

MOTIVATIONAL EMAILS IN DISTANCE UNIVERSITY

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ABSTRACT

Interactions between instructors and students at distance learning universities are crucial in motivating students and enhancing learning outcomes. Although prior empirical studies have examined email messages at distance learning universities from different perspectives, this is the first study, to the best of our knowledge, to explore the effectiveness of emails considering students' profiles and their behavior on learning platforms. Specifically, we differentiate between students who are "active" in virtual courses (called "active" students) and students who are "nonactive" in virtual courses (called "inactive" students) in order to design email content and motivate students. Focusing on this differentiation and a control group, we investigate in a Managerial Accounting for Tourism course the effectiveness of motivational emails to: (a) engage students in the virtual course, (b) detect similar behaviors according to sociodemographic characteristics, and (c) affect learning outcomes.

Keywords: asynchronous communication, higher education, learning management system, motivational email messages.

INTRODUCTION

Elearning has grown rapidly in the past few years, driven by progress in the development of Information and Communication Technologies (ICTs). The Babson Survey Research Group (2016) noted that distance education students increased for the fourteenth straight year in the United States. The survey found that over 30% of higher education students take at least one distance education course and that there were 3,356,041 students enrolled in distance and nondistance courses and 3,003,080 students enrolled exclusively in distance courses in 2016. In fact, the number of students engaged in distance learning has increased regardless of whether the economy was undergoing a period of expansion or recession. The COVID-19 pandemic has also forced many students around the world to move from the classroom and the traditional education system to an online system. Therefore, learning methods and strategies in distance education at universities are becoming an increasingly valuable and relevant subject for researchers.

In distance education, communication between

instructors and students plays a vital role in enhancing the students' participation and their motivation to learn. Interactions between instructors and students can be applied to a one-to-one basis (individual communication) or to a one-to-the-group manner (class communication). The latter method is typically used in online courses to welcome students; provide pertinent information about the course, schedule, and calendar; make announcements; hold discussion forums and message boards; or provide reminders. Interactions between instructors and students at the individual level are a valuable tool for providing private feedback, private reminders about participation, the fulfilment of the learning objectives, and other types of communication. A combination of both types of communication is crucial to keep students engaged in the course. An instructor's interactions with students can create an appropriate environment that makes learners part of the course and builds a sense of community. It can also help alleviate learning isolation and prevent dropout.

Distance learning universities have high rates

of abandonment and low graduation rates compared to conventional education. Inkelaar and Simpson (2015) found that in distance higher education, typical graduation rates are near 20%, which is very low compared to conventional higher education. If students' motivation decreases, they may gradually become more inactive during the semester until they drop out of the course. Therefore, active motivational strategies should be developed based on learning strategies in combination with class materials.

This paper explores the effectiveness of individual communication with students as a potential strategy to engage students in virtual courses and improve their learning. Email messages are a traditional means of communication in online courses (and maybe the oldest) and are still the most common today (Dailey-Hebert, 2018). Consequently, email messages create learning opportunities because of their advantages: Email is an easy way to deliver messages through nonverbal communication, it permits a wide variety of communication styles, and it does not require a real-time connection between participants. In this context, email messages (instructional emails, motivational emails, reminder emails, personal emails, mass emails, etc.) emerge as a valuable tool to promote learning objectives and engage students (Chang et al., 2015; Hassini, 2006; Heiman, 2008).

Prior research has examined the potential of emails to achieve different learning strategies and learning outcomes. The most common questions examined in such studies are related to the impact of email communication on: (a) students' academic performance (Dickinson, 2017; Inkelaar & Simpson, 2015; Kim & Keller, 2008; Nkhoma et al., 2018; Yu & Yu, 2002); (b) students' objectives in communication (that is, whether they ask questions about technical problems, supplementary materials and references, voluntary quizzes, or assessments) (Covarrubias et al., 2019; Hassini, 2006, Uddin & Jacobson, 2013, Uddin et al., 2014); (c) students' preferences in communication (Chang et al., 2015; Hassini, 2006; Uddin & Jacobson, 2013; Uddin et al., 2014; Woods, 2002; Woods & Keelers, 2001); (d) the level of students' satisfaction and motivation and changes in their behavior (Heiman, 2008; Robb & Sutton, 2014; Yu & Yu, 2002); (e) differences in learning contexts (online education, hybrid education, on-site classes, or formal and informal

education) and differences in students' maturity levels (such as adults vs. adolescents, graduates vs. undergraduates) (Chang et al., 2015; Huett et al., 2008); and (f) students' profiles and characteristics such as age and gender (Covarrubias et al., 2019; Debrand & Johnson, 2008; Jones et al., 2016; Park et al., 2019).

Another stream of research has focused on email content (motivational, volitional, personalized, mass message, etc.) to determine how different types of emails affect students': (a) attitudes and behaviors (Kim & Keller, 2008; Li & Moore, 2018); (b) academic performance (Hodges & Kim, 2010; Huett et al., 2008; Inkelaar & Simpson, 2015; Kim & Keller, 2008; Robb & Sutton, 2014); (c) technology attention and adaptation (Kim & Keller, 2011); (d) self-regulation and self-efficacy (Hodges & Kim, 2010; Kim & Keller, 2008; Li & Moore, 2018); and (e) retention level (Huett et al., 2008; Li & Moore, 2018).

Although prior empirical studies have investigated email messages at distance learning universities from different perspectives, to the best of our knowledge, no study has explored the effectiveness of emails considering students' profiles in virtual courses. Consequently, we adopt a new classification of students—active and inactive—to better analyze the effectiveness of emails on both virtual courses and academic achievement. Although we adopted and tested several strategies in previous courses with a focus on all participants, these were not sufficient to engage the students in the course and motivate them to actively participate throughout the semester.

The objectives of this research are as follows. First, we examined the effectiveness of emails in encouraging students to participate in the virtual course by considering students' profiles in order to design email content and adequately motivate students. Specifically, we differentiate between students who are active in the virtual course since the beginning of the course ("active" students) and students who are not active in the virtual course since the beginning of the course ("inactive" students). We also used a control group for active and inactive groups to compare the results between students who received an email and students who did not receive an email. We expected that active students would be more influenced by the email messages than the inactive students. However, we

were interested in capturing the attention of inactive students because they have a higher probability of dropping out of the course.

Second, we analyzed the effectiveness of emails in engaging students, considering their sociodemographic characteristics. Previous studies have provided mixed results regarding communication settings and the effectiveness of emails according to students' characteristics. For example, Park et al. (2019) found that users' perceptions and intentions to adopt multimedia technology for learning is different for men and women using online and blended learning. Debrand and Johnson (2008) focused on differences in the use, and perceived usefulness, of email and instant messaging software according to gender using a sample of undergraduate students. In general, the results showed that students of both genders used emails in a similar manner, but women perceived emails as being more useful than men. Jones et al. (2016) analyzed email content and found that the number of emails, length and word count, objectives or reasons for sending an email, and emotional tone differed for women and men. The current study includes two sociodemographic characteristics—gender and geographical location—because our students are distributed among different regions worldwide. Using the classification of active and inactive students proposed above, we tested the effectiveness of emails in engaging students according to their sociodemographic characteristics.

Furthermore, to better examine the effectiveness of email messages, we not only analyzed their ability to engage students in virtual courses, we also considered students' academic performance. Apostolou et al. (2013) called for more empirical studies focusing on how technologies may promote learning in accounting with special attention to the measure of performance. Viola et al. (2020) also argued that the methodology in distance education (both online and hybrid) has scarcely been examined in prior papers, at least in certain disciplines. Thus, our third objective was to investigate the effectiveness of email communication regarding academic performance (quizzes that contribute to exams and final exams) considering students' profiles (active and inactive). We assumed that students who receive motivational emails will obtain higher marks compared to students who do not receive motivational emails.

The words and content included in emails (i.e., tone, color, images, etc.) may influence students' motivation (Dickinson, 2017; Huett et al., 2008; Kim & Keller, 2008), success rates, test evaluation (Dickinson, 2017), retention, and recall (Huett et al., 2008). Consequently, the current study proposes different email content according to students' behavior to adequately motivate students with greater effectiveness: (a) congratulating active students on their use of the virtual course materials, and (b) encouraging and promoting the use of the virtual course materials for inactive students. Additionally, we used LIWC software (Linguistic Inquiry Word Count) to test the content of the email.

This study relied on individual communication through email messages according to students' profiles, with the objective of correctly motivating and engaging the students in virtual courses. We think that instructor interventions could be a potential tool to keep students connected during courses and to prevent dropout.

LITERATURE REVIEW AND HYPOTHESES

Several theories have been proposed to explain online learning frameworks, such as Transactional Distance Theory and Community of Inquiry. Transactional Distance Theory asserts that distance education is a pedagogical concept and construction that depends on three elements: structure, dialogue, and learner autonomy (Ekwunife-Orakwue & Teng, 2014; Moore, 1989, 1990). Structure refers to the design of courses, dialogue is the communication between parties, and autonomy is defined as the learners' control and ability to manage their own learning. In this model, the more structure is provided in online courses, the less dialogue is needed, and vice versa (Ekwunife-Orakwue & Teng, 2014; Moore, 1989, 1990). Consequently, dialogue plays an important role in online learning, considering the interactions between instructor and learner, learner and learner, and learner and content.

In the Community of Inquiry approach, online learning is explained through three constructs: teaching presence, cognitive presence, and social presence (Garrison et al., 2000; Garrison et al., 2001). Teaching presence refers to the course design and planification, social presence includes communication and group cohesion and is related to the projection of the learner as a real person

into the online system, and cognitive presence is related to critical and creative thinking and is an essential element in this model (Garrison et al., 2000; Garrison et al., 2001; Joksimovic et al., 2014). Prior studies have used several approaches to measure cognitive presence, including messages (Joksimovic et al., 2014).

Other studies have examined the success of elearning using other frameworks, such as the Technology Acceptance Model, the User Satisfaction Models, and the E-Learning Quality Model (see Al-Fraihat et al., 2020 for a revision). According to Al-Fraihat et al. (2020), the focus of attention in the literature has shifted in recent years to the interactions and attitudes of online participants and instructor-learner interactions, as well as students' characteristics and attitudes related to online learning success, instead of technology itself. In this context, communication and interactions between instructors and students is a crucial element in elearning environments to motivate students to fulfill learning objectives. Instructors face the challenge of implementing learning activities that keep students engaged and facilitate deeper learning. Instructor interaction can create an appropriate environment that makes students feel as though they are part of the course and builds a sense of community. It can also ameliorate learning isolation and prevent students from dropping out of the course. Indeed, prior research has pointed out that motivation is one of the most important factors affecting students' commitment and undergraduates' success (Inkelaar & Simpson, 2015).

In the context of distance education, asynchronous and synchronous communication play a fundamental role in motivating students to achieve their objectives. Asynchronous communication has the advantage of not requiring real-time connection. In this context, email communication emerges as a valuable strategy for interacting in online environments. Dailey-Hebert (2018) pointed out that email is a vital communication method because it is stable, reliable, user-friendly, and used by all professionals at different stages. Chang et al. (2015) revealed that 97% of students are comfortable engaging in email communication with their instructors, according to a survey of both graduate and undergraduate students. Moreover, in a ranking of students'

preferred channels for communication with their instructors, email messages came in first followed by posted course announcements. Li and Moore (2018) also found that email is an effective tool for capturing students' attention in MOOC courses.

Many studies have examined the use of email messages to achieve different learning strategies or learning outcomes. For example, Hassini (2006) found that students mainly use emails to discuss assignments, projects, and grades. Uddin and Jacobson (2013) examined 34 students enrolled in a master's degree course with the objective of analyzing the evolution of networking during the semester. The results showed that emails: (a) are more frequent at the end of the semester, (b) are less frequent and more decentralized during the semester, and (c) do not have the same intensity throughout the semester—that is, students' participation varies according to the objective. They also detected some levels of in-degree activity, out-of-degree activity, and reliabilities of the predictive power of reciprocity. In a subsequent study, Uddin et al. (2014) found that students' behavior changed during the semester and that the increase in their study load is the main factor for these changes. The evidence also suggests that email is a vehicle for discussing assignments.

Similarly, Yu and Yu (2002) showed the usefulness of email in enhancing students' cognitive growth and their perception of learning (social and academic). They also noted that email contributes to academic performance but does not affect students' attitudes towards computers. Heiman (2008) compared students who received email messages every two weeks during one semester with students who did not receive email messages during the semester, using a sample of 229 undergraduate students from distance learning universities. The results suggest that students who receive personal emails in online learning have a higher level of satisfaction with the course compared to those who do not receive personal emails. In addition, this form of communication increases students' coping strategies.

Woods and Keelers (2001) found that students who receive emails with audios or videos have higher levels of satisfaction than those who do not receive personal emails, but they did not find that students who receive an email each week have higher levels of satisfaction than those who receive

an email monthly. In a subsequent study, Woods (2002) proposed an empirical design based on four groups of students. The first group received a personal email at the end of each week for a total of fifteen messages in a four-month period, the second group received a personal email at the end of each month for a total of four messages in a four-month period, the third group received two messages in the semester, and finally, the control group did not receive any messages. The results indicate that the levels of participation and satisfaction with the learning experience do not increase with the number of personal messages sent to students.

Interestingly, Covarrubias et al. (2019) found that emails and messages do not influence students in the same way when considering actions and user's characteristics. Focusing on how messages affect undergraduate students' help-seeking behavior and grades, they show that messages are positively associated with peer-led tutoring sign-ups, and consequently, with a greater number of tutorial sessions and better final course grades. In contrast, the results do not show the effects of messaging on men signing up for tutoring.

Educational psychology theories indicate that email content plays a vital role in influencing students. A seminal paper published by John Keller in 1983 extended the research in this field. Keller (1983) designed a theoretical framework to enhance students' learning and motivation in courses. Four elements are crucial in student communication, according to Keller's model (called the ARCS model): attention (A), relevance (R), confidence (C), and satisfaction (S). Subsequent papers made relevant progress in the field (Huett et al., 2008; Kim & Keller, 2008, 2011; Kuhl, 1987; Robb & Sutton, 2014; Visser et al., 1999). For example, Kuhl (1987) introduced six controls to encourage students to pay attention to the actions they should take to achieve their goals, such as encoding emotion, motivation, parsimonious information processing, and environment. In this sense, emotion control is useful for minimizing negative feelings that become obstacles to achieving students' goals, and environment control is valuable for minimizing distractions.

Visser et al. (1999) focused on motivational strategies through two types of messages—mass or personalized—using a sample of postgraduate students enrolled in a distance education program offered by London University. The results of their

research did not show statistically significant differences between the use of mass messages versus personalized messages. Thus, the authors suggested that mass messages are used because they are easier to implement in universities with distance learning platforms. Kim and Keller (2008) compared the motivation, study habits, and achievement of students who received personal email messages based on individual audience analysis and students who did not receive personal messages using a sample of 101 undergraduate students. The results of their work revealed that motivation and mean test grades were higher for students who received a personal email compared to students who did not receive a personal message.

Robb and Sutton (2014) chose a sample of students enrolled in twelve online classes at a community college and identified the benefits of using motivational emails. In particular, the evidence suggests that the group that receives motivational email messages are more successful in completing their work and they also obtain better grades. Huett et al. (2008) focused on the use of motivational mass emails to influence students' motivation and retention using a sample of students enrolled in online and face-to-face courses. Interestingly, their results did not identify any differences between online students and those in face-to-face classrooms.

It is also important to consider the content of emails. Li and Moore (2018) provided several tips for improving the effectiveness of emails: send concise emails that focus on information about course content, send reminder emails, and offer rewards to motivate students to continue learning. Dickinson (2017) found that the tone of emails affects students' academic performance, regarding both success rates and teaching evaluations. Robinson et al. (2013) suggested that students' email content is valuable for designing effective learning strategies and predicting academic performance.

In summary, the literature has paid special attention to the interactions between instructors and students and among students themselves to increase the students' motivation and achieve different learning objectives. This paper relies on individual communication through email messages according to students' profiles with the objective of motivating and engaging students in virtual courses. Based on the findings of previous literature, we define three hypotheses:

- H01:** There is no association between a student’s reception of a motivational email and changes in the student’s status in the Blackboard learning program.
- H02:** There is no association between changes in a student’s status in the Blackboard learning program after receiving a motivational email and students’ characteristics.
- H03:** There is no association between a student’s reception of a motivational email and the student’s performance.

RESEARCH METHOD

Data Collection and Participants

To collect data in this study, we selected the course Managerial Accounting for Tourism at UNED (Universidad Nacional de Educación a Distancia). UNED offers distance learning education (a blended and online model) with the largest number of students in Spain. It is also one of the largest universities in Europe. The data were obtained from the Blackboard learning program and the grade program, which included each student’s grade. The sample was made up of 387 third-year undergraduates that were enrolled in the Managerial Accounting for Tourism course in the 2018-19 academic year.

Table 1. Descriptive Statistics

| Gender | N | % |
|-------------------|----------|----------|
| Male | 130 | 34% |
| Female | 257 | 66% |
| Total | 387 | 100% |
| Location | N | % |
| Center | 90 | 25% |
| North | 99 | 28% |
| Island | 89 | 25% |
| South | 79 | 22% |
| Total | 357 | 100% |
| Assessment | N | % |
| Quiz | 135 | 35% |
| Exam | 172 | 44% |

Table 1 provides descriptive statistics of the sample. The percentage of females is around 66% and the percentage of males is around 34%. The distribution of students by geographical location is homogenous. Table 1 also reveals that over 35% of

students attended a voluntary quiz that contributed to their final exam, and over 44% attended the final exam. This study only considers the ordinary session (February exam) and excludes the extraordinary session (September exam) because it is likely that the email monitoring process has a transitory effect in the extraordinary session. That is, there is little chance that the effect of the email persists through the second semester and the summer holidays until the exam taken in September. Hence, Parte and Mellado (2014) found that the students’ behavior in extraordinary evaluations is different from that in ordinary evaluations.

Procedure

We used the Blackboard learning program to obtain information about the students from the beginning of the course until the day after the registration period closed. Specifically, we checked the Blackboard network every day to find evidence about the students’ interventions, the frequency of the interventions, and the type of message (related to the subject content, general questions, exercises, etc.). This information allowed us to classify students into groups before sending emails. It was extremely important to correctly direct the emails in terms of content and strategies. In the fifth week of the semester (one day after the closure of the registration period), we detected three types of students: active students (those who frequently entered the virtual course, on average once a week), almost-inactive students (those who accessed the online platform infrequently, only once or twice since the beginning of the semester), and inactive students (those who had never entered the online course). Based on this evidence, the literature review, and the instructors’ previous experience with the subject, we designed interventions for the semester.

The current study used two emails to motivate students according to their profiles—active students, almost-inactive students, and inactive students. The students were randomly assigned to a group: active students with emails and active students without emails, almost-inactive students with emails and almost-inactive students without emails, and inactive students with emails and inactive students without emails.

The emails were short and contained relevant information about the materials and motivational sentences to engage the students. For example,

for volitional strategies in inactive students, we remarked that they were in the fifth week of the semester and it was extremely important that they dedicate time to studying managerial accounting. We also highlighted that it would be convenient for them to carefully read the program of the subject and to frequently visit the virtual course, in which there were useful materials to prepare them for studying the subject—supplementary case studies associated with each chapter, quizzes, mini videos, etc. For confidence strategies, we included the remarks “You can still do it!” and “You have time!” For almost-inactive students, we used the previous message because they had already entered the virtual course though infrequently (only once or twice since the beginning of the semester). We then considered inactive students as risky learners in terms of their probability to abandon the course. For active students, we remarked that they were doing very well and encouraged them to continue during the semester. Although we edited several emails focusing on student groups, the platform system did not allow us to address and customize our emails according to psychology theory to boost the results (Kim & Keller, 2008).

With respect to the time at which emails were sent, we chose the afternoon because most students were working and studying at the same time. Consequently, there was a higher probability that they would be at work in the morning and would not be paying significant attention to email.

After the intervention, we tested the changes in the students’ status in the virtual course—that is, their access to the virtual course—considering different times after the mail was sent (one day, half-a-week, one week, and one month). We examined the results using the active, almost inactive, and inactive classification method. In other words, changes in the status in the virtual course for students who received a motivational email compared to students who did not receive a motivational email, changes in the status in the virtual course for active students who received a motivational email compared to active students who did not receive a motivational email, and changes in the status in the virtual course for inactive/almost-inactive students who received a motivational email compared to inactive/almost-inactive students who did not receive a motivational email. In the data analysis, we grouped together inactive and

almost-inactive students, and regarding students’ sociodemographic students’ characteristics, we examined by gender and geographical location changes in their status in the virtual course for students who received a motivational email.

Turning back to previous academic experience in the Managerial Accounting subject area, it seems that there is a large group of students who do not participate actively in the virtual course. These students do not use the materials prepared to follow the course; moreover, they do not participate in the quizzes and tests that contribute to the exam. They are only interested in the final exam. However, previous studies in the field showed that students that participate in partial tests obtain better academic performance (Parte & Mellado, 2014, 2021). Consequently, we used the email channel to motivate students to participate in the virtual course and to attend the online quizzes, which contribute to the exam, and the final exam by using a different type of student classification.

Within the course, there is a quiz that contributes to the exam and a final exam. The quiz takes place in the tenth week of the course and is a voluntary assessment that contributes to 5% of the student’s final grade. The test consists of 10 questions related to the first eight chapters of the textbook. The semester ends with the final exam. Although we use the Blackboard system for the majority of the course, the final exam is taken in a face-to-face setting similar to that used in conventional education. The students’ motivation for attending the final exam is different from that for attending the quiz. Students must study all the chapters of the textbook to pass the exam, and the difficulty of the final exam is higher than that of the quiz. It is possible that students who need more time to prepare for the exam prefer to attend the extraordinary exam in September. Students’ marks in the quiz are the first variable of performance for the study, and students’ grades in the final exam are the second variable of performance. After the academic exam, we analyzed the grades of students who received an email and those who did not receive an email.

Data Analysis

Figure 1 shows the classification of students according to their behavior in the Blackboard learning program. As previously mentioned, we tracked students’ behavior in the Blackboard

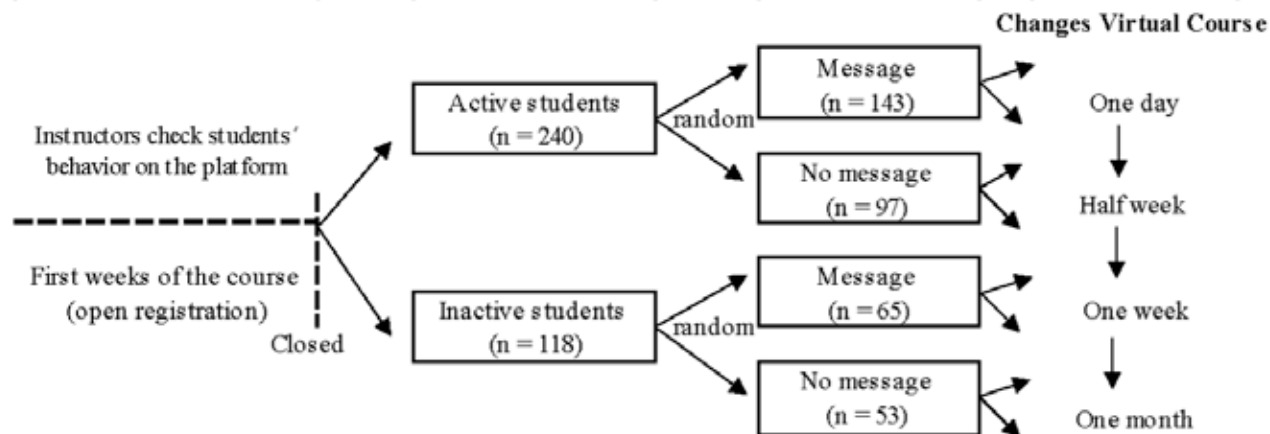


Figure 1. Student Classification
Source: Authors

network from the first day of the course until the day after the registration period closed. At that time, there were 240 active students and 118 inactive/almost-inactive students. The students were randomly assigned to one of the following groups: active students with email messages ($n = 143$) and active students without email messages ($n = 97$), and inactive/almost-inactive students with email messages ($n = 65$) and inactive/almost-inactive students without email messages ($n = 53$). In total, we sent 208 messages: 143 to active students and 65 to inactive/almost-inactive students. It is also important to mention that there was a slight difference in the number of observations of each group due to the adjustment of students in the days immediately after the registration period closed.

It should be noted that there was a slight difference between the students enrolled in the subject ($n = 387$) and the students enrolled in the virtual course ($n = 358$). This difference was caused by the lack of access to the course for students with special characteristics and students from penal institutions.

To control the email content, we used the LIWC program to analyze the text of the email messages before their delivery. In particular, we were interested in identifying the appropriate levels of three variables: (a) analytic thinking, because our emails contained instructional text to motivate students to access the virtual course; (b) clout, because we sought to impart confidence and expertise; and (c) emotional tone, because we sought to motivate and engage students. The results show high values in analytic thinking (over

88%), which reflects high levels of formal, logical, and hierarchical thinking; clout (over 95%), which suggests that the instructor is writing from the perspective of high expertise and is confident; and emotional tone (over 97%), which reflects positive tone and upbeat style.

RESULTS

In this section, we present the results of the study. Our first objective is related to the effectiveness of the email in motivating students to visit the virtual course. The results related to this objective are summarized in Table 2.

The columns of Table 2 show the effects of the email messages in the virtual course at different times (one day, half week, one week, and one month). To better analyze the results, we divided Table 2 into three panels. The Panel A shows the results for all students, Panel B exhibits the results for students classified as active, and Panel C presents the results for students classified as inactive.

In Table 2, Panel A, the first row shows the students' access to the virtual course one day after sending the email and the cumulative effects in the days immediately after sending the emails. These percentages are calculated by dividing the number of instances of access to the virtual course for students with emails between the total number of messages sent. In Table 2, Panel B, the second row presents the access to the virtual course of students without email communications. This is our control group, and the percentages are calculated by dividing the number of instances of access in the virtual course for students without emails between

Table 2. Effect of the Message in the Virtual Course

| Panel A. All Students | | | | | | | | |
|----------------------------|---------|--------|-----------|--------|----------|--------|-----------|--------|
| All Students | One day | | Half week | | One week | | One month | |
| | N | % | N | % | N | % | N | % |
| Message (208) | 29 | 13.94% | 47 | 22.60% | 87 | 41.83% | 145 | 69.71% |
| No message (150) | 20 | 13.33% | 33 | 22.00% | 62 | 41.33% | 102 | 68.00% |
| Increase | | 0.61% | | 0.60% | | 0.49% | | 1.71% |
| Chi-square | | 1.65 | | 2.45 | | 4.20 | | 7.49 |
| p value | | 0.199 | | 0.118 | | 0.041 | | 0.006 |
| Panel B. Active Students | | | | | | | | |
| Active Students | One day | | Half week | | One week | | One month | |
| | N | % | N | % | N | % | N | % |
| Message (143) | 28 | 19.58% | 43 | 30.07% | 75 | 52.45% | 119 | 83.22% |
| No message (97) | 17 | 17.53% | 27 | 27.84% | 53 | 54.64% | 76 | 78.35% |
| Increase | | 2.05% | | 2.23% | | -2.19% | | 4.87% |
| Chi-square | | 2.69 | | 3.66 | | 3.78 | | 9.48 |
| p value | | 0.101 | | 0.056 | | 0.052 | | 0.002 |
| Panel C. Inactive Students | | | | | | | | |
| Inactive Students | One day | | Half week | | One week | | One month | |
| | N | % | N | % | N | % | N | % |
| Message (65) | 1 | 1.54% | 4 | 6.15% | 12 | 18.46% | 26 | 40.00% |
| No message (53) | 3 | 5.66% | 6 | 11.32% | 9 | 16.98% | 26 | 49.06% |
| Increase | | -4.12% | | -5.17% | | 1.48% | | -9.06% |
| Chi-square | | 2.69 | | 3.66 | | 1.32 | | 0.00 |
| p value | | 0.101 | | 0.056 | | 0.251 | | 1.000 |

the total number of students who did not receive email messages.

Panel A shows that the percentage of students who visited the virtual course after receiving an email was similar to the percentage of students who visited the virtual course without receiving an email. However, these results should be interpreted with caution because Table 2 does not differentiate students' profiles. Using the chi-square test, we find p values statistically significant for one week and for one month.

Table 2, Panel B presents the results for active students. Panel B reveals that the percentage of students who changed their status after receiving an email was higher than the percentage of students who changed independently (without a message). The increase was from 2.05% for the first week to 4.87% for the first month. Using the chi-square test, we find p values statistically significant. However, considering the inactive students, the evidence suggests that the email channel does not motivate

students to visit the virtual course. It seems that students visit the virtual course following other motivations (Table 2, Panel C).

The second objective of the study is to test the effectiveness of emails by gender and among geographical locations, and these results are summarized in Tables 3 and 4. Table 3 shows the results for gender. It seems that females are more active when receiving emails across all periods. This increases from 5.42% for the first week to 9.62% for the first month. The chi-square test shows an association between gender and changes in status in the virtual course for students who receive an email ($p < 0.01$). In contrast, we do not find an association between gender and changes in the status in the virtual course for students who did not receive an email ($p > 0.05$).

Table 4 shows the results for geographical location. In this case, the chi-square test is not statistically significant for geographical location. The exception is the return for one day for students

Table 3. Results for Gender

| Message | Gender | One day | | Half week | | One week | | One month | |
|------------------|--------------|---------|--------|-----------|--------|----------|--------|-----------|--------|
| | | N | % | N | % | N | % | N | % |
| Message (208) | Female (140) | 22 | 15.71% | 36 | 25.71% | 63 | 45.00% | 102 | 72.86% |
| | Male (68) | 7 | 10.29% | 11 | 16.18% | 24 | 35.29% | 43 | 63.24% |
| | Increase | | 5.42% | | 9.54% | | 9.71% | | 9.62% |
| | Chi-square | | 7.76 | | 13.30 | | 17.48 | | 24.01 |
| | p value | | 0.005 | | 0.000 | | 0.000 | | 0.000 |
| No message (150) | Female (94) | 13 | 13.83% | 19 | 20.21% | 38 | 40.43% | 68 | 72.34% |
| | Male (56) | 7 | 12.50% | 14 | 25.00% | 24 | 42.86% | 34 | 60.71% |
| | Increase | | 1.33% | | -4.79% | | -2.43% | | 11.63% |
| | Chi-square | | 1.80 | | 0.76 | | 3.16 | | 11.33 |
| | p value | | 0.180 | | 0.384 | | 0.075 | | 0.001 |

Table 4. Results for Geographical Location

| Message | Location | One day | | Half week | | One week | | One month | |
|------------------|-------------|---------|--------|-----------|--------|----------|--------|-----------|--------|
| | | N | % | N | % | N | % | N | % |
| Message (208) | Center (54) | 1 | 1.85% | 7 | 12.96% | 17 | 31.48% | 35 | 64.81% |
| | North (54) | 11 | 20.37% | 16 | 29.63% | 24 | 44.44% | 38 | 70.37% |
| | Island (58) | 8 | 13.79% | 12 | 20.69% | 24 | 41.38% | 42 | 72.41% |
| | South (42) | 9 | 21.43% | 12 | 28.57% | 22 | 52.38% | 30 | 71.43% |
| | Chi-square | | 7.83 | | 3.47 | | 1.51 | | 2.12 |
| | p value | | 0.050 | | 0.325 | | 0.681 | | 0.548 |
| No message (150) | Center (36) | 5 | 13.89% | 8 | 22.22% | 15 | 41.67% | 26 | 72.22% |
| | North (45) | 7 | 15.56% | 11 | 24.44% | 21 | 46.67% | 31 | 68.89% |
| | Island (31) | 4 | 12.90% | 8 | 25.81% | 14 | 45.16% | 21 | 67.74% |
| | South (37) | 4 | 10.81% | 6 | 16.22% | 11 | 29.73% | 23 | 62.16% |
| | Chi-square | | 1.20 | | 1.55 | | 3.46 | | 2.25 |
| | p value | | 0.753 | | 0.672 | | 0.326 | | 0.523 |

who receive an email, but the limited number of observations does not allow us to draw conclusions.

Our last objective is related to the effectiveness of emails in boosting academic performance (quiz and final exam). The results are summarized in Tables 5 and 6.

Table 5 shows that students who receive motivational emails, on average, obtain slightly higher marks on the quiz (that contributes to the final exam) than students who do not receive motivational emails, although the differences in marks are low, and the t-test is not statistically significant. Both active and inactive students who receive motivational emails obtain slightly higher marks on the quiz compared to students who do not receive motivational emails, but the t-test is

not statistically significant. In this case, we did not divide the sample by gender because we did not have enough observations. It should be noted that the inactive group only had 22 observations.

Similarly, Table 6 reveals that students who received a motivational email, on average, obtain higher marks on the final exam than students who did not receive motivational emails, although the t-test is not statistically significant. Considering the students' profiles, the results suggest that students who were classified as active and received motivational emails, on average, obtained higher marks on the final exam compared to students classified as inactive. Additionally, active students obtained higher marks on the final exam compared to inactive students.

Table 5. Results for the Quiz

| Quiz | Message | N | % | Mean | S.D. |
|-------------------|---------|-----|---------|-------|-------|
| All the students | YES | 73 | 54.07% | 4.137 | 0.073 |
| | NO | 62 | 45.93% | 4.065 | 0.099 |
| | TOTAL | 135 | 100.00% | | |
| Active students | YES | 63 | 55.75% | 4.127 | 0.077 |
| | NO | 50 | 44.25% | 4.040 | 0.101 |
| | TOTAL | 113 | 100.00% | | |
| Inactive students | YES | 10 | 45.45% | 4.200 | 0.042 |
| | NO | 12 | 54.55% | 4.167 | 0.094 |
| | TOTAL | 22 | 100.00% | | |

Table 6. Results for the Final Exam

| Final exam | Message | N | % | Mean | S.D. |
|------------------------|---------|----|--------|-------|-------|
| All the estudents | YES | 97 | 56.40% | 4.449 | 2.811 |
| | NO | 75 | 43.60% | 4.268 | 2.702 |
| Student classification | | | | | |
| Active (with Quiz) | YES | 49 | 28.49% | 5.018 | 2.816 |
| | NO | 39 | 22.67% | 4.687 | 2.812 |
| Inactive (no Quiz) | YES | 48 | 27.91% | 3.869 | 2.712 |
| | NO | 36 | 20.93% | 3.814 | 2.537 |

CONCLUSIONS

The current paper examines the potential of email channel to engage students in learning and keep them connected. Our first objective examines the effectiveness of emails in encouraging students to visit the virtual course according to their profiles: inactive students (and almost-inactive) and active students. We designed two emails to tailor the motivational messages to the students according to their profiles. The results show that the percentage of active students who changed their status in the virtual course after receiving an email was higher than the percentage of active students who changed their status without receiving email messages. Consequently, email messages may help motivate active students to access virtual courses, although the returns are low. In the case of inactive students, the email messages did not motivate them to access the virtual course. Thus, we can conclude that inactive students visit the virtual course according to other motivations.

Our second objective examines the effectiveness of emails in engaging students according to their sociodemographic characteristics. The results show that motivational emails affect more women

than men since women changed their status in the virtual course faster than men. However, we did not find any differences related to students' geographical location.

Our last objective examines the extent to which email messages affect students' academic performance. The results show that students who receive motivational emails, on average, obtain slightly higher marks on quizzes than students who do not receive motivational emails, although the differences are very low, and the t-test is not statistically significant. Both active and inactive students who received motivational emails obtained slightly higher marks on the quiz compared to students who did not receive motivational emails. Similarly, students who received a motivational email obtained slightly higher marks on average on the final exam than students who did not receive motivational emails, although the results of the t-test were not statistically significant. Considering students' profiles, the results suggest that students classified as active who received motivational emails obtained higher marks on the final exam on average compared to students classified as active who did not receive motivational emails. It should

also be noted that active students obtained higher marks on the final exam than inactive students.

IMPLICATIONS

The current study contributes to the educational literature in several ways. In response to the call for further studies focusing on interactions and attitudes between students and instructors (Al-Fraiha et al., 2020), this study provides evidence from students pursuing a tourism degree who have a low motivation to study accounting. To engage students, we consider it crucial to complement class materials with motivational tools that enhance learning. This study focuses on communication content and strategies according to students' profiles. To the best of our knowledge, previous studies that focused on interactions between instructors and students at distance learning universities have not explored the effectiveness of emails considering students' profiles in virtual courses. Consequently, we adopt a classification based on students' behavior—active and inactive students—to better analyze the effectiveness of emails on both virtual courses and academic achievement.

The current study examines the effectiveness of emails, a traditional communication channel in elearning environments that is still the most common channel today at every level of elearning education. We consider that motivational email messages cannot be discarded in the distance learning university. The evidence suggests that email messages between instructors and students turn out to be an interesting channel to motivate students enrolled in a distance learning university. Motivational emails may help some students achieve their learning objectives, and we believe that email messages could be useful for online students because of their positive return in virtual courses and academic performance. However, students who are inactive do not experience any changes in their status after receiving email messages. Future studies may repeat our work and include more information about this group of students. It is also necessary to test different motivational strategies to capture the attention of this group. We consider it important to identify students with a low probability of success (and inactive students) and design specific strategies to encourage them to become gradually more active due to their high probability to drop out of courses.

In combination with prior research in the field, our results can help instructors and future researchers design specific strategies to promote students' participation. Although prior research has provided extensive evidence about the effectiveness of emails at distance learning universities and in online courses, a more informative identification of students could boost these results. Our study provides several insights for distance education and could be applied to different subjects and courses.

LIMITATIONS

One limitation of this study is related to the reading of emails, as we did not know how often students open institutional emails. Some students redirect institutional emails to their personal email accounts, while others prefer to keep their private and institutional email accounts separate. Consequently, we could only determine whether emails had been delivered but not whether they had been read. More importantly, we consider it essential to provide deep email content to achieve better results. It is also important to conduct a detailed analysis of how many messages should be sent to students.

SUGGESTIONS FOR FURTHER RESEARCH

The above limitations create new avenues for future studies. In addition to the number of emails, appropriate timing for interventions, and email content, future research may continue exploring email communication according to students' profiles to improve its effectiveness. It would also be interesting to include more variables to better categorize students into groups, such as according to their previous grades, the number of times they have been enrolled in the subject, and their age. Finally, future studies could combine email messages with other communication channels such as social media (Apps, Tweets, Facebook) or phones (instant messages).

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