



Trait Emotional Intelligence and Attachment Dimensions as Predictors of Emoji-Exchange Frequency Among University Students

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ABSTRACT

This study examined the associations between trait emotional intelligence, attachment anxiety, attachment avoidance, and self-reported emoji-exchange frequency among tertiary-level students at a private university in Selangor, Malaysia. A quantitative, cross-sectional correlational survey design was employed. Data were collected from 375 students aged 18–30 years using the Trait Emotional Intelligence Questionnaire–Short Form, the Experiences in Close Relationships–Short Form, and an adapted eight-item emoji-exchange frequency questionnaire. Descriptive and inferential analyses were conducted, including an independent-samples t-test, Pearson product–moment correlations, and simultaneous multiple regression. Students with lower trait emotional intelligence reported more frequent emoji exchange than students with higher trait emotional intelligence. Attachment anxiety and attachment avoidance were positively associated with emoji-exchange frequency. When the predictors were examined simultaneously, trait emotional intelligence and attachment anxiety made significant unique contributions to emoji-exchange frequency, whereas attachment avoidance did not. Overall, the findings indicate that emotional and relational characteristics are associated with students' digital communication behaviour. However, the cross-sectional design and reliance on self-report measures prevent causal conclusions. The study contributes to understanding how psychological characteristics may be reflected in emoji use among university students in the Malaysian context.

Keywords: *Trait emotional intelligence; attachment anxiety; attachment avoidance; emoji-exchange frequency; SDG 3: Good Health and Well-Being*

1. Introduction

Digital communication has transformed the ways in which people express emotions, form relationships, and maintain social connections. This transformation is particularly evident among university students, whose academic and interpersonal communication frequently occurs through messaging applications and social-media platforms. Unlike face-to-face interaction, text-based communication does not naturally convey facial expressions, vocal tone, gestures, and other non-verbal cues that help recipients interpret a sender's emotional intent. Emojis can partly compensate for this reduced-cue environment by adding affective, interpersonal, and contextual information to digital messages (Bai et al., 2019; Kaye et al., 2017; Tang & Hew, 2019).

Emojis are not merely decorative additions to written messages. They may reinforce, modify, or occasionally replace verbal content, convey emotional tone, communicate humour, affection, or reassurance, and reduce ambiguity in computer-mediated communication. Experimental evidence suggests that emojis can assist recipients in recognising indirectly communicated meanings, particularly when text alone can be interpreted in several ways (Holtgraves & Robinson, 2020). Nevertheless, the meaning and appropriateness of emojis are shaped by message context, interpersonal relationships, platform conventions, cultural background, and individual characteristics (Bai et al., 2019; Tang & Hew, 2019).

Individuals differ substantially in how often they use emojis and the interpersonal purposes for which they use them. Some people use emojis frequently to convey warmth, empathy, humour, affection, or reassurance, whereas others use them selectively or avoid them in particular interactions. Previous research has linked emoji use with personal and social characteristics, including personality, gender, communication preferences, relationship context, and emotional processes (Bai et al., 2019; Dubé et al., 2024; Prada et al., 2018). These findings suggest that emoji-exchange frequency may reflect not only a communication habit but also individual differences in emotional functioning and relationship orientation.

Trait emotional intelligence refers to individuals' self-perceptions of their emotional abilities and dispositions. It includes perceived capacities to understand, regulate, and express emotions, manage stress, maintain well-being, and interact effectively with other people. Trait emotional intelligence is conceptualised as a personality-related construct consisting of emotionality, self-control, sociability, and well-being (Petrides, 2009; Petrides & Furnham, 2001). In a study conducted among students at Management and Science University (MSU), Afandi and Abu Bakar (2019) examined emotional intelligence in relation to students' intrapersonal and interpersonal competencies. Although their study employed a different emotional-

intelligence measure and did not examine emoji behaviour, it provides locally relevant evidence for the importance of emotional functioning among university students.

Trait emotional intelligence is relevant to digital communication because communicating emotion online requires individuals to identify emotional intentions, select suitable verbal and non-verbal cues, and anticipate how recipients may interpret those cues. Individuals with higher trait emotional intelligence may use emojis selectively and strategically to clarify the tone of a message, communicate empathy, or avoid misunderstanding. Conversely, individuals who experience greater difficulty articulating emotions through words may use emojis more frequently as accessible visual cues that help them communicate feelings in text-based environments. Thus, emoji-exchange frequency should be distinguished from the appropriateness, accuracy, or effectiveness of emoji use.

Direct evidence concerning trait emotional intelligence and emoji use remains limited and context dependent. Dubé et al. (2024) examined associations among emotional intelligence, attachment, and emoji use across different relationship contexts. Their findings indicated a positive relationship between emotional intelligence and emoji use with friends, but this relationship was not consistently significant across all communication contexts. These findings imply that emotional intelligence may be associated with emoji use differently depending on the relationship between the sender and recipient. Accordingly, the existing evidence does not justify a universal assumption that individuals with either higher or lower trait emotional intelligence necessarily exchange emojis more frequently in every context.

A distinction must also be made between the ability to interpret emoji meanings and the frequency with which emojis are exchanged. O'Brian (2020) found that self-reported emotional intelligence was not necessarily associated with greater accuracy in identifying emoji meanings among college students. This finding suggests that emotional intelligence, emoji comprehension, and emoji-exchange frequency are related but distinct constructs. The present study therefore focuses on emoji-exchange frequency rather than assuming that frequent exchange represents more effective emotional communication.

Attachment theory provides a second framework for understanding individual differences in digital communication. Bowlby (1969) proposed that early interactions with caregivers contribute to internal working models concerning closeness, trust, emotional availability, and interpersonal support. These internal working models influence how individuals regulate emotions and approach intimate relationships across the lifespan. Ainsworth et al. (1978) further demonstrated that patterns of attachment are associated with differences in emotional security, proximity-seeking, and responses to interpersonal separation.

Adult attachment is commonly conceptualised using two continuous dimensions: attachment anxiety and attachment avoidance. Attachment anxiety involves concerns about rejection, abandonment, and the availability of close others. Attachment avoidance refers to discomfort with dependence, intimacy, and emotional self-disclosure. Individuals who report lower levels of both anxiety and avoidance are generally considered more securely attached, whereas individuals higher in either dimension may experience difficulties in emotional regulation and relationship communication (Wei et al., 2007).

Attachment dimensions may be relevant to emoji-exchange frequency because digital communication can be used both to pursue interpersonal connection and to regulate emotional distance. Students higher in attachment anxiety may use emojis to seek reassurance, display affection, enhance message warmth, or signal a desire for closeness. In contrast, students higher in attachment avoidance may limit direct emotional disclosure. However, they may also use emojis as a less vulnerable or lower-risk means of participating in emotional communication while retaining interpersonal distance. Thus, attachment anxiety and attachment avoidance may each be associated with emoji exchange, but potentially for different relational reasons.

Dubé et al. (2024) provided initial evidence that attachment is associated with emoji use in interpersonal contexts. They found that attachment avoidance was negatively related to emoji use with friends and with dating or romantic partners, whereas attachment anxiety was not consistently associated with emoji use across the relationship contexts assessed. The researchers also found that the pattern of associations differed according to gender and relationship type. These findings show that attachment-related processes may extend into digital communication while also demonstrating that the relationship is more complex than a simple distinction between secure and insecure attachment.

Trait emotional intelligence and attachment dimensions should not be treated as entirely separate characteristics. Emotional functioning and relationship expectations are interrelated: individuals who are comfortable with closeness and support may also report greater emotional confidence and competence. A meta-analysis by Walker et al. (2021) found that emotional intelligence was positively associated with secure attachment and negatively associated with both attachment anxiety and attachment avoidance. These findings indicate that emotional intelligence and attachment-related expectations may jointly shape how individuals regulate feelings, manage closeness, and communicate interpersonal meaning.

Examining these variables simultaneously is important because their relationships with emoji-exchange frequency may overlap. Trait emotional intelligence may be associated with an individual's perceived ability to communicate emotion, whereas attachment anxiety and attachment avoidance may shape the interpersonal motives underlying communication behaviour. A combined predictive model may therefore provide a more comprehensive explanation of emoji-exchange frequency than examining trait emotional intelligence or attachment dimensions separately.

The Uses and Gratifications perspective provides additional context for understanding why students may use emojis. This approach proposes that individuals are active users of media who select communication tools to fulfil psychological and social needs, including emotional expression, social interaction, entertainment, identity formation, and information exchange (Katz et al., 1973; Rubin, 2009). From this perspective, emojis may be used to clarify tone, reduce ambiguity, express affect, maintain relationships, communicate reassurance, or make messages more engaging.

The Uses and Gratifications perspective does not serve as the primary predictive framework in the present study. Instead, it complements trait emotional intelligence and attachment theory by explaining why people may turn to emojis as communication resources. Trait emotional intelligence and attachment dimensions are the focal psychological variables expected to be associated with differences in students' self-reported emoji-exchange frequency.

1.1 Cultural Context and Malaysian Students

Cultural context is important because emojis do not have completely universal meanings. Emoji interpretation and perceived appropriateness can differ according to language, culture, social norms, relationship type, and the digital setting in which messages are exchanged (Bai et al., 2019; Tang & Hew, 2019). A sender may intend an emoji as playful, affectionate, or polite, whereas a recipient may interpret it differently depending on interpersonal expectations and cultural conventions.

This issue is particularly relevant in Malaysia, where university students communicate across diverse linguistic, ethnic, and cultural backgrounds. Annamalai and Salam (2017) found substantial differences in Malaysian undergraduates' interpretations of WhatsApp smiley emojis. Their findings demonstrated that familiarity with emojis does not necessarily lead to a uniform understanding of their meanings.

Other Malaysian research has shown that students use emojis to express feelings, support interpersonal relationships, and facilitate communication. Sabri et al. (2021) found that Malaysian undergraduates regarded emojis as useful for emotional expression, communication efficiency, and social interaction. Similarly, Firdiani and Kahar (2022) found that emojis served several non-verbal functions within lecturer–student WhatsApp groups, including expressing emotional meaning, replacing words, saving time, and reducing ambiguity in messages. These studies indicate that emojis are relevant to both social and educational communication among Malaysian students.

However, Malaysian research has mainly focused on emoji interpretation, communicative functions, and cultural meaning. There remains limited quantitative evidence regarding whether students' psychological characteristics, particularly trait emotional intelligence, attachment anxiety, and attachment avoidance, are associated with emoji-exchange frequency. This gap is important because students' online interactions often involve both academic and personal relationships, yet the psychological factors associated with their emoji-exchange behaviour remain underexplored.

Related MSU-affiliated research indicates that students' digital and interpersonal experiences are associated with psychosocial functioning. Ji et al. (2025) found a negative relationship between social media addiction and self-esteem among university students. Zayed et al. (2023) similarly found that self-concept and perceived social support significantly predicted self-esteem among students at a Malaysian university. Although these studies did not examine emoji exchange directly, they demonstrate the local relevance of investigating connections among digital engagement, emotional characteristics, relational resources, and students' psychological functioning.

The present study addresses four gaps in the literature. First, relatively few studies have examined the psychological predictors of emoji-exchange frequency among university students in Malaysia. Second, trait emotional intelligence and attachment dimensions have rarely been examined together in relation to emoji exchange. Third, international findings remain limited and context-dependent, making it inappropriate to assume that findings from Western adult samples generalise directly to Malaysian students. Fourth, existing Malaysian studies have focused mainly on cultural interpretation and communicative functions rather than on individual emotional and relational characteristics.

The present study therefore examines associations between trait emotional intelligence, attachment anxiety, attachment avoidance, and self-reported emoji-exchange frequency among students at a Malaysian private university. It extends emotional-intelligence and attachment perspectives to technology-mediated communication while contributing evidence from a Malaysian university setting. The findings may assist educators, counsellors, and student-support professionals in understanding how emotional and relationship-related characteristics are reflected in students' digital communication. However, because the study employs a cross-sectional correlational design, it examines associations and statistical prediction rather than causal effects.

1.2 Research Objectives

1. To analyse differences in emoji-exchange frequency between students in the lower and higher trait emotional-intelligence groups.
2. To examine the relationships between attachment dimensions and emoji-exchange frequency among students at a Malaysian private university.
3. To examine whether trait emotional intelligence, attachment anxiety, and attachment avoidance jointly provide statistically significant prediction of emoji-exchange frequency among students at a Malaysian private university.

Based on the foregoing, the following hypotheses were proposed:

H1: *Emoji-exchange frequency will differ significantly between students in the lower and higher trait emotional-intelligence groups.*

H2: *Attachment dimensions will be significantly associated with emoji-exchange frequency among students at a Malaysian private university.*

H2a: *Attachment anxiety will be significantly associated with emoji-exchange frequency among students at a Malaysian private university.*

H2b: Attachment avoidance will be significantly associated with emoji-exchange frequency among students at a Malaysian private university.

H3: Trait emotional intelligence, attachment anxiety, and attachment avoidance will jointly provide statistically significant prediction of emoji-exchange frequency among students at a Malaysian private university.

2. Methodology

2.1 Research Design

This study employed a quantitative, cross-sectional correlational survey design to examine the associations among trait emotional intelligence, attachment anxiety, attachment avoidance, and emoji-exchange frequency among students at a private university in Selangor, Malaysia. A quantitative approach was appropriate because the study involved numerical measurement of the study variables and statistical examination of group differences, relationships, and predictive contributions among the variables (Creswell & Creswell, 2022).

Data were collected at a single point in time using self-report questionnaires. As no variable was experimentally manipulated and temporal ordering could not be established, the study was unable to determine causal relationships. Therefore, the findings are interpreted in terms of associations and statistical prediction rather than causal impact, effect, or influence.

2.2 Participants and Sampling

The target population comprised students enrolled in foundation, diploma, and bachelor's-degree programmes at a private university in Selangor, Malaysia. At the time of data collection, the estimated institutional student population was approximately 15,000 students. The target sample size of 375 participants was informed by the sample-size table developed by Krejcie and Morgan (1970), which recommends a sample of 375 for a population of approximately 15,000 under its stated assumptions.

However, participants were recruited through convenience sampling rather than probability sampling. Therefore, although the final sample achieved the intended number of participants, it should not be considered statistically representative of the entire university population. The findings should consequently be generalised cautiously and primarily to students with characteristics similar to those who participated in the study.

A total of 375 students participated in the study. To be eligible, participants had to be aged between 18 and 35 years, currently enrolled at the university, users of digital text-based communication, and users of emojis at least once per week. Participants were aged between 18 and 30 years. Of the 375 participants, 113 (30.1%) were aged 18–21 years, 239 (63.7%) were aged 22–25 years, and 23 (6.1%) were aged 26–30 years.

The sample included 33 foundation students (8.8%), 170 diploma students (45.3%), and 172 bachelor's-degree students (45.9%). Accordingly, the participants are referred to throughout this study as tertiary-level students rather than exclusively as undergraduate students. Participants were recruited using non-probability convenience sampling. The questionnaire link was circulated through WhatsApp, Telegram, and Instagram, and eligible students who encountered the invitation could choose to participate voluntarily. Although this approach was practical and suitable for online student recruitment, it may have introduced self-selection bias and limited the generalisability of the findings beyond the participating students.

2.3 Trait Emotional Intelligence

Trait emotional intelligence was measured using the 30-item Trait Emotional Intelligence Questionnaire–Short Form (TEIQue-SF; Petrides, 2009). The TEIQue-SF assesses global trait emotional intelligence, defined as individuals' self-perceptions of their emotional abilities and dispositions. Participants responded to each item using a seven-point Likert scale ranging from 1 (completely disagree) to 7 (completely agree).

Negatively worded items were reverse scored according to the official scoring guidance before the overall trait emotional intelligence score was calculated. An overall mean score was used in the present study, with higher scores indicating higher levels of global trait emotional intelligence.

Internal consistency was assessed using Cronbach's alpha. The TEIQue-SF demonstrated high internal consistency in the present sample ($\alpha = .99$). This coefficient should be interpreted cautiously because very high alpha values may indicate item redundancy.

2.4 Attachment Anxiety and Attachment Avoidance

Attachment dimensions were measured using the 12-item Experiences in Close Relationships–Short Form (ECR-SF; Wei et al., 2007). The ECR-SF assesses two continuous dimensions of adult attachment: attachment anxiety and attachment avoidance. Six items measure attachment anxiety, which reflects concerns about rejection, abandonment, and the availability of close others. The remaining six items measure attachment avoidance, which reflects discomfort with emotional closeness, dependence, and intimate self-disclosure.

Participants responded to each item on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Relevant negatively worded items were reverse-scored before calculating separate mean scores for attachment anxiety and attachment avoidance. Higher scores indicated higher levels of attachment anxiety and attachment avoidance, respectively.

The ECR-SF was treated as a measure of continuous attachment dimensions rather than categorical attachment styles. Wei et al. (2007) reported satisfactory reliability and validity for the anxiety and avoidance subscales. In the current study, Cronbach's alpha coefficients were .92 for attachment anxiety and .96 for attachment avoidance. These values indicate high internal consistency in the present sample, although the high coefficient for attachment avoidance may indicate item redundancy.

2.5 Emoji-Exchange Frequency

Emoji use was assessed using the Emoji Use Questionnaire, an eight-item measure developed by Dubé et al. (2024) to assess the frequency of sending and receiving emojis across four relationship contexts: friends, family members, dating or romantic partners, and co-workers, customers, or clients. Participants responded using a four-point scale ranging from 1 (never) to 4 (very often). In the present study, the eight items were averaged to obtain an overall emoji-exchange frequency score, with higher scores indicating more frequent self-reported emoji use. The measure demonstrated acceptable internal consistency in the present sample, with a Cronbach's alpha coefficient of $\alpha=.83$. The Emoji Use Questionnaire was treated as an indicator of self-reported emoji-exchange frequency rather than as a fully validated measure of emotional expression, emotional competence, or emoji interpretation.

2.6 Data Collection Procedure

Data were collected over approximately one month using an online questionnaire created through Google Forms. The questionnaire link was distributed through WhatsApp, Telegram, and Instagram, which are commonly used digital communication platforms among university students. Participation was voluntary, and no incentives were reported.

Before accessing the survey, participants were presented with an information and consent statement. The statement explained the purpose of the study, the voluntary nature of participation, the expected requirements of participation, confidentiality arrangements, and the right to discontinue participation before submitting responses.

The questionnaire consisted of four sections. Section A collected demographic information, including age, gender, education level, faculty or school, and relationship status. Section B contained the Experiences in Close Relationships–Short Form. Section C included the Trait Emotional Intelligence Questionnaire–Short Form. Section D contained the emoji-exchange frequency items.

No directly identifying information was included in the data analysis.

2.7 Data Preparation

Survey responses were exported from Google Forms to Microsoft Excel for initial screening and were subsequently imported into IBM SPSS Statistics version 27 for statistical analysis. Data screening involved checking for incomplete questionnaires, duplicate submissions, ineligible responses, impossible values, missing data, and coding errors. Responses were retained only when participants met the stated eligibility criteria.

Negatively keyed items from the Trait Emotional Intelligence Questionnaire–Short Form (TEIQue-SF) and the Experiences in Close Relationships–Short Form (ECR-SF) were reverse-scored in accordance with the relevant scoring instructions before composite scores were calculated. Composite variables were calculated as item means, retaining the original response metric for each measure: global trait emotional intelligence, attachment anxiety, and attachment avoidance range from 1 to 7, whereas emoji-exchange frequency ranges from 1 to 4.

The scoring procedure was applied consistently across the study variables. Global trait emotional intelligence, attachment anxiety, and attachment avoidance were represented by item-mean scores, and emoji-exchange frequency was represented by the mean of its eight items.

Internal consistency was examined using Cronbach's alpha for global trait emotional intelligence, attachment anxiety, attachment avoidance, and emoji-exchange frequency. Descriptive analyses included frequencies and percentages for categorical demographic variables and means, standard deviations, observed ranges, skewness, and kurtosis for continuous study variables.

2.8 Statistical Analyses

All inferential analyses were conducted using two-tailed tests, with statistical significance evaluated at $p < .05$. Hypotheses were interpreted as supported or not supported rather than accepted or rejected.

To address H1, an independent-samples t-test was conducted to compare mean emoji-exchange frequency between participants classified into lower and higher trait emotional-intelligence groups. The analysis retained 193 participants and excluded 182 participants in the middle trait emotional-intelligence range.

Because the analysis used selected lower and higher trait-emotional-intelligence groups rather than the full continuous score, the resulting group comparison should be interpreted cautiously. Excluding participants in the middle range may reduce statistical information and limit the generalisability of the comparison.

To address H2a and H2b, Pearson product-moment correlation analyses were conducted to examine the relationships of attachment anxiety and attachment avoidance with emoji-exchange frequency.

To address H3, a simultaneous multiple linear regression analysis using the Enter method was conducted to determine whether global trait emotional intelligence, attachment anxiety, and attachment avoidance jointly predicted emoji-exchange frequency. The overall regression model was evaluated using R , R^2 , adjusted R^2 , the F -test, and its associated p -value. Individual predictors were evaluated using unstandardised coefficients (B), standard errors, standardised coefficients (β), t -values, p -values, and 95% confidence intervals.

The regression results were interpreted as statistical prediction within this sample and not as evidence of causal effects.

3. Results

A total of 375 students completed the online survey. Most participants were aged 22–25 years ($n = 239$, 63.7%), followed by those aged 18–21 years ($n = 113$, 30.1%) and 26–30 years ($n = 23$, 6.1%). No participant was aged 31–35 years. The sample comprised 210 women (56.0%) and 165 men (44.0%).

Regarding level of study, 172 participants (45.9%) were enrolled in bachelor's-degree programmes, 170 (45.3%) were enrolled in diploma programmes, and 33 (8.8%) were foundation students. In relation to relationship status, 190 participants (50.7%) were single, 182 (48.5%) were in a relationship, and three (0.8%) were married.

Table 1-Participant Characteristics

Variable	Category	n	%
Age	18–21 years	113	30.1
	22–25 years	239	63.7
	26–30 years	23	6.1
	31–35 years	0	0.0
Gender	Men	165	44.0
	Women	210	56.0
Level of study	Foundation	33	8.8
	Diploma	170	45.3
	Bachelor's degree	172	45.9
Relationship status	Single	190	50.7
	In a relationship	182	48.5
	Married	3	0.8

Note. $N = 375$.

Internal consistency was evaluated using Cronbach's alpha. The Trait Emotional Intelligence Questionnaire–Short Form (TEIQue-SF; 30 items) demonstrated excellent internal consistency ($\alpha = .99$). The Experiences in Close Relationships–Short Form (ECR-SF) anxiety and avoidance subscales also demonstrated high internal consistency, with $\alpha = .92$ and $\alpha = .96$, respectively. The Emoji Use Questionnaire (eight items) demonstrated good internal consistency ($\alpha = .83$). These coefficients indicate that the items within each measure showed acceptable to very high internal consistency in the present sample. Table 2 indicates that all study measures demonstrated acceptable to very high internal consistency, with Cronbach's alpha coefficients ranging from .83 to .99.

Table 2-Internal Consistency of the Study Measures

Measure	Items	Cronbach's α
Global trait emotional intelligence (TEIQue-SF)	30	.99
Attachment anxiety (ECR-SF)	6	.92
Attachment avoidance (ECR-SF)	6	.96
Emoji Use Questionnaire	8	.83

Note. $N = 375$.

The mean global trait emotional-intelligence score was 4.43 ($SD = 1.34$). The mean score for attachment anxiety was 3.68 ($SD = 1.43$), while the mean score for attachment avoidance was 3.34 ($SD = 1.73$). For emoji use, the mean frequency of sending emojis was 2.58 ($SD = 0.48$). Table 3

presents the descriptive statistics for the principal study variables. The mean global trait emotional-intelligence score was 4.43, while the mean scores for attachment anxiety and attachment avoidance were 3.68 and 3.34, respectively. The mean frequency of sending emojis was 2.58.

Table 3-Descriptive Statistics for the Principal Variables

Variable	M	SD
Global trait emotional intelligence	4.43	1.34
Attachment anxiety	3.68	1.43
Attachment avoidance	3.34	1.73
Emoji-sending frequency	2.58	0.48

At the item level, participants reported sending emojis most frequently to dating or romantic partners ($M = 3.27$, $SD = 0.66$), followed by friends ($M = 3.00$, $SD = 0.84$), family members ($M = 2.56$, $SD = 0.91$), and co-workers, customers, or clients ($M = 1.50$, $SD = 0.84$). Table 4 shows that participants reported sending emojis most frequently to dating or romantic partners, followed by friends, family members, and co-workers, customers, or clients.

Table 4-Emoji-Sending Frequency Across Relationship Contexts

Relationship context	M	SD
Friends	3.00	0.84
Family members	2.56	0.91
Dating or romantic partners	3.27	0.66
Co-workers, customers, or clients	1.50	0.84

An independent-samples t -test was conducted to examine whether emoji-exchange frequency differed between participants classified into lower and higher trait emotional-intelligence groups. The analysis retained 193 participants after respondents in the middle trait-emotional-intelligence range had been excluded. The lower trait-emotional-intelligence group reported significantly higher emoji-exchange frequency ($M = 3.05$, $SD = 0.30$) than the higher trait-emotional-intelligence group ($M = 2.24$, $SD = 0.26$), $t(191) = 20.57$, $p < .001$. Thus, the analysis indicated a statistically significant difference in emoji-exchange frequency between the selected lower- and higher-trait-emotional-intelligence groups, with the lower-trait-emotional-intelligence group reporting more frequent emoji exchange. Table 5 shows that the lower-trait-emotional-intelligence group reported a higher mean frequency of emoji exchange than the higher-trait-emotional-intelligence group. This difference was statistically significant.

Table 5-Emoji-Exchange Frequency by Trait Emotional-Intelligence Group

Trait emotional-intelligence group	M	SD
Lower trait emotional intelligence	3.05	0.30
Higher trait emotional intelligence	2.24	0.26

Note. The independent-samples test was based on 193 retained cases, $t(191) = 20.57$, $p < .001$.

Pearson product-moment correlation analyses were conducted to examine the associations of attachment anxiety and attachment avoidance with emoji-exchange frequency. Attachment anxiety was positively and strongly associated with emoji-exchange frequency, $r = .73$, $p < .001$. Attachment avoidance was also positively and strongly associated with emoji-exchange frequency, $r = .71$, $p < .001$. These findings indicate that students reporting higher levels of attachment anxiety and attachment avoidance also tended to report more frequent emoji exchange. The results support the hypotheses concerning the bivariate associations between both attachment dimensions and emoji-exchange frequency. Table 6 shows strong, positive, and statistically significant associations between emoji-exchange frequency and both attachment anxiety and attachment avoidance.

Table 6-Correlations of Attachment Dimensions with Emoji-Exchange Frequency

Predictor	r	p
Attachment anxiety	.73	< .001
Attachment avoidance	.71	< .001

Note. All tests were two-tailed. $N = 375$.

A simultaneous multiple linear regression analysis was conducted to determine whether global trait emotional intelligence, attachment anxiety, and attachment avoidance jointly predicted emoji-exchange frequency. The overall regression model was statistically significant, $F(3/371) = 179.90$, $p < .001$, with $R = .77$, $R^2 = .59$, and adjusted $R^2 = .59$. Collectively, the three predictors accounted for approximately 59% of the variance in emoji-exchange frequency. Table 7 shows that the overall regression model was statistically significant and explained 59% of the variance in emoji-exchange

frequency. Global trait emotional intelligence made a significant negative contribution, while attachment anxiety made a significant positive contribution. Attachment avoidance did not make a statistically significant unique contribution after the other predictors were entered into the model.

Table 7-Multiple Regression Predicting Emoji-Exchange Frequency

Predictor	B	β	t	p
Global trait emotional intelligence	-0.01	-.72	-6.54	< .001
Attachment anxiety	0.06	.18	2.11	.035
Attachment avoidance	-0.03	-.12	-1.23	> .05

Note. Outcome variable = emoji-exchange frequency. $R = .77$, $R^2 = .59$, adjusted $R^2 = .59$, $F(3:371) = 179.90$, $p < .001$.

Global trait emotional intelligence made a significant negative unique contribution to emoji-exchange frequency ($B = -0.01$, $\beta = -.72$, $t = -6.54$, $p < .001$). Attachment anxiety made a significant positive unique contribution ($B = 0.06$, $\beta = .18$, $t = 2.11$, $p = .035$). Attachment avoidance did not make a statistically significant unique contribution after global trait emotional intelligence and attachment anxiety had been entered into the model ($B = -0.03$, $\beta = -.12$, $t = -1.23$, $p > .05$).

Therefore, the set of predictors significantly predicted emoji-exchange frequency at the overall model level. At the individual-predictor level, global trait emotional intelligence and attachment anxiety were significant unique predictors, whereas attachment avoidance was not. The positive bivariate association between attachment avoidance and emoji-exchange frequency was not retained as a significant unique effect after the other predictors were statistically controlled.

4. Discussion

The present study examined whether trait emotional intelligence, attachment anxiety, and attachment avoidance were associated with self-reported emoji-exchange frequency among tertiary-level students at a Malaysian private university. The findings identified three central patterns. First, students categorised into the lower trait emotional-intelligence group reported more frequent emoji exchange than those categorised into the higher trait emotional-intelligence group. Second, attachment anxiety and attachment avoidance were each positively associated with emoji-exchange frequency at the bivariate level. Third, trait emotional intelligence, attachment anxiety, and attachment avoidance jointly explained a substantial proportion of variance in emoji-exchange frequency. However, only trait emotional intelligence and attachment anxiety made statistically significant unique contributions within the reported regression model.

The lower trait emotional-intelligence group reported significantly higher emoji-exchange frequency than the higher trait emotional-intelligence group. This finding indicates that, among the two selected groups retained for the analysis, students with lower self-reported trait emotional intelligence reported more frequent sending and receiving of emojis across the relationship contexts assessed.

One possible interpretation may be drawn from Uses and Gratifications Theory. This perspective proposes that people select communication media and features to meet social and psychological needs, including emotional expression, social connection, reassurance, and message clarification (Katz et al., 1973). Students with lower self-perceived emotional functioning may use emojis more frequently as visual communication cues when text-based communication alone does not seem sufficient to convey tone, interpersonal warmth, or emotional meaning.

However, this explanation should remain tentative. The emoji measure assessed the frequency with which participants sent and received emojis; it did not assess the reasons for emoji use, the appropriateness of emoji selection, accuracy in interpreting emojis, emotional-expression ability, or communication effectiveness. The findings therefore do not show that lower trait emotional intelligence is associated with less competent emoji use or that emoji use compensates for an objectively established emotional deficit. Frequent emoji exchange may occur for many reasons, including communication habit, relationship context, social norms, platform use, and peer-group preferences.

The direction of the present finding differs from Dubé et al. (2024), who found a weak positive relationship between emotional intelligence and emoji use with friends, while emotional intelligence was not consistently related to emoji use across all relationship contexts. Differences between the studies may reflect the Malaysian student context, differences in age and participant characteristics, sampling procedures, relationship contexts, measurement approaches, or the distinction between overall emoji-exchange frequency and sending emojis in specific contexts. The large group difference observed in the present study also requires cautious interpretation because the analysis excluded 182 respondents in the middle trait emotional-intelligence range. Replication using continuous trait emotional-intelligence scores and the full sample is needed before drawing firm conclusions concerning the direction of this association.

Attachment anxiety was positively associated with emoji-exchange frequency. Individuals higher in attachment anxiety commonly report greater concern about rejection, abandonment, and the availability of close others. From an attachment-theory perspective, emojis may function as accessible digital cues for communicating affection, maintaining contact, seeking reassurance, expressing relational concern, or reducing ambiguity in text-based interactions.

Nevertheless, these explanations remain interpretive because the present study did not measure participants' motives for using emojis. The positive correlation demonstrates that attachment anxiety and emoji-exchange frequency covaried in this sample; it does not establish that attachment anxiety caused students to use or receive emojis more frequently.

Attachment avoidance was also positively associated with emoji-exchange frequency at the bivariate level. This pattern differs from Dubé et al. (2024), who reported weak negative associations between attachment avoidance and emoji use with friends and dating or romantic partners. One possible explanation is that emojis may allow some avoidantly attached individuals to participate in digital interaction while limiting direct emotional disclosure. Emojis may enable brief, low-intensity, and comparatively indirect forms of interpersonal signalling.

An alternative explanation concerns the measurement approach. The dependent variable combined reports of sending and receiving emojis. Receiving emojis partly reflects the communication behaviour of other people and the participant's social environment, rather than the participant's own willingness to express emotion. Additionally, the questionnaire did not include a "not applicable" response for romantic or co-worker/client relationships. Participants without those relationship contexts may have responded "never," meaning that the composite score may partly reflect relationship availability rather than emoji behaviour alone. These measurement limitations may have contributed to the observed association and should be acknowledged clearly.

The regression model showed that trait emotional intelligence, attachment anxiety, and attachment avoidance jointly accounted for approximately 59% of the variance in emoji-exchange frequency. This indicates that the three psychological variables, considered collectively, were strongly associated with variation in the reported frequency of emoji exchange in this sample.

Trait emotional intelligence showed the largest absolute standardised coefficient and was negatively associated with emoji-exchange frequency after accounting for attachment anxiety and attachment avoidance. Attachment anxiety also made a significant positive unique contribution. These results suggest that, within the reported regression model, trait emotional intelligence and attachment anxiety each accounted for unique variance in emoji-exchange frequency beyond the other predictors.

Attachment avoidance did not make a statistically significant unique contribution after the other predictors were entered into the model. This does not mean that attachment avoidance was unrelated to emoji-exchange frequency, because it demonstrated a strong positive bivariate correlation with the outcome. Rather, the result suggests that its relationship with emoji-exchange frequency substantially overlapped with variance shared with trait emotional intelligence and attachment anxiety.

The positive bivariate correlation between attachment avoidance and emoji-exchange frequency contrasted with its negative, nonsignificant regression coefficient after adjustment for the other predictors. This pattern may reflect shared variance among the predictors or a suppression effect. Accordingly, the regression coefficients should be interpreted cautiously, and the findings should not be described as establishing a strongest or most important psychological determinant.

H3 was supported at the overall model level because the set of predictors jointly produced a statistically significant regression model. At the individual-predictor level, trait emotional intelligence and attachment anxiety were significant unique predictors, whereas attachment avoidance was not. This distinction is important for interpreting the regression findings.

5. Implications

The study contributes to the emerging literature on digital communication by examining trait emotional intelligence and attachment dimensions together in relation to self-reported emoji-exchange frequency among Malaysian tertiary-level students. The findings suggest that common forms of digital communication may be associated with self-perceived emotional functioning and interpersonal orientations.

For educators, counsellors, and student-support practitioners, the results indicate that emoji frequency should not be interpreted simplistically as evidence of emotional competence, emotional difficulty, attachment security, relationship quality, or psychological wellbeing. Digital communication behaviour is shaped by multiple factors, including relationship context, communication norms, platform practices, and individual preferences.

The practical implications of the findings should remain modest. The cross-sectional self-report design does not establish that changing emoji behaviour would improve emotional intelligence, attachment security, emotional regulation, relationship satisfaction, or mental health. The study's primary contribution is descriptive and theoretical: emotional and relational characteristics were associated with self-reported emoji-exchange frequency, but the underlying mechanisms and causal directions require further investigation.

6. Limitations and Future Research

Several limitations should be considered when interpreting the findings. First, the cross-sectional correlational design prevents causal inference. Although the regression model used the language of statistical prediction, it does not establish that trait emotional intelligence or attachment dimensions cause differences in emoji-exchange frequency. Longitudinal or experimental research is needed to clarify temporal and causal processes.

Second, convenience sampling from one private university limits generalisability. The sample may not represent students in Malaysian public universities, other geographical regions, non-student young adults, or populations with different socioeconomic and cultural backgrounds. Future studies should recruit participants from multiple institutions and use probability-based or stratified sampling where feasible.

Third, all variables were measured through self-report. Responses may have been influenced by recall error, social desirability, inattentive responding, or participants' perceptions of their behaviour rather than their actual messaging practices. Future research could combine self-report questionnaires with digital communication diaries, voluntary behavioural logs, message sampling, peer reports, or qualitative interviews.

Fourth, emoji-exchange frequency combined sending and receiving across four relationship contexts. This composite captured general exposure to and participation in emoji exchange, but it did not isolate participants' own emoji-sending behaviour. It also did not distinguish emotional, pragmatic, humorous, or politeness-related uses of emojis. Furthermore, participants without a romantic partner or work-related contacts may have interpreted some contextual items differently. Future questionnaires should separate sending from receiving, include a "not applicable" option, and assess relationship contexts individually.

Fifth, the independent-samples *t*-test excluded respondents with middle-range trait emotional-intelligence scores. Future analyses should retain trait emotional intelligence as a continuous variable wherever possible. A continuous analysis would preserve information, avoid arbitrary grouping, and provide a more precise estimate of its association with emoji-exchange frequency.

Sixth, the study examined only trait emotional intelligence and attachment dimensions. Personality, social anxiety, loneliness, communication competence, relationship status, platform use, cultural orientation, and motives for emoji use may also contribute to emoji-exchange frequency. Future studies should test broader models and examine whether these variables mediate or moderate the observed relationships.

7. Conclusion

This study demonstrates that emoji-exchange frequency among students at a Malaysian private university was associated with trait emotional intelligence and attachment dimensions. Students in the lower trait emotional-intelligence group reported greater emoji-exchange frequency than those in the higher group. Attachment anxiety and attachment avoidance were each positively associated with emoji-exchange frequency at the bivariate level; however, only attachment anxiety made a significant positive unique contribution in the regression model. Trait emotional intelligence was the strongest predictor and showed a negative association with emoji-exchange frequency, whereas attachment avoidance did not independently predict the outcome after the other variables were controlled.

The findings suggest that emojis may serve as resources for emotional clarification, interpersonal reassurance, and relationship management in digital communication. At the same time, frequency should not be equated with communicative skill, emotional accuracy, or psychological difficulty. Further research using context-sensitive measures, behavioural data, and more representative samples is needed to explain why students exchange emojis and how these practices operate across different relationships and cultural settings.

Ethical approval

The study was approved by the Ethics Committee of Management & Science University, Malaysia (FYP-SESS-DSS-2024-0017).

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

The data presented in this study are available on request from the corresponding author.

Conflict of Interest Statement

The authors declare that the research was conducted in the absence of any potential conflict of interest.

Authors' Contribution

Conceptualization: ASAK and SR; Data curation: ASAK; Formal analysis: ASAK and SR; Writing: ASAK, AFAF, RR, SR Review & editing: GD

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