Emoji Use as a Catalyst for Relationship Building and Sustaining Attention in Online Classes: An Empirical Study

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Abstract: Motivating students and sustaining their attention are essential for online classes in higher education. In particular, effective and efficient online communication between students and professors serves as a core driver for increased learning motivation and sustained attention. The purpose of this study was to examine the use of emojis and professor-student email communication as methods of motivating students and sustaining their attention. Specifically, this study hypothesized that a professor’s use of emojis in a welcome letter could result in the enhancement of psychological relationships with student recipients, such as students’ perceived authenticity and intimacy with the professor, leading to increased intrinsic learning motivation and sustained attention in the professor’s online class. The sample for the study was comprised of 297 undergraduate students from public universities in the United States. Data was collected via a scenario-based survey approach. The empirical findings indicated that emojis in a professor’s welcome letter could lead students to perceive the professor as authentic and friendly, making students more intrinsically motivated and more inclined to pay attention in the professor’s online class. Theoretical implications for the education field and pedagogical implications for developing online classes in higher education were proposed.

Keywords: emoji; authenticity; intimacy; learning motivation; sustained attention; higher education

1. Introduction

In the digital age, emoji symbols are used by 92% of online users to effectively express ideas and emotions [1]. Emojis also function as a nonverbal cue. Research has shown that the use of emojis increases positive affect, generates favorable behavioral intentions, and helps online users to alleviate stress [2,3]. Digital technologies have allowed universities to reach place-bound students and students with disabilities or barriers. Online interactions between students and teachers can enhance the student experience and performance [4]. Emojis can conceivably enhance the interactions between students and teachers. In fact, most academic institutions are actively developing and providing online degree or certificate programs to current and prospective students [5,6]. It is not surprising that leading academic institutions focused heavily on building online learning alternatives during the era of COVID-19 as a means of helping students to pursue learning and skill development from the safety of their home [5,7].

Scholars and practitioners in the education field have conducted empirical studies that examine the impact of online class content, online instructor quality, student learning motivation, and technology platforms on student engagement, motivation to learn, and academic performance [8–11]. Previous studies have contributed to the extant pedagogical literature by expanding technology-based models (e.g., technology acceptance model from [9]) and social and psychological frameworks (e.g., self-determination theory from [10]) in the social science fields. Certainly, there is research examining the value...
of a strong relationship between an instructor and students [12]. When the psychological distance between an instructor and students widens, student success is lowered [13]. Instructors can enhance interactions with students using innovative online engagement [4].

While prior empirical research has explored the importance of building a good relationship, the use of email communication between an instructor and students has not been fully examined even though most instructors frequently use email as a communication tool [14]. As a result, this study proposes that emojis in emails may generate positive outcomes among an instructor’s students based on the blending theory [2]. It is especially important for instructors to establish and sustain a good relationship with their students [12]. Email communication is an important avenue since the online learning environment does not provide any physical interaction between instructors and students [14]. Therefore, this study considers emojis in an instructor’s email as a visible cue, leading students to perceive the instructor as authentic and intimate in an online learning environment.

Compared to traditional face-to-face students, online students using digital learning platforms may focus relatively less on class due to external factors in the learning environment. Examples include studying at home with family members or texting or messaging on social media [5,7,15]. Physical, technological, and even psychological factors influence online students in the digital learning environment and, more importantly, have negatively influenced students’ learning motivation and attention, affecting their academic performance and achievement [7,15]. However, prior research in the online learning field has not specifically investigated the impact of the core determinants of students’ motivation to learn or the impact of sustained attention from an instructor’s perspective. Given the importance of relationship building [12], presumably an instructor’s email communication containing emojis could have meaningful influence on students’ cognitive responses to the instructor, such as perceived authenticity and perceived intimacy, resulting in higher levels of learning motivation and sustained attention in class. The empirical findings of this study can contribute to the extant online education literature by showing the significant role of emojis in building and maintaining a high-quality relationship between an instructor and students in online classes.

2. Literature Review
2.1. The Language of Emojis

As ideograms, emojis are considered a platform-specific form of standardized language in the virtual world [16]. In other words, individuals in the virtual world use emojis to convey their concepts, ideas, and even emotions to others as a particular technology-based language provided by the Unicode Consortium [2]. By using emojis, individuals are able to initiate and maintain conversations with their (un)known friends and establish positive interpersonal relationships in the virtual world due to the greater degrees of emoji expressiveness and breadth [16,17]. Specifically, inherent attributes lead individuals to use emojis for their conversations in the virtual world, which include intrinsic playfulness, semantic richness, persuasiveness, and visual complexity [18]. In addition, the inherent attributes of emojis help individuals in the virtual world to convey nuanced emotional states that not only replace words with icons but also enhance conversations and messages by modifying tone [2,18]. Accordingly, the extant literature on digital communication has reported that online users perceived messages with emojis as more persuasive, appealing, informative, meaningful, and attractive [1,3]. This is because emojis in a message can help online users reduce message ambiguities (e.g., a positive meaning is conveyed by adding a thumbs-up emoji) [16]. Hence, it has been suggested that emojis should be considered as an important communication tool in the virtual world.

Emojis have a rhetorical structure and play a role as a rhetorical device in an interpersonal communication, manufacturing visual metaphors or metaphorical pictures as a linguistic mechanism [1,3]. According to the blending theory, emojis are a form of conceptual metaphor that are deeply rooted in an individual’s conceptual system, leading individuals to associate an emoji in a message with an abstract concept in their mind.
systems [16,18,19]. In other words, emojis in a message enable online users to enhance their abilities to understand the propositions and meanings of the message via narrative sequences [1,18]. Based on the fundamental notion of the blending theory, this study proposes that an instructor’s use of emojis for communication with online students may be able to stimulate cognitive, emotional, and even behavioral responses [2]. This argument may be possible because prior research has suggested that emojis in a message (i.e., email or announcement) play a significant role in delivering relational information and elevating interpersonal interactions between a sender and a receiver [16]. In addition, emojis in a message enhance the perception of its comprehensiveness because of the rich visual representations of emojis [1]. More importantly, emojis in a message result in a higher level of perceived message uniqueness among receivers. Emojis help receivers to connect and maintain conversations and enhance social and personal relationships with the sender [2,3].

2.2. Authenticity and Intimacy

Authenticity refers to an object’s true inner self, meaning being true to oneself [20]. Thus, an individual’s authenticity is associated with self-identity, “the self as reflexively understood by the person in terms of his or her biography” [20] (p. 53), as well as psychological consistency and stability over time. Being authentic relates to an individual’s journey of self-discovery and existence of self [21]. Specifically, an individual’s high level of authenticity means achieving fulfilment (i.e., becoming a worthy or good person with regard to self-identity) and being free from dependencies [22,23]. The central characteristic of authenticity is an individual’s genuineness, honesty, and straightforwardness with others [24]. Accordingly, the high level of an individual’s authenticity not only brings social and psychological benefits with regard to positive experiences, but also enhances one’s abilities to be trusted, to trust in relationships with others, and to achieve a higher level of moral integrity in the relationships [21,23]. Therefore, when students perceive that their instructor is authentic, it helps the students to recognize positive narratives of the instructor’s self-identity in class [24].

Intimacy is based on a romantic relationship and is defined as “...the degree to which each person uses the other as a source of self-confirmation and the affective evaluation of the self-confirmation” [25] (p. 93). Interestingly, self-confirmation and affective evaluation of self-confirmation leads an individual to create feelings of connection and closeness with others [26]. An individual’s feelings of connection and closeness tend to embrace psychological states with others, such as psychological distances between the individual and others. Although the relationship between an instructor and a student is not romantic, a student’s perceived intimacy with an instructor should exist because the classroom setting is based on two parties’ commitment and passion as well as intimacy [26]. However, passion and commitment cannot be directly associated with the educational situation because passion is associated with internal forces that result in physical attraction and romance, and commitment refers to a short-term decision to develop and maintain a loving relationship [27,28]. Intimacy involves an emotional investment that students have in a relationship with their online instructor (i.e., without physical distance), leading to mutual understanding [28]. Hence, the interactions between an instructor and a student result in psychological and emotional closeness between the two parties. The research in emojis, authenticity, and intimacy suggest that a closeness between an instructor and students could enhance performance and learning [4,12].

2.3. Learning Motivation and Sustained Attention

Learning motivation is defined as a “tendency to find academic activities meaningful and worthwhile and to try to derive the intended academic benefits from them” [29] (p. 205). Learning motivation is related to a student’s personal values and interests in learning a task in class as well as emotional responses to an instructor, classes, and even an institution [30]. Thus, being engaged in a learning situation, students are more likely to exhibit higher levels of cognitive/affective learning motivation and intention to learn in a particular situation
such as online classes in this study [31,32]. For instance, learning motivation determines the level of effort, direction, and focus students will apply to a learning task by enhancing their cognitive and affective capabilities to learn the task [30,31]. In other words, learning motivation focuses on students’ self-perceptions of efficacy and prediction of how well they will be able to perform in a learning environment. In particular, the structure of a specific course can serve as a trigger of students’ motivation to learn, such as (1) two-way communications between an instructor and students and (2) positive relationships between an instructor and students. This is primarily because an instructor’s clear and relevant communications with students result in greater learning motivation and willingness to interact with the instructor [30–32].

Sustained attention refers to “focusing attention on a stimulus or activity for an extended period of time” [33] (p. 31). Attention requires individuals’ selective filtering system in their information processing [34,35]. According to the filter model related to multitasking behaviors, “humans can only process one stimulus or piece of information at a time” [36] (p. 10). The filter model suggests that for many individuals, performance is determined primarily by their sufficient attention to a particular task that is closely associated with their limited abilities to perform multitasking [33,35,36]. In other words, some individuals tend to divide attention when multitasking due to their limited attention capacity, leading to delayed response time to a particular task [34]. Therefore, teachers must be aware that some students require sufficient and sustained attention to retain their learning capacity in spite of distractions. Distracted students may find it a challenge to learn and consume classroom material. In an online learning environment where the instructor has limited ability to control distractions, it becomes important to help students connect with the instructor to focus their attention.

While the literature regarding sustained attention might seem concerning for online students, there appear to be ways to focus a student’s attention. This study adds to the body of knowledge in understanding relationships between teachers and students in an online learning environment. Thus, this study proposes that students’ perceived authenticity and perceived intimacy with their instructor are meaningful outcomes from the use of emojis. A welcome letter was selected as a vehicle for testing the use of emojis because a welcome letter may be used as a first point of contact between the student and teacher. Use of a communication item which is not course-specific allows for greater generalizability across courses.

2.4. Hypothesis Development

As an emerging form of language utilized by many students, emojis may lead message recipients to pay attention to the content and visible cues from the sender [37]. In other words, the visibility of the emotional expression in a message symbolized by emojis has been found to authenticate the message and its sender [38]. The reason is that one of authenticity’s characteristics is “self-expression”, and recipients perceive emojis as a self-expression tool for the message and its sender [38]. In this study, the use of emojis in an email message will be considered in relationship to the message recipient’s interpretation of the authenticity of the message and the sender. Therefore, we hypothesize:

**Hypothesis 1 (H1). Use of emojis in an instructor’s welcome letter is positively associated with students’ perceived authenticity of the instructor.**

The extant literature in digital communication has demonstrated that emojis can enhance emotions, moods, and persuasion of a message, inducing stronger behavioral intentions as well as positive affect [1]. This is mainly because individuals tend to perceive a message with emojis as effective, attractive, and intrinsically playful [16]. For example, the study of [39] indicated that a message containing smiley-face emojis decreases recipients’ distress while also increasing emotional cognition, persuasion, and joy. More interestingly, receivers tend to believe that the message and emojis express a sender’s emotions as a
signal or symbol. According to the social information model, individuals have the tendency to observe others’ emotional expressions to extract social information and then exhibit appropriate responses to them [1,40]. Hence, a sender’s message with smiley-face emojis leads individuals to perceive that the sender is agreeable and has a positive social intention for them [40]. Therefore, we hypothesize:

**Hypothesis 2 (H2). Use of emojis in an instructor’s welcome letter is positively associated with students’ perceived intimacy with the instructor.**

Students’ perceived authenticity of their instructor plays a critical role in enhancing their learning motivation [41]. For example, students tend to believe that an authentic instructor pursues freedom rather than control, is trustworthy rather than fearful, and facilitates rather than teaches in class [42]. Additionally, authentic instructors are more likely to be aware of and care for their students in class to ensure the students’ success [43]. The instructor’s authenticity toward students has been associated with extending a student’s academic progression and learning motivation [23,41,42]. Therefore, we hypothesize:

**Hypothesis 3 (H3). Students’ perceived authenticity of their instructor is positively associated with their learning motivation.**

When a student perceives an instructor is self-aware or self-reflects, the instructor is seen as more authentic. Thereby, students are more likely to understand the instructor’s motives, goals, and core class values leading to sustained attention due to a better understanding of the goals and values of a course [24]. Authenticity has been associated with the perception that instructors care about their students. When students believe an instructor cares, they have a genuine interest in engaging and better focus on the class. Therefore, we hypothesize:

**Hypothesis 4 (H4). Students’ perceived authenticity of their instructor is positively associated with their sustained attention in class.**

A close relationship between an instructor and students is one of the significant drivers of student self-esteem and learning motivation because it results in feelings of security and emotional utilization in terms of classroom problems [44–46]. Students who have a close relationship with their instructor demonstrate a more positive learning motivation and higher levels of academic engagement in class [45]. As a result, students are more likely to rely on instructors they perceive as being intimate, as these individuals positively influence mental health, self-concept, and academic motivation for learning in class [44,46]. Therefore, we hypothesize:

**Hypothesis 5 (H5). Students’ perceived intimacy with their instructor is positively associated with their learning motivation.**

Students’ perceived intimacy with their instructor enables them to believe the instructor accurately understands them (i.e., understanding), the instructor values their opinions, attitudes, and personal traits (i.e., validation), and the instructor is concerned about their well-being (i.e., caring) [47,48]. Students’ perceptions of understanding, validation, and caring are likely to enhance their psychological bonding with their instructor, leading students to remain in the relationship with the instructor in class (i.e., sustained attention in class within this study) [48]. Therefore, we hypothesize:

**Hypothesis 6 (H6). Students’ perceived intimacy with their instructor is positively associated with their sustained attention in class.**
Sun and Hsieh [49] indicated that a motivation to learn supports a student’s interest and pleasure with completing a task such as a college course. Higher levels of student learning motivation enable them to be more focused and proactive in class as well as gaining a deeper understanding of the class content and materials [32,50]. In other words, learning motivation serves as a significant driver of students’ personal development, learning process, and adaptation for a long period of class time [31,49,50]. Therefore, we hypothesize:

**Hypothesis 7 (H7). Students’ learning motivation is positively associated with their sustained attention in class.**

3. Research Design

This study collected data from 320 undergraduates at public universities in the United States. Twenty-three subjects were eliminated due to missing values or failed quality control checks. The final sample size was 297. For the 2022 summer semester, online instructors at public universities asked their students to participate in this scenario-based survey and provided extra credit for participation. The first group of online students was asked to read a fictitious professor’s welcome letter with emojis (n = 140). The second group of online students was asked to read a parallel, fictitious professor’s welcome letter without emojis (n = 157). Except for the use of emojis, the welcome letters were identical (see Appendix A). With respect to sample demographics, 55.2% identified themselves as male. The remaining 44.8% identified as female. The classification of students was 38.4% freshman, 45.8% sophomores, 13.8% juniors, and 2% seniors. The subjects were 63.0% Caucasian, 17.5% African American, 15.2% Hispanic, 2.7% Asian, and 1.7% other.

The authors adapted and revised the measures from previous studies instead of developing new survey items (see Table 1). First, the authors conducted a comprehensive literature review in the education context to identify well-suited survey items for this study’s conceptualization and operationalization of each construct. Second, the authors selected the survey items for each construct according to the theoretical and empirical rigor from prior research. After selecting and revising the survey items, the authors conducted multiple pilot tests, leading to minor changes in wording and flow of the stimuli and questionnaire. Finally, the authors randomly ordered the survey items to avoid participant’s common method variance due to response biases [51]. All items were measured with a 7-point Likert-type scale ranging from “1 = strongly disagree” to “7 = strongly agree”.

For data analysis, this study followed the two-step approach of [52] by estimating reliabilities of all indicators through Cronbach alpha coefficients of SPSS 28.0 and confirming their validities via a confirmatory factor analysis before testing the hypothesized paths between the constructs through structural equation modeling using AMOS 28.0. The results are explained in the following section.

4. Results

As the first step, the authors used SPSS 28.0 to estimate each construct’s Cronbach alpha coefficients except for the emoji construct. As is common in the social science field, Cronbach alphas of at least 0.70 were desired as an indication of reliability [53]. All measures exceeded this threshold. Cronbach alpha coefficients were 0.775 for perceived authenticity, 0.777 for perceived intimacy, 0.867 for learning motivation, and 0.795 for sustained attention, respectively. As the second step, the authors conducted a confirmatory factor analysis to test all indicator validities. The convergent validities were confirmed, as the standardized estimates and critical ratios of each construct’s respective items were greater than 0.50 and 2.58, respectively (p < 0.01) [54].
Table 1. Results of a confirmatory factor analysis.

<table>
<thead>
<tr>
<th>Constructs and Sources</th>
<th>Items</th>
<th>Standardized Estimate</th>
<th>Critical Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived authenticity</td>
<td>This professor is genuine.</td>
<td>0.743</td>
<td>Fixed</td>
</tr>
<tr>
<td>Source: Kreber (2010) [23]</td>
<td>This professor is honest.</td>
<td>0.866</td>
<td>10.632</td>
</tr>
<tr>
<td></td>
<td>This professor is sincere.</td>
<td>0.607</td>
<td>9.462</td>
</tr>
<tr>
<td>Perceived intimacy</td>
<td>This professor is intimate.</td>
<td>0.647</td>
<td>Fixed</td>
</tr>
<tr>
<td>Source: Olmos-Raya et al. (2018) [28]</td>
<td>This professor is emotionally close.</td>
<td>0.718</td>
<td>9.569</td>
</tr>
<tr>
<td></td>
<td>This professor is familiar.</td>
<td>0.640</td>
<td>8.826</td>
</tr>
<tr>
<td></td>
<td>This professor is warm.</td>
<td>0.704</td>
<td>9.445</td>
</tr>
<tr>
<td></td>
<td>This professor is caring.</td>
<td>0.539</td>
<td>7.684</td>
</tr>
<tr>
<td>Learning motivation</td>
<td>I think this class will be quite enjoyable.</td>
<td>0.872</td>
<td>Fixed</td>
</tr>
<tr>
<td>Source: Olmos-Raya et al. (2018) [28]</td>
<td>I think this class will be fun.</td>
<td>0.865</td>
<td>18.989</td>
</tr>
<tr>
<td></td>
<td>This class allows me to achieve goals I consider important.</td>
<td>0.849</td>
<td>18.440</td>
</tr>
<tr>
<td></td>
<td>This class fits my own values.</td>
<td>0.557</td>
<td>10.156</td>
</tr>
<tr>
<td></td>
<td>This class is personally important to me.</td>
<td>0.628</td>
<td>11.857</td>
</tr>
<tr>
<td>Sustained attention</td>
<td>I will never shift my attention to other nontask-oriented learning activities in this online class.</td>
<td>0.600</td>
<td>Fixed</td>
</tr>
<tr>
<td>Source: Wei, Wang, &amp; Klausner (2012) [35]</td>
<td>I will be able to sustain my attention to learning activities in this online class.</td>
<td>0.815</td>
<td>9.878</td>
</tr>
<tr>
<td></td>
<td>I will pay my full attention to classroom discussions in this online class.</td>
<td>0.853</td>
<td>9.848</td>
</tr>
</tbody>
</table>

Chi-square = 303.538, degree of freedom = 110, p < 0.001, RMSEA = 0.077, GFI = 0.885, NFI = 0.857, IFI = 0.904, CFI = 0.902.

This study estimated composite construct reliabilities of perceived authenticity, perceived intimacy, learning motivation, and sustained attention based on the findings of the confirmatory factor analysis to rigorously check each construct’s reliability once more [55]. All measures exceeded the 0.70 threshold (perceived authenticity = 0.787; perceived intimacy = 0.786; learning motivation = 0.873; sustained attention = 0.805). To test discriminant validities, this study estimated the average variance extracted values of each variable except for emojis and compared them to squared intercorrelations between two variables. For this validity test, the squared intercorrelation coefficients between two variables should be less than their respective average variance extracted values [55]. Table 2 describes the finding of construct intercorrelation analysis and the average variance extracted values of each variable, confirming discriminant validities.

Table 2. Construct intercorrelations (Φ) and average variance extracted.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Emoji</td>
<td>-</td>
<td>(0.557)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Perceived authenticity</td>
<td>0.140</td>
<td>(0.557)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Perceived intimacy</td>
<td>0.132</td>
<td>0.387</td>
<td>(0.426)</td>
<td></td>
</tr>
<tr>
<td>4. Learning motivation</td>
<td>0.187</td>
<td>0.257</td>
<td>0.335</td>
<td>(0.587)</td>
</tr>
<tr>
<td>5. Sustained attention</td>
<td>0.178</td>
<td>0.108</td>
<td>0.438</td>
<td>0.079</td>
</tr>
</tbody>
</table>

Note. Average variance extracted values are given in brackets.

After confirming the reliabilities and validities of all measures, this study performed structural equation modeling with AMOS 28.0 to empirically examine the proposed model of this study. The constructs of emojis, perceived authenticity, perceived intimacy, learning motivation, and sustained attention were modelled. This statistical technique enabled us to define a research model to predict the sustained attention construct simultaneously with an entire set of hypothesized relationships among the constructs in this study [53]. In addition, compared to PROCESS (i.e., “an observed variable OLS and logistic regression path analysis modeling tool”) and regression techniques, structural equation modeling accounts for measurement error and represents unobserved concepts while estimating a proposed
model [53]. The squared multiple correlations (i.e., R square) of the four endogenous variables were 0.020 for perceived authenticity, 0.025 for perceived intimacy, 0.135 for learning motivation, and 0.203 for sustained attention, respectively. The fit indices of the proposed model in this research were generally acceptable in the social science areas [56]: (1) chi-square = 313.672; (2) degree of freedom = 112, (3) RMSEA = 0.078; (4) GFI = 0.882; (5) NFI = 0.852; (6) IFI = 0.899; and (7) CFI = 0.876, enabling the authors to interpret the empirical results of structural equation modeling (see Figure 1).

![Image of structural equation model](image)

**Figure 1.** Estimates of structural equation modeling. Note. Standardized estimate (critical ratio).

**This study transformed the construct of emojis into a dummy variable as 0 (i.e., without emojis in a welcome letter) and 1 (i.e., with emojis in a welcome letter) to statistically investigate the impact of emojis in a professor’s welcome letter on perceived authenticity and perceived intimacy among undergraduate students. First, the empirical result demonstrated that emojis in a welcome letter had a significant impact on perceived authenticity ($\beta = 0.143, Se = 0.095, C.R. = 2.228, p < 0.05$) and perceived intimacy ($\beta = 0.158, Se = 0.081, C.R. = 2.427, p < 0.05$), supporting both H1 and H2. It can be interpreted that undergraduate students tend to exhibit higher levels of perceived authenticity and intimacy with an online professor who uses emojis in a welcome letter. Second, the empirical findings indicated that online undergraduate students’ perceived authenticity toward a professor who uses emojis in a welcome letter had a significant influence on learning motivation ($\beta = 0.150, Se = 0.098, C.R. = 2.078, p < 0.05$), while it did not have a statistically significant impact on sustained attention ($\beta = -0.061, Se = 0.068, C.R. = -0.813, p > 0.05$), supporting H3 only. Interestingly, online undergraduate students’ perceived intimacy with a professor who uses emojis in a welcome letter significantly influenced learning motivation ($\beta = 0.282, Se = 0.124, C.R. = 3.708, p < 0.01$) and sustained attention in the professor’s class ($\beta = 0.488, Se = 0.104, C.R. = 5.109, p < 0.05$), supporting both H5 and H6. Lastly, the impact of online undergraduate students’ learning motivation on their sustained attention in a professor’s class was statistically insignificant ($\beta = -0.072, Se = 0.046, C.R. = -1.038, p > 0.05$), not supporting H7 (see Table 3).
Table 3. Standardized structural estimates.

<table>
<thead>
<tr>
<th>Path</th>
<th>Proposed Model</th>
<th>Standardized Estimate (β)</th>
<th>Standardized Error (Se)</th>
<th>Critical Ratio (C.R.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Emoji → Perceived authenticity</td>
<td>0.143</td>
<td>0.095</td>
<td>2.228 *</td>
</tr>
<tr>
<td>H2</td>
<td>Emoji → Perceived intimacy</td>
<td>0.158</td>
<td>0.081</td>
<td>2.427 *</td>
</tr>
<tr>
<td>H3</td>
<td>Perceived authenticity → Learning motivation</td>
<td>0.150</td>
<td>0.098</td>
<td>2.078 *</td>
</tr>
<tr>
<td>H4</td>
<td>Perceived authenticity → Sustained attention</td>
<td>-0.061</td>
<td>0.068</td>
<td>-0.813</td>
</tr>
<tr>
<td>H5</td>
<td>Perceived intimacy → Learning motivation</td>
<td>0.282</td>
<td>0.124</td>
<td>3.708 **</td>
</tr>
<tr>
<td>H6</td>
<td>Perceived intimacy → Sustained attention</td>
<td>0.488</td>
<td>0.104</td>
<td>5.109 **</td>
</tr>
<tr>
<td>H7</td>
<td>Learning motivation → Sustained attention</td>
<td>-0.072</td>
<td>0.046</td>
<td>-1.038</td>
</tr>
</tbody>
</table>

Endogenous variables Squared multiple correlations (R^2)

| Perceived authenticity | 0.020 |
| Perceived intimacy     | 0.025 |
| Learning motivation     | 0.135 |
| Sustained attention     | 0.203 |

** p < 0.01, * p < 0.05.

5. Discussion

Our research expanded the psychological framework for building a good relationship between an instructor and students in the online learning environment by considering the impact of emojis in email communication. The empirical results of this study revealed that emojis in an instructor’s welcome letter led undergraduate students to perceive that the instructor is authentic and intimate. These findings are consistent with the empirical digital communication studies of [1,3] which found that emojis generate positive reactions to a message and its sender. Interestingly, our research found that the effect of emojis on students’ cognitive responses to an instructor (i.e., perceived authenticity and perceived intimacy) can be applicable to the online education context as well [2]. The approach of our study means that any useful communication tool or strategy in the digital marketing field can be considered as new determinants of students’ cognitive and affective responses to online instructors and/or online classes since students are engaging with educational communication messages to enhance their learning outcomes.

The empirical findings of our research indicated that perceived authenticity resulted in learning motivation while perceived intimacy led to both learning motivation and sustained attention. This means that a close relationship between an instructor and students is particularly important for enhancing students’ learning motivation and sustained attention in the online learning context. The digital learning platforms have focused on taking and maintaining students’ attention by employing technological interventions because of external factors that interrupt students’ time of study in class [5,7,9,15]. However, this study was based on the psychological aspects of online students in terms of their perceptions of instructors via a communication tool rather than the technological aspects of the online learning platforms. Several theoretical and pedagogical implications for online education are proposed based on these empirical findings.

5.1. Theoretical Implications

The first theoretical implication of our research is to apply the blending theory to the education context by considering the significant impact of emojis in an instructor’s welcome letter on online students’ cognitive responses. The theoretical approach of the current study extends the blending theory’s boundary conditions since the role of emojis has been studied primarily in the digital marketing and communication contexts [1,3,16]. The communication between an instructor and students in the online learning environment needs to be studied with consideration of digital communication tools or strategies (i.e., emojis in this study), which are widely employed for social media communications [1,15,16]. For instance, the study of [2] reported that using emojis in the online learning environment
makes students feel that their instructor is soft and friendly. Additionally, [2] found that students tended to enhance their abilities to harness and foster understanding shared by the instructor. However, prior research that focused on using emojis in the online learning environment did not examine how emojis help instructors to build a trustworthy (i.e., perceived authenticity) and close (i.e., perceived intimacy) relationship with their students via a quantitative approach [57]. Based on the extant digital communication literature [1,3,16], our research conceptually and empirically shows that emojis in an instructor’s welcome letter have a positive impact on students’ perceived authenticity and perceived intimacy with the instructor. This application of the blending theory leads scholars in the online education field to pay more attention to the important role of visible cues in establishing a sustainable relationship between an instructor and students via digital communication strategies.

The second theoretical Implication of our research Is to formulate the psychological framework of students’ learning motivation and sustained attention for the online learning environment. Previous studies in the online learning context focused primarily on predicting positive outcomes in terms of online classes and/or platforms (i.e., student satisfaction) rather than students’ learning motivation and engagement, such as sustained attention in online classes [58,59]. In other words, although prior empirical studies in the online learning environment highlighted the importance of students’ attention because of digital interventions [7,15], they did not examine determinants of online students’ learning motivation and sustained attention via a quantitative method. Interestingly, the current research confirms that online students’ learning motivation is significantly influenced by perceived authenticity and perceived intimacy with their instructor, while sustained attention is significantly affected by perceived intimacy instead of perceived authenticity and learning motivation. Therefore, the psychological framework of our research provides scholars in the online education field with a new direction for future research that focuses on the role of an instructor in enhancing students’ learning motivation and sustained attention.

5.2. Pedagogical Implications

The empirical findings of our research confirm that an instructor’s use of emojis for email communication with students can be an effective and efficient way to build a trustworthy (i.e., perceived authenticity) and close (i.e., perceived intimacy) relationship between the instructor and students. From a pedagogical perspective, instructors should interact with and support their students by employing a useful communication tool or strategy, such as emojis, which helps the instructors to exhibit their positive emotional states. Of course, the course content and class material quality should be well-prepared for online students, but at the same time, instructors need to include “useful and purposeful additions” in their emails to online students. However, no matter how good the content and activities may be, if the students do not embrace the content fully, learning opportunities are lost. Creating a bond between the instructor and the student in casual ways, such as through the use of emojis, may encourage students to fully immerse themselves in the course content. Most importantly, academic institutions should educate their instructors in terms of the cultural sensitivity of emojis’ meanings since online classes usually have a culturally diverse body (e.g., different meanings of emojis’ faces and/or symbols in different cultures) [16]. For example, the thumbs-up emoji means a positive agreement in Asia and North America but conveys an insult in Greece and Iraq (i.e., “up yours”). Thus, instructors must learn how to carefully use emojis in their emails to online students to avoid any cultural conflict.

From another pedagogical perspective, the empirical findings of our research show that instructors should strive to be perceived as authentic and intimate by online students via virtual interactions (e.g., emails containing emojis in this study) to enhance the students’ learning motivation and sustained attention. To do so, instructors should be aware of and care for their online students by checking each student’s academic progress, communicating individually with them via emails to identify academic difficulties, and discussing
how these difficulties could be resolved to succeed in the class. Use of emojis for email communications can help an instructor to effectively interact with online students and lead the students to perceive the instructor as a significant person in their academic career. Consequently, online students will be highly motivated to learn from the instructor and likely to pay more attention to the class by overcoming other physical, technological, and psychological barriers.

5.3. Limitations and Directions for Future Research

Based on the limitations, this study provides some direction for future research in the online learning context. First, because the main purpose of our research was to investigate the impact of emojis on students, the welcome letter did not contain expected detailed course information. This was necessary to maintain parallel welcome letters across the control and treatment groups. Future research may want to vary aspects of the welcome letter to include more specific content.

Second, this study was limited to a controlled experiment attempting to establish how the use of emojis can be motivational for students. A limitation of this study is the inability to extend measures into the actual course content. Clearly, the quality of the course content and the structure of the course have a profound impact on student learning. Future studies should consider varying the quality of the actual course content to determine if use of emojis is enough to overcome weaknesses in course content.

Third, emojis represent only one potential means of establishing a connection between instructors and students. Future research may wish to expand upon methods of building connections such as referencing popular media, interjecting humor, and sharing personal stories.

Fourth, the empirical findings and interpretations of our research were based on a cross-sectional study design in which one of the dependent variables was students’ sustained attention. In general, the psychological framework of developing and sustaining attention in class should be studied and confirmed by a longitudinal research design. Therefore, future studies in the online learning context should design longitudinal research projects and check the psychological framework of our research again along with control variables of other individual (e.g., personal values) and contextual (e.g., perceived severity of COVID-19) factors in this context.

Finally, because the nature of this study focused on a specific subset, future studies should broaden the target population to a wider range of students and explore how various student groups might perceive emojis differently.

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**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** Data available on request due to restrictions e.g., privacy or ethical.

**Conflicts of Interest:** The authors declare no conflict of interest.
Appendix A

Figure A1. Study stimuli (Left: a welcome letter without emoji vs. Right: a welcome letter with emojis).

References


3. Valenzuela-Gálvez, E.S.; Garrido-Morgado, A.; González-Benito, Ó. Boost your email marketing campaign! emojis as visual stimuli to influence customer engagement. J. Res. Interact. Mark. 2022, ahead-of-print. [CrossRef]


8. Avci, Ü.; Ergün, E. Online students’ LMS activities and their effect on engagement, information literacy and academic performance. Interact. Learn. Environ. 2022, 30, 71–84. [CrossRef]


From: Marcus Smith, Ph.D.
Sent: 3/29/2022
To: You
Subject: Greetings from your instructor

Greetings Students,

Welcome to MGT 305. I am Dr. Marcus Smith who will provide you with guidance during this online course. Please check your course syllabus for my contact information and course expectations. As an instructor, I facilitate your learning process by providing a safe comfortable online learning environment while encouraging you to complete the course successfully. I will grade assignments in accordance with the course requirements and course standards. My contact information is below and I encourage you to use it for future reference. When you send me an email, I will make every effort to reply as soon as possible. I will certainly respond within 24 hours. When you send an email, please include your full name and identify the course by the name and number.

As an instructor, I am here to help make this a positive and enriching experience as you meet your academic goals. I look forward to learning with you this semester.

Respectfully,

Marcus Smith, Ph.D.
55. Fornell, C.; Larcker, D.F. Evaluating structural equation models with unobservable variables and measurement error. *J. Mark. Res.* 1981, 18, 39–50. [CrossRef]


57. Moffitt, R.L.; Padgett, C.; Grieve, R. The impact of emoji use and feedback medium on perceptions of marker personality in online assessment feedback. *Learn. Individ. Differ.* 2021, 92, 102093. [CrossRef]

58. Alqurashi, E. Predicting student satisfaction and perceived learning within online learning environments. *Distance Educ.* 2019, 40, 133–148. [CrossRef]