Emoticons in student-professor email communication

Emoticonos en la comunicación por correo electrónico entre estudiantes y profesores

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ABSTRACT

Emoticons have become a common phenomenon in email correspondence between students and professors. Even though the use of emoticons in formal writing is considered inappropriate and unprofessional, more and more students are using these nonverbal communication tools to add context or emphasis to their email messages to professors. This paper examines the association between the use of emoticons and professors' perceptions of higher education students' email messages with and without emoticons in two countries, Serbia and Slovenia. The students' emails were collected and assessed on several levels. The students' messages were examined with particular attention to the appropriateness of the students' writing style. In addition, the students' level of digital literacy, their attitude toward a professor, and gender differences in the use of emoticons were examined. Furthermore, an online questionnaire was used to identify characteristic differences between students who use emoticons and students who do not. The results show that messages with emoticons are rated lower on several dimensions than messages without emoticons. In addition, students who use emoticons show lower digital literacy and perceive their professors as more understanding and helpful. Emoticon use is not related to gender. The results suggest that students should avoid using emoticons even if they have a positive attitude toward their professor.

RESUMEN

Los emoticonos se han convertido en un fenómeno común en la correspondencia por correo electrónico entre estudiantes y profesores. Para los estudiantes, estas herramientas de comunicación no verbal son una forma de agregar contexto o énfasis a sus mensajes. Sin embargo, para la mayoría de los profesores, el uso de emoticonos se considera inapropiado y poco profesional. A medida que más estudiantes incorporan emoticonos en sus mensajes de correo electrónico a los profesores, nos propusimos examinar la relación entre el uso de emoticonos y las percepciones de los profesores sobre los mensajes de correo electrónico de los estudiantes con y sin emoticonos. Examinamos los mensajes de los estudiantes con particular referencia a la adecuación del estilo de escritura de los estudiantes, evaluamos el nivel de alfabetización digital de los estudiantes, su actitud hacia un profesor y las diferencias de género en el uso de emoticonos. Recopilamos correos electrónicos de los estudiantes y los calificamos en varias dimensiones. Además, utilizamos un cuestionario en línea para identificar las diferencias características entre los estudiantes que usan emoticonos y los que no. Los resultados muestran que los mensajes con emoticonos tienen una calificación más baja que los mensajes sin emoticonos en varias dimensiones. Los estudiantes que usan emoticonos también muestran una menor alfabetización digital y perciben a sus profesores como más comprensivos y serviciales. Contrariamente a nuestras expectativas, el uso de emoticonos no está relacionado con el género. Los resultados sugieren que los estudiantes deben evitar el uso de emoticonos, puesto que el profesor espera un comportamiento apropiado a través de Internet.

1. Introduction

Over the past decade, as Internet use and digital communication environments have evolved, the use of emoticons has become common and has begun to play an important supplementary role in various types of text-based online communication (Stanton, 2014). This type of ubiquitous nonverbal communication tool (Lu et al., 2016) has been used more recently among young people, who have quickly incorporated emoticons into their everyday communication habits. Emoticons help young people, especially Millennials and GenZ, master the communication climate and construct and express their aesthetic selves (Sugiyama, 2015). Tang and Hew (2018) state that emoticons help individuals to express their emotions and maintain relationships, but also serve as words to facilitate understanding of the message. Since emoticons speak a universal language, young people feel that they can express their thoughts and feelings without words, which reduces the time they need to type words and sentences (Abdullahi, 2021). Moreover, they see emoticons as an integral part of communication and find messages without emoticons dry, emotionless, and too serious (Kaye et al., 2016).

As Dresner and Herring (2010) explain, emoticons (short for "emoticon icons") refer to graphic signs, such as the smiley face, that often accompany computer-mediated communication (CMC). Meier and Reinecke (2020) identify CMC as an inclusive umbrella term for multimodal human-to-human social interaction mediated by information and communication technologies (ICTs), which compared to face-to-face communication provides more room for emoticons to exist (Anuar et al., 2009). Furthermore, according to Rust and Huang (2021), emoticons are typographical tricks that resemble pictures, whereas emojis are plug-in graphics that are actual pictures. In this research, both are considered using the common phrase emoticons.

There is currently a great deal of interest in linguistics and communication studies (Logi & Zappavigna, 2021) in the role that non-linguistic features such as emojis play in digitally mediated communication. Emoticons are widely used in social media discourse to express emotions, convey attitudes, and negotiate interpersonal relationships. Researchers have examined a wide range of issues related to the use of emoticons in the context of CMC, focusing on their role in online communication (Hamid, 2018; Jibril & Abdullah, 2013; Thompson & Filik, 2016) and the impact they have on that communication (Derks et al., 2008a; Skovholt et al., 2014; Walther & D'Addario, 2001). Most studies define the role of emoticons in two ways: first, as a substitute for nonverbal cues that are absent in CMC compared to face-to-face communication (Lo, 2008; Walther & D'Addario, 2001); and second, as a reinforcement of the intent of a particular statement (Avery, 2017; Crombie, 2020). Some studies report that emoticons are not only signals for emotional information, but are also used for communicative purposes, for example, to communicate social motives (Derks et al., 2008a).

With the increasing popularity and widespread use of emoticons by young adults in their daily communications, it has also become widely common for them to send emails with emoticons to their university professors. Although people can overcome the limitations of email by using emoticons to convey the emotional meaning of their message, research has shown that emoticons are not consistently interpreted and can appear informal in business emails and even harm the credibility of the sender (Bartl, 2017). It seems clear that many students do not adhere to the conventions of professional email writing and the rules of email etiquette in their emails. On the contrary, they approach email similarly to informal text messaging and other forms of digital communication where the typical conventions are informality and brevity (Corrigan & Hunt-McNabb, 2015). In recent years many studies have been conducted on emoticon use and gender, showing either that emoticon use has nothing to do with gender (Thompson & Filik, 2016; Walther & D'Addario, 2001) or that women are more likely to use emoticons than men (Butterworth et al., 2019; Haji & Bakir, 2019; Oleszkiewicz et al., 2017; Shah & Tewari, 2021; Wolf, 2000). This research study aims to investigate the use of emoticons and different aspects of email messages received by students, and how the assessment of students' messages differs when they add nonverbal cues to their emails. In this context, the questions are how professors' assessment of students' email messages, students' assessment of digital literacy, and students' attitudes toward the professor differ when a message includes an emoticon, and whether there are differences in emoticon use between male and female students.

1.1. Literature review

Although the use of emoticons has been extensively researched, much less is known about the recipients' perceptions and evaluations when viewing and comparing students' messages with or without emoticons. In their study on the effects of emoticons on online message interpretation, Derks et al. (2008a) conclude that emoticons do have some influence on message interpretation and that they may serve some of the same functions as actual nonverbal behaviours. In contrast, Walther and D'Addario (2001) argue that emoticons have less influence on message interpretation than expected. They claim that, at best, emoticons can have the function of complementing verbal messages, but they do not contradict or reinforce them.

The following subsections first present research done on the assessment of students' email messages and email writing style, which serve as the basis for email evaluation in this research. This is followed by a description of research on the two main constructs that we hypothesise to be associated with emoticon use, namely digital literacy, and attitude towards the professor. In addition, an overview of research on differences in emoticon use in relation to gender is provided.

1.1.1. Assessment of students' email messages

Various studies have discussed and evaluated different aspects of email communication. For example, to determine the relationship between three aspects of email communication, Economidou-Kogetsidis (2018) analysed and coded emails received by students based on salutation, degree of imposition, and degree of directness. Danielewicz-Betz (2013) used 13 qualitative coding categories to assess email appropriateness and domain congruence, while Huang (2016) assessed emails using coding categories on written and oral communication from their previous studies. For the purposes of our study, and as shown below, several items (elements) were included in the assessment of students' email messages.

1.1.2. Email writing style

Studies on the use of emoticons in social media abound (Barach et al., 2020; Hamid, 2018; Kaye et al., 2016; Shah & Tewari, 2021). However, it is important to point out that there is a big difference between the culture of social media, where a more casual and figurative writing style is used, and the more professional writing culture of academic discourse, which is the focus of this present study. According to Economidou-Kogetsidis (2018), professional emails follow an epistolary format similar to that of a business letter, with a greeting, body and salutation. However, Economidou-Kogetsidis (2018) found that despite some characteristics of business letter writing, students treated their emails to professors as "formal text messages". While Anuar et al. (2009) argue that email users who embed emoticons in their messages place less emphasis on grammar, punctuation, and spelling, Haji and Bakir (2019) point out that students frequently and indiscriminately use emoticons in their messages to professors without knowing the exact linguistic position for using a particular emoticon. The authors also emphasise that this type of communication is not appropriate from a pragmatic point of view and can lead to misunderstanding and miscommunication. Another aspect is that email senders use emoticons to compensate for the absence of nonverbal behaviours and social context cues (Dunlap et al., 2016) or the lack of vocabulary (Bogdanović & Bulatović, 2020). In this sense, emoticons are used as shortcuts that help email users convey the message more easily and express the level and direction of emotions, attitudes, and attention more effectively (Lo, 2008).

1.1.3. Digital literacy

Digital literacy, sometimes referred to as information literacy, describes the knowledge and skills a person needs to navigate a media and information-rich environment (Sorgo et al., 2017). According to Ng (2012), digital literacy has three dimensions: technical, cognitive, and social-emotional. The social-emotional dimension is defined as understanding the conversational content and tone of writing, including text abbreviations and emoticons (Ng, 2012). Dunlap et al. (2016) consider the use of emoticons as an effective use of electronically mediated communication and a specific skill that is an aspect of digital literacy. As Shao and Purpur (2016) state, information literacy is correlated to students' writing skills.

1.1.4. Attitude to professor

Students who have grown up in the instant messaging culture are often unaware or unsure of the politeness conventions and email etiquette when communicating with a professor (Biesenbach-Lucas, 2007; Chen, 2006). They often tend to become overly friendly with academic staff, thinking of them as friends rather than representatives of authority, and do not think of adapting their email style to the academia (Danielewicz-Betz, 2013). According to Economidou-Kogetsidis (2018), it is necessary to consider the variable of familiarity between the student and the professor in relation to the degree of formality of email communication, especially since students' conversational writing style and inappropriate email etiquette may negatively affect their professors' perception of them (Bolkan & Holmgren, 2012; Kim et al., 2016). In their study on the use of emoticons among university students, Haji and Bakir (2019) confirm that the use of emoticons influences the way other people judge your personality.

1.1.5. Gender

Many research studies have examined the use of emoticons between genders, finding that gender and emoticon choice influence message perception (Butterworth et al., 2019; Danielewicz-Betz, 2013; Shah & Tewari, 2021; Wolf, 2000). In a pragmatic study on the use of emoticons among university students, Haji & Bakir (2019) found that women use emoticons more often than men. They attribute this to the fact that females are more sociable than males. Other studies, however, have provided no link between emoticon use and gender (Thompson & Filik, 2016; Walther & D'Addario, 2001). In addition, Butterworth et al. (2019) suggest that a text message containing affectionate emoji will be perceived as more appropriate and sympathetic if it comes from a female sender than from a male sender.

2. Methodology

Following an overview on the research studies, the following chapters provide more detail on the theoretical background and research hypotheses, the data collection procedure, statistical methods, and sample characteristics.

2.1. Theoretical framework and research hypotheses

Students tend to send email messages to professors in a variety of forms and writing styles. The use of digital language with emoticons and certain phrases in special applications such as WhatsApp is widespread, and according to Escobar-Mamani and Gómez-Arteta (2020), using digital language makes students feel closer to their teacher. Many students address professors by their first name; they often use abbreviations, informal language, or even slang; they do not identify themselves; they do not pay attention to grammatical accuracy, etc. Several authors have discussed how a proper formal email sent from a student to a professor should be formatted and styled. The subject line should be informative and relevant (Kim et al., 2016) and the salutation should be formal, using the title (Bjørge, 2007; Chejnová, 2014; Chen, 2006; Hallajian & Khemlani, 2014), the student should identify themselves, and use a proper sign-off (Chen, 2006). The email should include a proper closing (Chen, 2006; Kim et al., 2016; Lam, 2014; Waldvogel, 2007) and layout (Lam, 2014), achieving an appropriate level of formality and politeness (Chen, 2006). Since some emails contain emoticons while others do not (Chen, 2006; Lam, 2014), our first goal as researchers was to find out if students who use emoticons generally write less formal and professional emails. The following hypothesis was therefore formulated:

- H1: Students who use emoticons score lower on the elements of an email message than students who do not use emoticons.

Emails were assessed based on eight criteria presented in Table 1. Each element was analysed individually and a total score on all subscales, excluding the use of emoticons, was also calculated. A higher score within each subscale always indicates a more appropriate email considering the guidelines for professional or academic emails (Biesenbach-Lucas, 2007; Filippone & Survinski, 2016; Kim et al., 2016). The assessment items with the corresponding subscales are presented in Table 1. In addition, each email was classified into at least one of the following categories: request, complaint, technical issue, apology, thank-you note, and giving information.

ID	Assessment item	Scale
	Table 1. Assessment elements of students' email messages	
ASE1	Subject line	0 – none, 1 – irrelevant, 2 – relevant, not informative, 3 – relevant, clear and concise
ASE2	Salutation	0 – none, 1 – informal, 2 – formal, 3 – formal with title
ASE3	Self-identification	0 – none, 1 – incomplete, 2 – complete
ASE4	Closing	0 – none, 1 – informal, 2 – formal
ASE5	Sign-off	0 – none, 1 – name, 2 – name and surname
ASE6	Layout	0 – none, 1 – some linespacing and paragraphing, 2 – proper layout
ASE7	Formality	0 – familiar, chatty, 1 – neutral, 2 – polite
ASE8	Politeness	0 – impolite, 1 – neutral, 2 - polite

Although email platforms have been identified as less suitable for emoticon use (Kaye et al., 2016), emoticons are commonly used in all forms of CMC today (Manganari, 2021). There seems to be a strong relationship between CMC and digital literacy. The use of emoticons is perceived as a digital competency (Dunlap et al., 2016) or the social-emotional dimension of digital literacy (Ng, 2012). In this study, digital literacy was measured using several items derived from Ng (2012) and Prior et al. (2016). Students were asked if they keep up with new technologies, if they learn to use new technology easily, if they have good ICT skills, and if they are aware of issues related to web-based activities such as cybersecurity. The above observations formed the basis for the following research hypothesis:

- H2: Students who use emoticons have a lower level of digital literacy skills than students who do not use emoticons.

Students are usually not adequately qualified as professional email writers (Kim et al., 2016). While digital language with emoticons is mainly used in applications such as WhatsApp (Escobar-Mamani & Gómez-Arteta (2020), there are differing opinions on the extent to which students are aware of the role their email messages play in their relationship with faculty. Avery (2017) noted that students are aware of the potential disapproval of emoticons, while Danielewicz-Betz (2013) argues that students are unaware of these consequences. Nevertheless, according to Bolkan & Holmgren (2012), the use of politeness strategies does influence the professor's affect toward students. There are still only a few studies that address the reasons why students use emoticons in academic discourse (Avery, 2017; Haji & Bakir, 2019). Seven items derived from Wilson et al. (2010) were used to assess students' attitudes towards their professor: respect for the teacher, how they get along with the teacher, whether they perceive the teacher as understanding, friendly, and approachable, whether the teacher is eager to help students, and whether they feel comfortable telling the professor that they need help. It is hypothesized that students tend to use emoticons when they feel comfortable with the professor in question. The following hypothesis was formulated to determine a possible correlation between students' attitudes towards the professor and their use of emoticons in their emails.

- H3: Students who use emoticons have a more positive attitude towards their professor than students who do not use emoticons.

Different authors provide conflicting evidence on the use of emoticon and gender. While some researchers show that there are no differences in the perception (Anuar et al., 2009) and emoticon use (Jones et al., 2020; Rodrigues et al., 2018; Thompson & Filik, 2016), others show that women use emoticons more frequently than men (Butterworth et al., 2019; Haji & Bakir, 2019; Oleszkiewicz et al., 2017; Shah & Tewari, 2021; Wolf, 2000). Although exploring the influence of gender was not the primary focus of this study, the researchers of the present study sought to explore whether there were differences based on different results of previous studies. Therefore, the following hypothesis was formulated:

- H4: There is an association between gender and use of emoticons.

The four hypotheses presented were formulated to gain insight into the use of emoticons in student-professor email communication. Level of formality, digital literacy, attitude toward the professor, and gender differences in emoticon use were examined according to the methodology described in the following section.

2.2. Study instrument and data collection

The data (Baggia, 2022) were collected in two stages, as part of a larger study of email communication between students and professors (Tratnik et al., 2021). Ethics committee approval was obtained prior to

the data collection phase during the 2018/19 and 2019/20 academic years. The sample and data sources for the study came from two higher education institutions, namely the Faculty of Organizational Sciences in Slovenia and the Faculty of Technical Sciences in Serbia. In both countries, 15 teacher researchers ranging from teaching assistants to full professors (ten from Serbia and five from Slovenia) of different subjects from the fields of mathematics, foreign languages (English), and management of information systems created a database of email messages from students. All messages were already assigned a unique code during the collection phase and anonymized before analysis. For the purposes of this study, only emails with emoticons were used and added to the email corpus. The professor rated the student's email received using an online assessment form. The student received an invitation email to participate in the study, which included a unique code, a consent form, and a guarantee that the survey was anonymous and completely voluntary. The student was instructed to complete an online questionnaire.

After the data collection phase, data from student responses were merged with student emails analysed by professors. The students received no incentives for participating in the study.

2.3. Statistical methods

The validity of a questionnaire was assessed by examining the construct validity of each scale (construct), which was examined through evaluation of convergent validity and discriminant validity. Exploratory Factor Analysis (EFA) was used first, followed by a Confirmatory Factor Analysis (CFA). The EFA was conducted using IBM SPSS Statistics for Windows, Version 28.0, while CFA was performed using the R-package lavaan (Rosseel, 2021). The summary of the results is as follows.

The EFA, using Principal Axis Factoring (PAF) and an oblique rotation (Direct Oblimin), which assumes that factors are correlated, was performed on 11 items. The results revealed two factors aligned with the research considered in the development of the questionnaire. The Kaiser–Meyer–Olkin (KMO) test indicates that is appropriate for factor analysis (KMO=0.849), while Bartlett's test of sphericity shows that the correlation matrix among variables is not an identity matrix ($p < 0.001$). The obtained two factors explain 65.7% of variance.

The correlation coefficient between the factors obtained by the oblique rotation was 0.111, indicating that the factors are not correlated, so the Varimax rotation was applied in the second step. The first factor includes four variables measuring Digital literacy (all factor loadings were higher than 0.682), while the second factor includes seven items measuring Attitude to Professor (all factor loadings were higher than 0.489), as assumed based on the literature review when designing the questionnaire.

The construct validity of both constructs was assessed by CFA. It was examined through evaluation of convergent validity and discriminant validity. In the first step, the item "I don't feel uncomfortable letting my professor know I need help" was removed from the construct because the standardized factor loading was below 0.5 (0.484). In the second step, the CFA was performed on 10 items and convergent validity was confirmed (Koufteros, 1999) by evaluating three criteria: (a) estimates of standardized factor loadings exceed 0.5 for all ten items on both constructs (eight items reach a stricter criterion of standardized factor loadings above 0.7), (b) Composite Reliability (CR) for each construct exceeds 0.7 (CR=0.834 and CR=0.919 for Digital Literacy and Attitude to Professor, respectively), and (c) the Average Variance Extracted (AVE) for each construct exceeds 0.5 (0.563 for Digital Literacy and 0.655 for Attitude to Professor).

The discriminant validity was examined by comparing the square root of AVE of each construct with the correlations between the two constructs, which is very low (r=0.097), indicating that the two constructs are not correlated. Reliability was assessed by calculating a Cronbach alpha coefficient for both constructs included in the questionnaire. Both calculated coefficients, for Digital Literacy ($\alpha=0.826$) and Attitude to Professor ($\alpha=0.890$), indicate high reliability.

The results show that both scales are acceptable in terms of internal consistency, convergent validity, and discriminant validity. To test the four research hypotheses, a t-test for independent samples and chi-square test were used. The research hypotheses tested in this study were confirmed or rejected at a 5% significance level.

## 2.4. Sample characteristics

A purposive sample was used, where students were invited to participate in the online survey after sending an email to their professor. The analyses included 307 evaluated emails and 214 students who completed at least a portion of the survey. 53.7% (165) of the emails were sent by women, while 46.3% (142) were from men.

Most of the emails were in Slovenian (81.4%, 250), while 8.6% (57) were in English. More than half of the respondents (52.8%, 162) were at the first Bologna professional level, 21.1% (68) at the first Bologna academic level, a quarter (24.8%, 76) at the second Bologna level (Master) and one student (0.3%) at the third Bologna level (PhD). Among women, 7% used emoticons in their emails, compared to 6% among men.

The survey was anonymous and voluntary; students received no reward for participating in the survey. The age of the respondents ranged from 18 to 54, with an average age of 27.5 years and a standard deviation of 8.65 years. The grade point average was 8.19 with a standard deviation of 0.969.

3. Results

The corpus of email messages analysed in this study was quite diverse. From almost formal emails containing emoticons only to clarify the meaning of the message, to purely informal examples with a variety of emoticons with no clear meaning. Figure 1 shows an example of an email from a student to a foreign language professor.

Figure 1. Example of a student's email message with an emoticon
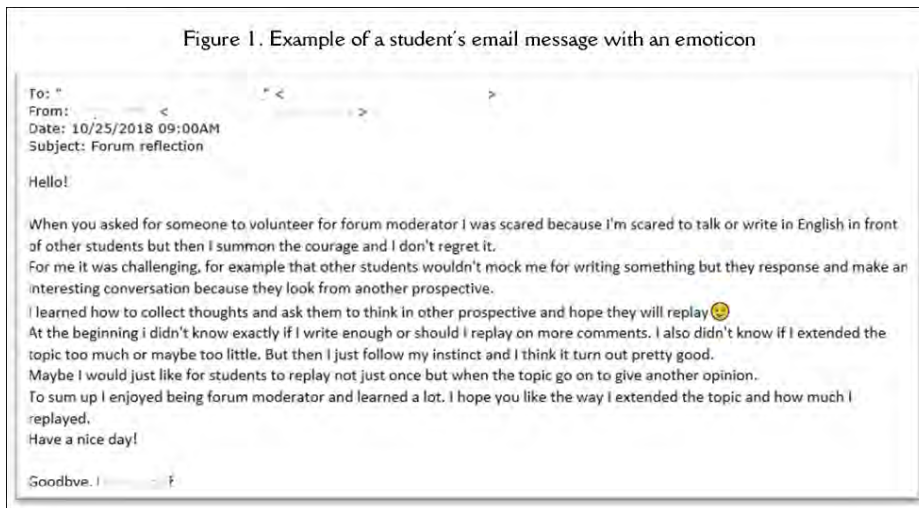
In order to examine differences in the professor's assessment of the email, students' level of digital literacy, attitudes toward the professor regarding the use of emoticons in email messages, and the relationship between emoticon use and gender, four hypotheses were proposed. The hypotheses were tested using the methodology presented.

3.1. Classification and the assessment of emails

The mails were classified into at least one of six categories based on their content: "Request", "Complaint", "Technical issue", "Apology", "Thank you letter", and "Giving information". The results are presented in Table 2.

Out of 307 emails received and evaluated, only 20 (6.5%) contained emoticons. The majority of emails with emoticons were classified as request (75%), with the remainder classified as either apology or thank you (15% each). Compared to the emails without emoticons, lower percentages were classified as apologies or thank you letters, 7% and 3% respectively.

Table 2. The purpose of email and use of emoticons				
Purpose of email	Use of emoticons			
	Yes		No	
	F	%	f	%
Request (e.g., appointment, feedback, mentorship, extension of due date, asking for information, questions on obligations).	15	75%	232	81%
Complaint (e.g., concerning exam results, assignment grade).	0	0%	3	1%
Technical issues (e.g., Moodle, email, digital identity).	1	5%	22	8%
Apology (e.g., late submission, absence).	3	15%	19	7%
Thank you letter (e.g., quick response, valuable information).	3	15%	8	3%
Giving information (e.g., sending homework, report).	11	55%	153	53%

Analysis of the use of emoticons in students' email messages (Table 3) shows that emoticons were used either as an actual image (4 times) or as a combination of different punctuation marks designed to show different emotional facial expressions (18 times). Almost 70% (15 out of 22) of the emoticons depict a happy face while other messages also have some special features like smiling eyes, tongue sticking out, winking, etc. Only one emoticon represents a negative feeling, more precisely sceptical or undecided. The emails with emoticons can be classified mainly as requests and/or informational messages. There were no emoticons in the emails classified as complaints, while two apology emails also had emoticons.

Table 3. Type and frequency of emoticons used		
Emoticon	Description	Frequency
	Squinting face with tongue	1
	Grinning face with smiling eyes	1
	Smiling face with smiling eyes	2
☺	Happy face	1
:P	Tongue sticking out; cheeky/playful	1
:-)	Happy	1
;)	Wink	1
:/	Sceptical, annoyed, undecided, uneasy, hesitant	1
:)	Happy	13

The students' writing style was assessed based on the sum of the eight elements ASE1-ASE8, shown in Table 1. The email with the lowest score received 2 points, while five emails received the highest score of 18 points. The mean score was 14.27 with a standard deviation of 2.94.

3.2. Comparison of emails according to the (non)use of emoticons

Consistent with the proposed hypothesis (H1), the researchers of this study examined whether emails with and without emoticon were evaluated differently. The results are summarized in Table 4. Students who use emoticons score lower on average on the salutation subscale (1.30) than students who do not use emoticons (1.83) t=-4.020 p(1-sided)=0.000. Identifying the mail sender is an important element of any email. In this regard, students who use emoticons receive, on average, a lower score on the self-identification subscale (1.25) than students who do not use emoticons (1.73) (t=-2.491 p(1-sided)=0.011). Students who use emoticons receive, on average, a lower grade on the sign-off subscale (1.25) than students who do not use emoticons (1.70) (t=-2.307, p(1-sided)=0.016). Students who use emoticons have, on average, a lower level of formality (0.95) than students who do not use emoticons (1.75) (t=-6.846, p(1-sided)=0.000). Four elements are not rated lower for students who use emoticons in their emails: subject line (p(1-sided)=0.148), closings (p(1-sided)=0.467), layout (p(1-sided) = 0.085), and level of politeness (p(1-sided)=0.195).

In the overall assessment of emails (sum of scores for ASE1 to ASE8), students who use emoticons have, on average, a lower overall grade (11.65) than students who do not use emoticons (14.46) (t=-4.247, p(1-sided)=0.000). In accordance with the results presented, the first research hypothesis can be confirmed: Students who use emoticons score lower on the elements of an email message than students who do not use emoticons.

Table 4. Results of t-tests for the elements of students' email messages according to the use of emoticons

Elements	Scale	Use of emoticons		Levene's test for equality of variances		t-test of equality of means			
		Yes (N=20) Mean (SD)	No (N=285) Mean (SD)	F	p	t	df	p (2-sided)	p (1-sided)
ASE1: Subject line	0-3	2.10 (1.021)	2.30 (0.811)	1.924	0.166	-1.045	305	0.297	0.148
ASE2: Greetings or salutation	0-3	1.30 (0.571)	1.83 (0.569)	1.176	0.279	-4.020	305	0.000	0.000
ASE3: Self-identification	0-2	1.25 (0.851)	1.73 (0.586)	12.198	0.001	-2.491	20.30	0.021	0.011
ASE4: Closings	0-2	1.55 (0.759)	1.56 (0.754)	0.000	0.989	-0.083	305	0.934	0.467
ASE5: Sign-off	0-2	1.25 (0.851)	1.70 (0.616)	9.324	0.002	-2.307	20.41	0.032	0.016
ASE6: Layout	0-2	1.50 (0.761)	1.75 (0.530)	9.576	0.002	-1.420	20.31	0.171	0.085
ASE7: Level of formality	0-2	0.95 (0.686)	1.75 (0.493)	1.448	0.230	-6.846	305	0.000	0.000
ASE8: Level of politeness	0-2	1.75 (0.444)	1.83 (0.395)	2.058	0.152	-0.861	305	0.390	0.195
Total sum	0-18	11.65 (3.453)	14.46 (2.813)	0.796	0.373	-4.247	305	0.000	0.000

3.3. Digital literacy and the use of emoticons

A new variable, Digital Literacy, was calculated as a mean value of four statements, measuring digital literacy skills (Table 5). The mean value of Digital Literacy for students who use emoticons is equal to 3.45, while mean value for students who do not use emoticons is 3.84 (Table 5).

Students who use emoticons have, on average, lower levels of digital literacy than students who do not use emoticons, at a 5 % significance level (p(1-sided)=0.013). Therefore, the second research hypothesis that students who use emoticons have, on average, a lower level of digital literacy can be confirmed.

Four statements within the Digital Literacy construct (Table 6) were evaluated to determine which group of students using emoticons has lower skills. Students who use emoticons have, on average, lower digital literacy skills than those who don't use emoticons for three items: ability to learn new technology (p(1-sided)=0.005), good ICT skills (p(1-sided)=0.044), and familiarity with issues related to web-based activities (p(1-sided)=0.017). For three of the four items on Digital Literacy, a statistically significant lower level of digital literacy was confirmed among students using emoticons, compared to those not using them.

3.4. Attitude to professor and the use of emoticons

A new variable, Attitude towards the Professor, was calculated as a mean value of six statements (Table 5) that make up the corresponding construct. The mean of the Attitude towards the Professor variable is 4.84 for students who use emoticons, while the mean for students who do not use emoticons is 4.63 (Table 5).

Students who use emoticons, on average, have a more positive attitude towards the professor than students who do not use emoticons, at a 5% significance level (p(1-sided)=0.013). Therefore, the third research hypothesis that students who use emoticons have a more positive attitude towards the professor can be confirmed. The construct Attitude towards the Professor consists of six statements, and the study closely examined whether students who use emoticons have more positive attitudes towards all included aspects.

Table 5. Results of t-tests for constructs digital literacy and attitude towards the professor according to the emoticon use

Elements	Use of emoticons		Levene's test for equality of variances		t-test of equality of means			
	Yes Mean (SD)	No Mean (SD)	F	p	t	df	p (2-sided)	p (1-sided)
Digital Literacy	3.45 (0.635)	3.84 (0.649)	0.158	0.691	-2.240	210	0.026	0.013
Attitude towards the Professor	4.84 (0.318)	4.63 (0.468)	9.843	0.002	2.427	18.97	0.025	0.013

There are statistically significant differences among students who use emoticons and those who do not on four measured/rated items (Table 6): getting along with the professor (p(1-sided)=0.000), the professor is understanding (p(1-sided)=0.007), the professor is approachable (p(1-sided)=0.037), and

the professor is helpful (p(1-sided)=0.021. Most of the items describing Attitude towards the Professor scored statistically significantly higher in the group of students using emoticons than in the group not using them.

Construct	Questionnaire item	Emoticons		Levene's test for equality of variances		t-test of equality of means			
		Yes	No						
		Mean (SD)	Mean (SD)	F	p	t	df	p (2-sided)	p (1-sided)
Digital literacy	I keep up with important new technologies.	3.60 (0.737)	3.82 (0.837)	0.035	0.851	-0.976	210	0.330	0.165
	I can learn new technology easily.	3.47 (0.640)	3.96 (0.713)	0.223	0.637	-2.596	210	0.010	0.005
	I have good ICT skills.	3.13 (0.915)	3.55 (0.900)	0.158	0.692	-1.719	210	0.087	0.044
	I am familiar with issues related to web-based activities (e.g., cyber safety, search issues, plagiarism).	3.60 (0.910)	4.03 (0.742)	2.853	0.093	-2.131	210	0.034	0.017
Attitude towards the Professor	I respect my professor.	4.87 (0.352)	4.72 (0.485)	7.667	0.006	1.553	18.31	0.138	0.069
	I get along with my professor.	4.87 (0.352)	4.46 (0.643)	22.363	0.000	3.978	21.92	0.001	0.000
	My professor is understanding.	4.87 (0.352)	4.60 (0.568)	17.070	0.000	2.691	20.06	0.014	0.007
	My professor is friendly.	4.73 (0.458)	4.67 (0.523)	1.059	0.305	0.456	210	0.649	0.325
	My professor is approachable.	4.87 (0.352)	4.68 (0.539)	8.552	0.004	1.891	19.40	0.074	0.037
	My professor is eager to help students.	4.87 (0.352)	4.65 (0.575)	10.093	0.002	2.177	20.22	0.042	0.021

Table 6. Results of t-tests for items of digital literacy and attitude towards the professor according to the emoticon use
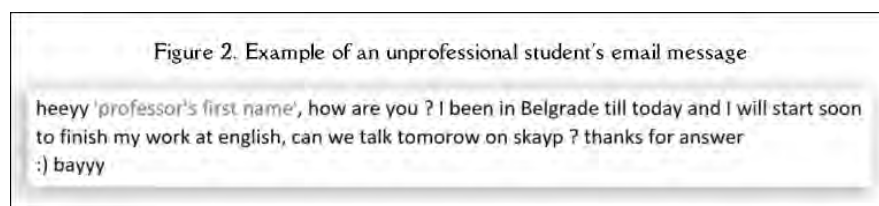
3.5. Association between gender and the use of emoticons

To test the association between gender and emotion use, a chi-square test was conducted. The results of the chi-square test ($\chi2=0.337$, df=1, p=0.562) show that there is no association between gender and the use of emoticons. Therefore, the fourth research hypothesis about the association between gender and the use of emoticons cannot be confirmed.

4. Discussion and conclusions

While previous research has found effects of emoticon use on email perception and interpretation (Butterworth et al., 2019; Danielewicz-Betz, 2013; Shah & Tewari, 2021; Wolf, 2000), in this study the researchers aimed to empirically demonstrate the association between emoticon use and professors' assessment of students' email messages. Our study has shown that, contrary to students' opinions (Lo, 2008), professors' overall evaluations of emails with emoticons are lower than those of emails without emoticons. Specifically, students who use emoticons score lower on salutation, self-identification, sign-off, and level of formality. However, there are no differences when the subject line, closing, layout, and level of politeness are considered.

In discussing the elements that students use most inappropriately, the following observations can be made. First, the salutation is either too informal (e.g., "Hi" or "Hey" is used, either alone or along with the name), or students jump right into the message and do not address or identify the recipient at all. Second, students who embed emoticons in their messages do not identify themselves by name.

Figure 2. Example of an unprofessional student's email message

heeyy 'professor's first name', how are you ? I been in Belgrade till today and I will start soon to finish my work at english, can we talk tomorow on skayp ? thanks for answer
:) bayyy

The signature element is also missing. The tone of emails with emoticons is often too casual, with no paragraphs or line spacing. Some emails show excessive informality and a corresponding lack of

professional email etiquette, as seen in Figure 2.

Moreover, based on this study, it can be concluded that when emoticons are used, students' written language is generally very direct and casual and does not meet the standards of professional email communication. Considering that students need to be aware of the elements of usage when communicating with professors, it can be concluded and suggested that a short introductory course in netiquette should be offered to students to avoid these shortcomings. Danielewicz-Betz (2013) even argues that clear netiquette rules should be established for student-faculty interactions, with some consequences for students if they ignore the rules.

Another finding of our study, as shown in Table 3, is that students use a variety of emoticons, from winking, happy face, or smiling emoticons to cheeky, playful, smiling faces with smiling eyes, and grinning faces with smiling eyes emoji. The most common emoticon is the traditional smiley ":)". Similar to research by Crombie (2020), it can be confirmed that the most frequently used emoticons are mainly positive (happy, smiley emoticons). Only one negative emoticon is used, namely, a sceptical, indecisive face emoticon.

Moreover, this study indicates that students who include nonverbal cues in their communication with professors do so in different types of email messages. The results show that most emoticons accompany requests, thank-you notes, and emails in which students provide some type of information. Comparable results were obtained by Derks et al. (2008b), who report that more emoticons are used in a positive context than in a negative context. Surprisingly, there are no emoticons in complaints, confirming the college students' claims in the study by Algharabali and Taqi (2018), who believe that serious and/or sad messages should not contain emoticons.

Since digital literacy is an important aspect of CMC (Dunlap et al., 2016), the study investigated whether it is related to the use of emoticons in students' email communication. The hypothesis about lower levels of digital literacy among students who use emoticons in their email communication can be confirmed. From the results, it can be generalized that students who do not use emoticons in their emails to professors can learn new technologies more easily, are more familiar with issues related to web-based activities, and therefore are better able to judge where the use of emoticons is appropriate.

Next, it was hypothesized that the student's attitude towards the professor would influence the student's decision to use emoticons in his or her email communication (Danielewicz-Betz, 2013). The hypothesis about the differences in attitude toward the professor between two groups of students with and without the use of emoticons can be confirmed. Students who get along well with their professor, who believe that the professor is understanding, approachable and helpful, tend to use more emoticons. Moreover, students tend to use emoticons in their communication with professors to make the atmosphere friendlier and to lessen the seriousness of the message, as Haji and Bakir (2019) found.

Although some studies suggest that there is a gender difference in emoticon use (Haji & Bakir, 2019), no statistically significant association between the two variables was found in our study. This result supports a number of studies that find no gender difference in the use of emoticons (Thompson & Filik, 2016; Walther & D'Addario, 2001).

This paper contributes to research on the use of emoticons in computer-mediated communication and, in particular, in e-mail communication between students and professors. A major goal of the present study was to examine whether the assessment of email messages differs between emails with and without emoticons. The results indicate that, on average, students' emails with emoticons are rated lower than emails without emoticons.

The majority of emoticons identified in this research has a positive notation. Despite the fact that students tend to use emoticons when they perceive the professor positively, emoticons are not perceived positively by the professor because he/she expects student emails to follow a certain netiquette and reflect professionalism. It is reasonable to assume that students view email communication differently than professors and behave accordingly. For students, email is a form of informal communication similar to discourse used in social media, where emoticons are widely used. They do not recognize that emoticons are inappropriate in emails directed at professors. These different views between students and professors can also be explained by age. Students see the use of emoticons as a way to better express their thoughts and emotions, while professors consider their use unprofessional and inappropriate. These observations

were also confirmed by Raslie and Ting (2021), who say that GenZ like to use emoticons, gifs, and acronyms to communicate and negotiate interpersonal relationships, which can be challenging for the older generation.

There are several limitations in this study that could be considered in future research. First, the terms emoticons and emojis were equated due to the variety of technologies used in communication and message display. Namely, an emoji included in a message sent from a smartphone may be displayed as an emoticon on a desktop computer. Therefore, there is no basis for claiming that the same form of the encoded character was sent and received. In this context, it would be interesting to investigate from which device (cell phone or computer) an email came, which application was used, and whether there is a connection between the device, the application, and the emoticon used. Second, it would be useful to examine students' motives for adding emoticons to their messages and to consider the communicative functions of emoticons. Further research would also be worthwhile to determine the relationship between student age and emoticon use, how teachers understand emoticons, and whether perceptions of emoticons used by students are related to generational differences in teachers. Finally, given the obvious impact of the recent COVID-19 pandemic on our daily lives and the increased use of ICT, future research on the impact of these changes may expand the explanations for the use of emoticons in professional emails.

Authors' Contribution

Idea, A.T.; Literature review (state of the art), A.B., A.T.; Methodology, A.B., A.Z.; Data analysis, A.B., A.Z.; Results, A.B., A.T., A.Z.; Discussion and conclusions, A.B., A.T.; Writing (original draft), A.B., A.T., A.Z.; Final revisions, A.B., A.T., A.Z.; Project design and sponsorship, A.B., A.T., A.Z.

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