
EB6	0.729			
EB7	0.700			
Apprehension towards SNS use (APP) APP1	0.743	0.869	0.901	0.604
APP2	0.760			
APP3	0.837			
APP4	0.749			
APP5	0.821			
APP6	0.746			
APP7	Eliminated			
APP8	Eliminated			

Table 3
Discriminant validity.

	AI	EJ	EB	APP
AI	0.820	0.357	0.312	0.549
EJ	-0.309	0.941	0.617	0.195
EB	-0.252	0.549	0.756	0.156
APP	0.451	-0.160	0.008	0.777

Note: Bold values on the diagonal are AVE square root values. Values below the diagonal are correlations between factors. Values above the diagonal are the HTMT ratio. AI = affective inertia; EJ = enjoyment; EB = expected benefits; APP = apprehension towards SNS use.

Table 4
Results.

	Model 1	Model 2	Model 3	Model 4	Hypothesis status
AI (R^2)	0.281	0.316	0.325	0.332	
AI (Q^2)	0.173	0.188	0.167	0.186	
H ₁ : EB → AI	-0.190**	-0.147*	-0.111*	-0.166**	S
H ₂ : EJ → AI	-0.163**	-0.194**	-0.130**	-0.159*	S
H ₃ : APP → AI	0.475***	0.429***	0.444***	0.426***	S
H _{4a} : EB x APP → AI		0.095*		0.058	NS
H _{4b} : EJ x APP → AI			0.111**	0.082*	S
FREQ → AI	0.151**	0.154**	0.162**	0.161**	

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$. AI = affective inertia; EJ = enjoyment; EB = expected benefits; APP = apprehension towards SNS use.

to use a new technology or to enrol in new activities (Hsieh & Lin, 2018; Steelman & Soror, 2017). In the present research, students may have felt that the e-learning activity would be stressful, or that it would require too much effort, or may have had previous negative experiences using Twitter.

Our empirical results are consistent with those of previous literature, supporting the assumption that emotional anticipation is associated with affective inertia (Koval & Kuppens, 2012; Polites & Karahanna, 2012). In this line, in the same way that negative expectations toward the learning activity, such as stress regarding change, fear of the unknown or being depressed, boost inertia, we confirm that positive expectations, such as expected benefits and enjoyment, can reduce affective inertia. Therefore, students that recognize the benefits involved, and expect the activity to be useful and helpful for their learning performance, as well as enjoyable, will tend to experience reduced inertia.

Contrary to expected benefits and enjoyment, certain individual characteristics may make the reduction of affective inertia more difficult. This is the case with regard to apprehension towards SNS use. Students that are apprehensive in this manner experience anxiety when faced with using these technologies, which can have negative consequences for their adoption behaviour (Denker et al., 2018; Ledbetter, 2009). According to our results, this anxiety – derived from worries and fears about data privacy, profile management and the impossibility of seeing others' reaction to comments posted – can increase affective inertia. This finding extends previous

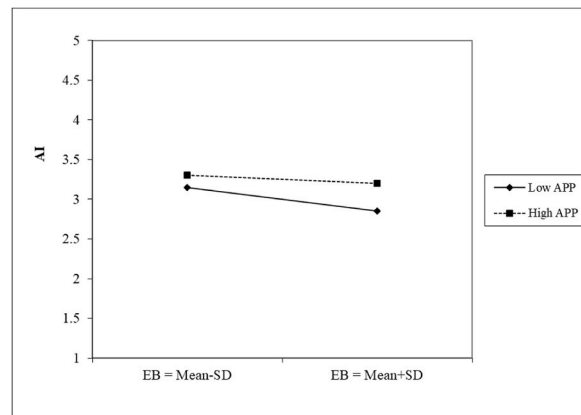


Fig. 4. Moderating effect of APP on the relationship between EB and AI.
 Note: AI: affective inertia; EJ: enjoyment; APP: apprehension towards SNS use.

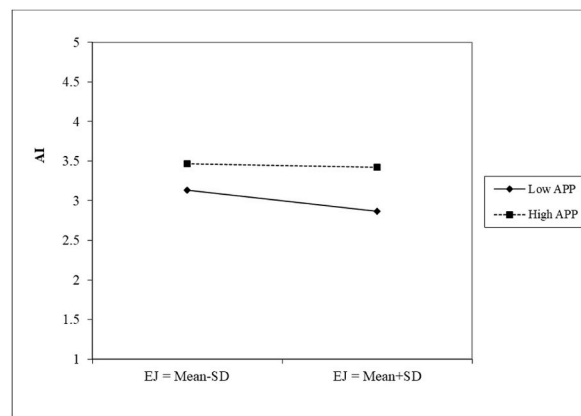


Fig. 5. Moderating effect of APP on the relationship between EJ and AI.

research on apprehension towards SNS use and computer anxiety, demonstrating that these traits are also linked to affective inertia.

Additionally, apprehension towards SNS use can reduce the positive effects of expected enjoyment of the Twitter activity. Students that are apprehensive towards SNS use will be less motivated by expectations about how fun and entertaining the activity will be. The effects of these expectations on reducing affective inertia have been demonstrated to be less important for these individuals. This confirms the argument according to which apprehensive students will perceive the activity as more complex versus those who are less apprehensive, creating worries for the former group about their ability to perform well in the activity, which can reduce their motivation derived from expected enjoyment.

In contrast, no moderating effect of apprehension towards SNS use on the relationship between expected benefits and inertia was found. This finding contradicts our expectations based on the association between anxiety and self-efficacy proposed by SLT (Bandura, 1997). However, it is important to note that there is an association between apprehension towards SNS use and expected benefits of the activity, akin to that of self-efficacy and anxiety, since there is a significant correlation between both aspects. Nevertheless, there is no an interaction effect of either variables on affective inertia.

7.1. Theoretical and practical implications

The article contributes to previous research on education in several ways. First, this article is one of the first to analyse the role of affective inertia in the education context. More specifically, the study analyses students' affective inertia experienced during an e-learning activity conducted through Twitter. While affective inertia has been previously analyzed in the psychology field, relating this variable with depression and psychopathologies (Bos et al., 2019; Mancini & Luebbe, 2016), little is known regarding this construct in relation to education and the inclusion of information technologies in teaching (Fraj-Andrés et al., 2020). In the field of IT adoption, previous research has focused on studying inertia, but have not considered the affective dimension of inertia (Lucía-Palacios et al., 2016). Furthermore, in education, Deemer et al. (2021) propose academic inertia, but still, they do not address its affective dimension.

Second, the research demonstrates how this affective inertia can be reduced prior to conducting an e-learning activity. Before

starting a Twitter-based activity, students' expectations about its benefits and enjoyment are key aspects to reduce their affective inertia and motivate them to enrol in the activity. Therefore, to reduce affective inertia, teachers should seek to enhance students' positive expectations so that they feel the change will be for the better, in terms of the learning activity being beneficial and helpful for their learning performance, as well as enjoyable. Regarding this contribution, it is interesting to highlight that previous research on students' intention to participate in e-learning activities have considered students' perceptions as antecedents of this intention (Huang, 2020; Shiau & Chau, 2016). However, we address the role of expectations, that is, students' beliefs about how useful and enjoyable the activity will be without taking part in it. When the survey was administered, the students had only received an explanation of the activity.

Third, we have shown that apprehension towards SNS use is an attitudinal variable, the presence of which equates to higher affective inertia that is harder to reduce by making the activity fun and useful. This variable has been found to be important in determining the students' motivations to establish a relationship with their instructors through Twitter (Denker et al., 2018). The present research extends these findings by relating the variable to affective inertia and identifying its moderating role in the influence of expectations on inertia, following SLT.

This research provides practical insights for teachers in Business Studies. When teachers want to propose an e-learning activity conducted through Twitter, they should take into account that many of today's students are not familiar with this social net and are worried about their performance in it, so they experience affective inertia. That is, they do not want to change and adopt a new e-learning activity because doing so would be stressful for them. Due to the COVID-19 pandemic, teachers have been encouraged to be ready for digitalizing part or all of their courses in case of nationwide lockdowns. Therefore, it is useful to understand how to curb affective inertia regarding e-learning activities. To reduce this inertia, teachers must increase students' expectations regarding the benefits and enjoyment experienced via the activity. To do so, teachers should first think about the design of the activity, making it meaningful and attractive to students. Furthermore, prior to starting the activity, teachers should highlight that it is going to be useful for memorizing and putting into practice the concepts of the subject, and acquiring the competences needed to pass course examinations and achieve higher marks. Likewise, after each activity, teachers can use Twitter Polls. This option allows them to obtain quick and easy feedback about the level of enjoyment experienced or any other interesting information, which will help teachers to adapt and improve the project. Furthermore, teachers must show that the activity will be fun. For example, in the debate conducted via Twitter, teachers can use situations and examples that are related to the students' lives and are entertaining. In the case of marketing, there are many easily accessible examples of concepts related to consumer behaviour and market dynamics, such as regarding behaviour related to going-out, purchasing products from favourite brands, promotional campaigns for films, etc.

Moreover, teachers must consider the fact that it will be more difficult to break affective inertia for students that are more apprehensive regarding SNS use; they should pay special attention to these students, and offer a detailed explanation of the activity. In this way, the perceived complexity of the activity will be reduced, and the students' worries about their ability to complete it will be mitigated.

7.2. Limitations and future lines of research

Finally, this research is not lacking in limitations. First, the study was conducted in a Spanish university. The adoption of Twitter by the Spanish population is quite high and 85% of Spanish users are social networking sites users. Studies conducted in other countries, where the general adoption of Twitter is different, may offer very different results.

Second, the study focuses on an e-learning activity conducted through Twitter. This SNS has its own characteristics that differ from those of other platforms. Therefore, further research could consider affective inertia in activities with other SNS, where the reducing factors may vary. Nevertheless, the intrinsic characteristics of Twitter as a text-based SNS in comparison to Facebook (more social relationships-oriented) or Instagram (image-based SNS) make the SNS a suitable platform for conducting the scheduled activities. Similarly, students may feel greater apprehension towards using Twitter compared to other SNS, so caution is warranted in extrapolating our results to the use of other SNS.

Third, we consider expectations of benefits and enjoyment as motivations to reduce affective inertia. However, there are other groups of factors that can be analyzed with the same purpose, such as facilitating conditions, social influence, or other environmental aspects (Briki et al., 2013; Deemer et al., 2021; Shiau & Chau, 2016). Further research could examine these other factors. Fourth, this study used a convenience and reduced sample shaped by our students and was conducted using students from a specific course. Therefore, scholars should be careful when extrapolating our results to other contexts, such as very different degrees, or universities in other countries. Future research should try to replicate our study in different contexts.

8. Conclusion

Nowadays, teachers have incorporated SNS in their class activities as a means to increase students' motivation and learning performance. Students of Management, Business and Economics should familiar with SNS-based activities, since they may need them in their professional lives. However, students may refuse to take part in these activities because they may be unfamiliar with them and feel stressed, which increases affective inertia. This inertia involves that students prefer to keep learning with established activities rather than try new ones. Previous research in Education has studied how to reduce resistance to conduct an activity but have not addressed how to reduce affective inertia. The present article has demonstrated that the student's expected benefits and enjoyment of the activity can help reduce affective inertia. Teachers should generate these expectations and considering them when designing their activities. However, not every student reacts to these expectations uniformly. The enjoyment of the activity is less effective to reduce

affective inertia for apprehensive students. Therefore, further research is needed to unveil additional factors that reduce inertia. Moreover, they should consider students' personality traits that may affect the teachers' possibilities to get this reduction.

Author statement

Elena Fraj-Andrés: Conceptualization, Investigation, Writing-Original Draft and Review & Editing, Supervision; **Carolina Herando:** Conceptualization, Methodology, Writing-Original Draft and Review & Editing, Project administration, Funding acquisition; **Laura Lucia-Palacios:** Conceptualization, Investigation, Methodology, Writing-Original Draft and Review & Editing, Supervision; **Raúl Pérez-López:** Conceptualization, Methodology, Formal analysis, Investigation, Writing-Original Draft and Review & Editing, Visualization, Supervision, Project administration, Funding acquisition.

Acknowledgements

The authors wish to express their gratitude for the financial support received from MCIN (PID2020-114874GB-I00 and PID2020-118425RBI00), the University of Zaragoza (PIIDUZ 17_064) and the Government of Aragon and the European Social Fund (GENERES Group S-54_20R). Finally, this work is part of the Institute for Research on Employment, Digital Society and Sustainability (IEDIS).

Appendix

Variable	Scale	Source
Affective inertia	I prefer taking part in traditional activities because ... AI1. ... changing to new activities is stressful. AI2. ... I am comfortable using traditional approaches. AI3. ... traditional approaches are fun, and I enjoy them.	Lucia-Palacios et al., 2016; Polites & Karahanna, 2012
Expected benefits	EB1. I think the Twitter activity will help me understand certain concepts. EB2. I think Twitter is a tool for entertainment rather than learning. EB3. I think that my classmates' posts will allow me to learn. EB4. I think the Twitter activity will enable me to apply relevant concepts. EB5. I think the Twitter activity will allow me to share my opinions with my classmates. EB6. I think the Twitter activity will be useful to pass the course. EB7. I think the Twitter activity will be helpful to obtain a better mark in the exam.	Bhattacharjee et al., 2012; Lee et al., 2005
Expected enjoyment	EJ1. I think the Twitter activity will be enjoyable. EJ2. I think the Twitter activity will be entertaining. EJ3. I think the Twitter activity will be fun	Fraj-Andrés et al., 2018; Koufaris, 2002; Lee et al., 2005
Apprehension towards SNS use	APP1. I feel awkward when communicating online. APP2. I feel apprehensive about communicating online. APP3. I cannot think clearly when I communicate online. APP4. The lack of nonverbal cues (such as eye contact, facial expressions, etc.) in e-mail makes me feel uncomfortable. APP5. I feel tense and nervous when communicating online. APP6. It bothers me that I cannot see people when communicating online. APP7. My words become confused and jumbled when I try to communicate online. APP8. I am afraid to voice my opinions when interacting with others online.	Denker et al., 2018; Ledbetter, 2009

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