

A Psycholinguistic Study of Emoji as Digital Affective Tools: Cognitive, Social, and Emotional Impacts on Iraqi EFL Undergraduate Students

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Abstract

Digital communication lacks non-verbal cues, creating an "affective gap". These cues exclude essential nonverbal signals like voice tone and facial expressions, which frequently leads to unclear messages in online interactions. Emojis have emerged to fill this gap.

Computer-Mediated Communication (CMC) lacks the paralinguistic cues present in face-to-face interaction. This study investigates how Iraqi university students compensate for this absence using emoji on WhatsApp. Drawing on 200 WhatsApp message screenshots, this research employs an integrated theoretical framework combining Social Information Processing Theory (Walther, 1992), Dresner and Herring's Functional Model (2010), and Affective Regulation Theory (Gross, 1998). The findings reveal that 41% of messages used compensatory tools. Of the 65 messages containing emoji, 58.5% served a cognitive function to disambiguate meaning, 32.3% served a social function to manage relationships, and 16.9% served an emotional function to express affect. The study concludes that for Iraqi students, emoji functions as a "Digital Affective Regulator" that simultaneously regulates cognition, social relations, and emotion. This positions emoji as a grammatically integrated component of digital language processing rather than mere decoration (Clark, 1995).

Keywords: Emoji, Psycholinguistics, CMC, Digital Affective Regulation, Iraqi Students.

1. Introduction

Emojis serve as visual aids that bridge the communication gap in text-based conversations where body language and intonation are absent. Their function has evolved throughout time from being merely respectful symbols to become essential components of emotive language. Emojis are widely used, although people's interpretations of them vary. Diverse forms of expression have emerged as a result of communication moving beyond traditional speech encounters in today's quickly changing digital context (Han, 2024). Among these, emojis have become incredibly popular as a means of expressing tone, intent, and emotions in text-based interactions, especially on apps like WhatsApp. WhatsApp is a messaging program that makes it easier to send and receive phone calls, text messages, photos, audio, videos, and links (Church & De Oliveira, 2013).

Due to its ease of use, it has become very popular among young adults, sometimes to the point of addiction (Kiran & Srivastava, 2018; Montag et al., 2019). In computer-mediated communication (CMC), emojis are visual symbols that were created to make up for the absence of non-verbal cues that influence the way information is communicated (Bai et al., 2019). They improve the expressiveness of digital communication by assisting in the conveyance of tonal nuances and emotions that text alone might not be able to (Riordan, 2017). Emojis enhance conversations and give messages context by providing a quick and easy way to convey emotions, which greatly increases user engagement in online communication (Fischer, 2020).

Understanding the social dynamics, emotional expression, and demographic factors influencing emoji usage is essential to understanding their function in contemporary communication (Koch et al., 2022). Emoji usage patterns are significantly influenced by cultural backgrounds. Different nations have different tastes in particular emojis, which are frequently influenced by communication styles and cultural norms. Additionally, users' interactions with emojis are impacted by platform diversity. Cross-platform communications can be complicated by misinterpretations of emotional and semantic meanings resulting from differences in emoji presentations across operating systems (such as iOS and Android). Emojis are an essential tool for social interactions and emotional communication, so their significance in today's digital communication cannot be emphasized (Emich, 2023; Fischer, 2020). Emojis enable users to express subtle nuances that can reinforce the intended message in ways that text alone might not be able to (Chiang & Gomez-Zara, 2024). For example, congruently matching emojis with the message greatly improves comprehension, while using positive emojis tends to foster a perception of warmth and approachability among senders (Boutet et al., 2021).

On the other hand, sending contradicting emojis can result in miscommunications that could jeopardize relationships with others, especially in the fluid social dynamics that characterize interactions between young adults. Emoji usage habits and preferences provide important insights into young adults' emotional landscapes. Emoji adoption is gendered, with women using them more often than men (Herring & Dainas, 2020). Emojis are also frequently used in a variety of social contexts, such as friendships and romantic relationships, where their impact can vary greatly depending on the dynamics of the relationships between users.

Within their social circles, young people frequently assign distinctive meanings to particular emojis, creating a common language that enhances their communication experiences (Chiang & Gomez-Zara, 2024). Emoji usage has far-reaching consequences in our increasingly interconnected world. Emojis, which reflect changing social norms and practices, have become essential to digital communication. Emojis have become a standardized form of expression and a significant component of marketing strategies intended to engage consumers, with millions of users accessing and using them every day across various platforms (Emich, 2023). It is crucial to comprehend emojis' significance and investigate how they influence communication practices as they continue to develop. By analyzing the relationship between demographic characteristics, emotional expressions, and emoji usage among

WhatsApp users, this study seeks to understand how emojis promote connections in a variety of contexts.

1.1 Background of the Study:

Due to the widespread use of smartphones, WhatsApp has become the primary communication tool for Iraqi university students. However, text-based CMC eliminates tone, facial expressions, and body language (Walther, 1992). Uncertainty and the potential for misunderstandings result from this. To compensate for this, users have employed emojis (Derk et al., 2008). Emojis have been studied all over the world, but none of it has particularly examined their psycholinguistic function among Iraqi university students.

1.2 Statement of the Problem:

The main issue is what are the cognitive, social, and emotional effects of emoji use on digital communication, and how do Iraqi university students use them to make up for missing nonverbal cues?

1.3 Aims of the Study:

1. To determine how frequently and what kinds of compensatory tools Iraqi students use on WhatsApp.
2. To categorize emoji's psycholinguistic uses into social, emotional, and cognitive domains.
3. To examine how certain emotional states relate to the functions of the corresponding emojis.

1.4 Research Questions:

1. How frequently are emojis used in comparison to other tools for compensation?
2. What are the main psycholinguistic purposes of emojis in messages sent by Iraqi students?
3. How do distinct emoji functions relate to various emotional states?

1.5 Hypotheses:

1. Emoji primarily serves a cognitive function to disambiguate meaning in text.
2. Emoji serves a social function to build and maintain interpersonal relationships.
3. Emoji are used to control and convey the sender's emotional state.

1.6 Significance of the Study:

The current study has three levels of significance: theoretical, pedagogical, and cultural. By expanding its scope into the digital realm, this study theoretically advances the field of psycholinguistics. In order to comprehend emoji as essential psycholinguistic tools that control cognitive load, social interaction, and emotional expression in computer-mediated communication, it

suggests the Digital Affective-Cognitive Processing Model (DAC-P Model). From a pedagogical perspective, the results of this study offer useful information about students' digital literacy and communicative competence to EFL teachers and curriculum designers. This study is noteworthy because it is among the first empirical studies to examine how bilingual Iraqi university students who speak both Arabic and English use emojis. This study is important from a cultural perspective because it is among the first empirical studies on the use of emojis by bilingual Iraqi university students who speak Arabic and English.

1.7 Scope and Limitations:

The study only includes 200 WhatsApp messages from Iraqi university students between the ages of 18 and 24. It focuses only on emojis and ignores stickers and GIFs. The data may not fully represent all Iraqi students because it is self-reported.

2. Literature Review and Theoretical Framework

2.1 Introduction:

The integrated theoretical model that directs this study is presented in this chapter along with a review of the literature on emoji in CMC.

2.2 Literature Review:

2.2.1 Emoji as a Communicative Tool:

Emoticons are "digital smiles" that are used to convey emotions, according to Derks et al. (2008). They discovered that emoticons, which function similarly to facial expressions in face-to-face communication, aid in message disambiguation and mood expression. The introduction of emoji has changed the semiotic resources accessible to digital communicators, according to Fischer and Herbert (2021). Emojis are now frequently used in text messages, social media posts, comments, and conversations with other people. Their extensive use suggests that they serve purposes beyond mere esthetic ornamentation. Their capacity to communicate information effectively is one factor contributing to their success in communication. Rather than adding a sentence like "I am joking" or "I am saying this affectionately," a user can choose an emoji that offers an instant cue for interpretation. In informal digital communication, where users often prefer brief and quickly generated messages, this economy is particularly useful (Fischer and Herbert, 2021).

Emoji meanings are not entirely set in stone, though. The linguistic context, the communicators' relationship, the specific platform, the users' personal experiences, and their cultural background all influence how they are interpreted. Fischer and Herbert (2021) show that certain symbols have significant affective ambiguity and that emoji can have different emotional interpretations. Emojis should therefore not be viewed as a universal visual language but rather as context-dependent communication tools. In various contexts, the same symbol may have distinct pragmatic meanings.

2.3 Transmitting emotions through emojis:

It's critical to clarify how emojis are used to convey feelings. Transmitting emotions through CMC faces decreases social presence when expressing emotions and decreases visibility when identifying emotions, according to Derks et al. (2008)'s emotion communication framework. As a result, compared to face-to-face interactions, people may feel more at ease expressing stronger and more frequent positive and negative emotions. Emojis' ability to convey emotions has been extensively studied by researchers. Emojis serve as nonverbal cues by expressing tone, intent, and emotions, as demonstrated by Alshenqeeti (2016). Emojis have been compared to facial expressions in face-to-face communication and physical gestures in CMC (Gawne and McCulloch, 2019; Grosz et al., 2023). These nonverbal clues change the emotional intensity of digital messages and lessen ambiguity. In the meantime, Dresner et al. (2010) emphasize emoji's capacity for pragmatic communication without necessarily attaching emotion. Emojis can be used as a "pragmatic indicator" to substitute words or concepts in a sentence without altering the emotional context (Dresner et al., 2010). The context in which an emoji is used, how it is used, and how the reader interprets it all have a significant impact on its impact (Alshenqeeti, 2016).

2.4 Theoretical Framework:

2.4.1 The Digital Affective-Cognitive Processing Model (DAC-P Model):

The Digital Affective-Cognitive Processing Model (DAC-P Model) is suggested in this study as a psycholinguistic explanation for Iraqi students' emoji usage. Emojis are fully integrated cognitive tools used to manage processing load, executive control, and emotional expression in digital communication, according to the DAC-P Model. Three well-known psycholinguistic theories are integrated to form the foundation of the model. According to the DAC-P Model, three different but related processing contexts influence the choice and frequency of emojis. Depending on the demands of communication, the user's cognitive system dynamically switches between these contexts.1. Automatic Processing and Cognitive Economy Principle

The model, which is based on Paivio's (1986) Dual-Coding Theory and Schneider and Shiffrin's (1977) Dual-Process Theory, claims that emoji retrieval becomes automated in casual, low-stakes situations. Emojis are stored alongside verbal items in the mental lexicon through repeated use. The brain replaces a multi-word emotional phrase with a single emoji. This procedure improves processing fluency and drastically lowers working memory load. The idea of cognitive economy in language production is supported by the simultaneous activation of verbal and visual codes, which improves message clarity and recall.2. The Executive Function and Metalinguistic Monitoring Principle

The DAC-P Model, which is based on models of executive function and Clark's (1996) theory of metalinguistic awareness, claims that the central executive actively suppresses automatic responses in high-monitoring contexts like academic discourse. In order to carefully choose emojis that support

formal register objectives, speakers use controlled processing. This entails attentional shifting to select cognitive emoji for pragmatic softening and inhibitory control to suppress emotional emoji. Therefore, a speaker's degree of self-control and bilingual/digital register control can be directly inferred from the presence or absence of emoji in this situation.³. Affective Processing and External Emotion Regulation Principle

The DAC-P Model, which is based on models of executive function and Clark's (1996) theory of metalinguistic awareness, claims that the central executive actively suppresses automatic responses in high-monitoring contexts like academic discourse. In order to carefully choose emojis that support formal register objectives, speakers use controlled processing. This entails attentional shifting to select cognitive emoji for pragmatic softening and inhibitory control to suppress emotional emoji. Therefore, a speaker's degree of self-control and bilingual/digital register control can be directly inferred from the presence or absence of emoji in this situation.³. Affective Processing and External Emotion Regulation Principle

The model, which is based on Gross's (1998) Process Model of Emotion Regulation, suggests that the cognitive system uses emoji as "external affective regulators" when emotional arousal is high. It costs cognitive energy to express complicated emotions. The system uses emoji as lexical substitutes to transfer the task to the visual-symbolic system in order to lessen this load. This mechanism bridges the gap left by the lack of paralinguistic cues in text by reducing the cognitive effort needed for the sender to express affect and giving the recipient a clear cue for quick empathy encoding and mental state attribution.

2.5 Previous Studies on Emoji in the Arab and Iraqi Context:

A growing corpus of research on emoji in Arabic digital communication has been established by earlier studies. Based on opinions from Arabic speakers in various geographical areas, Hakami et al. (2022) created an Arabic emoji sentiment lexicon. Their work is important because it shows that different Arabic-speaking populations have different emotional interpretations of emojis and that regional differences should be taken into account when evaluating emoji sentiment.

Another pertinent study looked at how Arabic-speaking people used emojis on social media. The study examined variations in interpersonal relationships, gender, generation, and demographic traits using a sizable sample of Arabic speakers. The results supported the idea that emoji practices are ingrained in more general patterns of social interaction by showing that emoji usage is influenced by social and demographic factors.

The practical uses of emojis have also been studied in Arabic tweets. Reaction, action, decoration, softening, and tone modification are among the functions that have been identified by such research. These results show that emoji can influence a message's pragmatic interpretation rather than just expressing a single emotion, which makes them extremely pertinent to the current study.

Even with these contributions, more research on Iraqi users in particular is still needed. The majority of the literature currently in publication treats Arabic-speaking people as a general population, which may obscure the distinctions between various Arab societies. Emoji selection and interpretation may be influenced by Iraq's unique linguistic, cultural, social, and communicative practices.

Consequently, the current study endeavors to address this study gap by investigating Iraqi users and by integrating three dimensions that are occasionally assessed independently: the cognitive function of emoji in the construction and the social function and the emotional function of emoji in the communication of emotions and interpersonal attitudes.

2.5.1 Social Information Processing Theory (SIP):

According to Social Information Processing Theory, CMC users build relationships by utilizing any available cue. Over time, nonverbal cues are replaced by textual and visual cues (Walther, 1992). The 21% rate of compensatory tool use in this study can be explained by this theory.

2.5.2 Functional Model (Dresner & Herring, 2010):

Emoji are divided into three categories by this model: cognitive, social, and emotional. This served as the data's direct coding scheme in Chapter

2.5.3. Affective Regulation Theory (Gross, 1998; Derks et al., 2008):

Gross (1998) defined emotion regulation as strategies used to influence emotional experience. Derks et al. (2008) applied this to CMC and argued that emoticons are external means for affective rule that allow users to display and manage emotion.

2.5.4 The Integrated Model: Digital Affective Regulator:

The three theories are integrated in this study. Emoji is an instrument that simultaneously controls emotion, sociality, and cognition. All data coding and analysis were guided by this model.

2.6 Link to Psycholinguistics:

The study of language processing is known as psycholinguistics (Clark, 1996). It is applied to digital text by this model. Emojis serve as "digital prosody" and "digital facial expression" (Gibbs, 1999). It is a component of language production and comprehension processes. This is supported by the discovery that 58.5% of emoji have a cognitive purpose, indicating that students use emoji to aid in comprehension.

2.6.1 The role of emoji and emoticons in CMC:

When emoji and emoticons first appeared in CMC, it was commonly believed that they were digital replacements for nonverbal cues that appeared in in-person interactions. It was assumed that these displays fulfilled the same purposes as nonverbal cues. This view is somewhat supported by research. Tang and Hew (2019) contended in a review article that the two most significant uses of emojis,

according to current research, are to convey feelings and to make meaning clear. Regarding the latter, researchers have shown that emojis can make it easier to understand a sender's intent, particularly when they are used in conjunction with an indirect—and therefore possibly ambiguous—statement.

Filik et al. (2015) showed that using an emoticon (wink emoticon) in specific situations (where the intended meaning was unclear) raised the possibility that participants would understand the message's intended sarcasm. In a related study, Thompson and Filik (2016) showed that participants were significantly more likely to use emoticons when they intended to convey sarcasm, compared to a message with an intended literal meaning, suggesting that people are aware of this. More recently, Weissman and Tanner (2018), as well as Cohn et al. (2018), showed that using emojis (wink) to express irony elicits an enhanced P200 and P600, the same neural answers produced when irony is carried with words.

Emojis also seem to make it easier to understand other kinds of indirect meaning. The effect of emojis on the interpretation of responses with possible indirect meanings was investigated by Holtgraves and Robinson (2020). Using a reaction time procedure, they discovered that when an indirect response contained an emoji, participants were more likely to endorse the indirect meaning of the response—and to do so faster—than when the response did not convey negative information. Face emojis are not the only ones that have these effects. For instance, Riordan (2017a, 2017b) has shown that the use of nonface emoji in a message can influence assessments of conveyed affect, particularly positive affect, and decrease perceived ambiguity and interpretation confidence.

For instance, when a movie emoji was added to the message "Got a ticket," it was thought to convey more emotion and be less ambiguous.

3.Methodology, Results, And Discussion

3.1Methodology:

3.1.1 Introduction:

The data analysis of 200 WhatsApp screenshots is presented in this chapter along with a discussion of the findings within the context of psycholinguistic theory and the Digital Affective-Cognitive Processing Model (DAC-P Model). It outlines the methodological techniques used to look into the emotional and cognitive functions of emoji among Iraqi users. A mixed-methods strategy is used. The reported attitudes, behaviors, and perceptions of participants regarding the use of emojis are the main focus of both the quantitative and qualitative components. It aims to find out how often Iraqi users use emoji, what purposes they associate with them, and how much they think emoji make up for the lack of vocal tones, facial expressions, and other paralinguistic cues. This chapter provides results, discusses findings in relation to the theoretical framework, and explains how data was gathered and examined.

3.1.2 Research Design:

Two Hundred screenshots of WhatsApp messages were subjected to a quantitative content analysis.

3.1.3 Participants and Data Collection:

Two hundred screenshots of WhatsApp conversations from 40 Iraqi university students, ages eighteen to twenty-four, made up the sample. Students were asked to anonymously submit screenshots of five recent conversations. For the current investigation, a purposive sampling strategy is suggested. Iraqi university students are the study's target population. The following criteria were used to choose participants in order to guaranty the validity and relevance of the data:

- Nationality and Digital Use: Participants must be citizens of Iraq who frequently use at least one online platform, such as Telegram, WhatsApp, or Messenger, for text-based digital communication.
- Emoji Literacy: Participants should show that they understand how to use and interpret emojis in online communications.
- Ethical Consent: There is no obligation to participate. Before sending the screenshots, all participants must give their informed consent, fully understanding the goal of the study and their right to withdraw at any moment.

3.1.4 Coding Scheme:

Every message had a code for: 1. Mode of Communication, 2. Emoji's existence 3. According to Dresner and Herring (2010), emojis serve cognitive, social, and emotional purposes.

3.1.5 Research Design:

The current study uses a mixed-methods research design, integrating qualitative and quantitative techniques. The selection of this design is predicated on the idea that numerical data alone is insufficient to fully analyze emoji communication. The quantitative component offers quantifiable proof of participants' opinions and reported emoji usage patterns. Emoji usage is interpreted contextually by the qualitative component. It looks at how emojis interact with messages' linguistic content and how they support interpersonal communication, humor, irony, tone modification, clarification, emphasis, and emotional expression.

3.1.6 Ethical Considerations:

Students' approval was obtained for ethical considerations. Informed consent was provided by the students. When using private WhatsApp examples, the proper informed consent must be acquired. Before the examples are used in the study, they ought to be made anonymous. The final study should include examples that are sufficiently anonymized to make it impossible to identify specific students. Students will be made aware of the goal and general protocols of the study, and participation will be entirely voluntary. No needless identifying information will be asked of students.

3.1.7 Results and Discussion:

The quantitative results from the examination of 200 WhatsApp messages are shown in this section. The information is displayed in four tables, each of which has a thorough explanation. Iraqi university students make up for the absence of nonverbal clues in CMC by analyzing 200 WhatsApp messages.

Table (1): Distribution of Communication Modes (N=200)

Mode	Frequency	Percentages
Text Only	118	50.0%
Text + Emoji	65	32.5%
Voice Note	12	6.0%
Image/Sticker	5	2.5%
Total	200	100%

Explanation of Table 1:

The general WhatsApp communication preferences of Iraqi university students are displayed in Table 1. 50% of messages were "Text Only," according to the data, suggesting that plain text is still the most common form of communication. However, "Text + Emoji" was used by a sizable portion (32.5%). This indicates that a compensatory tool to add meaning was present in almost one out of every three messages. This supports the Social Information Processing Theory (Walther, 1992), which holds that CMC users actively adapt to media constraints by producing substitute cues. From a psycholinguistic standpoint, the high preference of 6.0% for emoji over voice notes indicates that students value a communication mode that enables cognitive economy—rapidly expressing both propositional and affective meaning without the processing expense of audio production and reception.

Voice Notes accounted for 6.0% and Images/Stickers for 2.5% of the remaining 8.5%. Privacy concerns in public university settings may be the reason for the low percentage of voice notes. The main conclusion of all communication was that compensatory tools were used to compensate for the absence of nonverbal cues. The Social Information Processing Theory (Walther, 1992), which contends that CMC users actively adjust to constraints by identifying substitute cues, is directly supported by this. Emoji is the preferred compensation strategy over audio, as evidenced by its widespread use.

4 Psycholinguistic Functions of Emoji**4.1 Evidence for the DAC-P Model:**

The sixty-five emojis were examined and coded using the DAC-P Model's three domains: cognitive, social, and emotional regulation in order to address Research Question 2.

Table (2): Psycholinguistic Functions of Emoji (N=65)

Function	Frequency	Percentages
Cognitive	38	58.5%
Social	21	24.6%
Emotional	11	16.9%
Total	65	100%

Explanation of Table 2:

1. Cognitive Domain: 58.5% Automatic Processing & Cognitive Economy Principle. Emoji usage was mostly cognitive. This is consistent with the Dual-Process Theory of Schneider and Shiffrin (1977) and the Dual-Coding Theory of Paivio (1986). In this situation, emojis such as 😊, 🤔, and 🙄 are automatically recovered in order to minimize working memory burden and clarify meaning. The student uses a single emoji in place of typing "I am joking" or "I am confused". This serves as an "affective fluency marker" that speeds up processing and lowers communication's cognitive cost.
2. Social Domain: 24.6%: Metalinguistic Monitoring and Executive Function Principle. Social function is the second major function. This validates models of executive function and Clark's (1996) theory of metalinguistic awareness. Students are not processing automatically in these situations. The digital register is being actively monitored by the central executive. Emojis such as 🙏, 😂, and 🙄 are strategically employed to manage "face," soften requests, and preserve good social relationships, particularly when interacting with peers of different status. This validates the SIP theory of hypothesis No. two and Walther (1992) regarding the development of relationships in CMC.
3. Emotional Domain: 16.9%: Affective Processing and External Emotion Regulation Principle. Emotional function is the third. Gross's (1998) Process Model of Emotion Regulation is directly supported by this. Students use emoji as "external affective regulators" when there is a high affective load. Rather than using mental energy to explain emotions in writing, they employ ❤️, 🥰, or 🤔 to elicit empathy from the recipient and to externalize and control their emotional state. This validates H1 and demonstrates that Iraqi students use emojis mainly for effective communication rather than merely for amusement. Like tone of voice, the emoji functions as "digital prosody" (Gibbs, 1999). This bolsters hypothesis No. three, which demonstrates how students use emojis to externalize emotions they are unable to express through their bodies. Because some emojis had two purposes but were coded for their primary purpose, the total is higher than 100%.

4.2 Emotion-to-Function Mapping and Example Emojis:

This section offers a qualitative, micro-level analysis of how particular emotional states are mapped onto particular emoji to serve distinct psycholinguistic roles, whereas the preceding sections

examined the overall distribution of emoji functions. The DAC-P Model states that emojis have no set meaning; instead, their purpose depends on the processing context in which they are used. According to the data, some emojis had two purposes, but their primary function was determined by the dominant psycholinguistic role in the utterance. This "context-dependent coding" is essential to comprehending emoji as cohesive linguistic units as opposed to discrete pictographs. Representative instances from the corpus are shown in the following table, which shows how Iraqi university students use particular emojis to represent their cognitive, social, and emotional intentions in order to control communication.

Table (3): Emotion-to-Function Mapping and Example Emojis

Psycholinguistic Role	Example Usage	Primary Function	Emoji
management of relationships, lessens stress.	"Haha that was so funny 😂"	Social	😂
Softens the request. Illuminates positive intent.	"Thank you 😊"	Social/Cognitive	😊
Clarifies sarcasm. Reverses the literal meaning.	"I got 100 😱"	Cognitive	😱
Direct expression of affection.	"I miss you ❤️"	Emotional	❤️
Conveys sadness and inspires empathy.	"I failed the exam 😭"	Emotional	😭
Signs agreement and ends conversation.	"Ok 👍"	Cognitive	👍

Explanation of Table 3:

A qualitative mapping of particular emojis and their predominant psycholinguistic function in the Iraqi context is presented in Table 3. This table responds Question No.3 for Research. There is a clear pattern in the data. Laughter emojis 😂 are social instruments. When someone is genuinely laughing, they are hardly ever used. Rather, they are employed to indicate a joke and preserve unity within the group.

Ambiguity emojis 🤔 are essential for avoiding textual misunderstandings. Sad/Love emojis 😭 and ❤️ are instruments for emotions.

They serve as a substitute for a tone or facial expression that is absent from text. Emojis are not random, as this mapping demonstrates. Students have created a common "digital vocabulary" in which certain emojis serve particular pragmatic and grammatical purposes (Dresner & Herring, 2010).

4.3 Cognitive Processing Load and Contextual Distribution:

By directly connecting emoji use to processing context, the following table offers the strongest validation for the DAC-P Model.

Table (4): Cognitive Processing Load and Emoji Distribution Across Processing Contexts (N = 65)

Processing Context	Frequency	percentage	Psycholinguistic Interpretation
Automatic Processing Context Informal Peer Interaction	41	63.0%	High fluency and minimal cognitive load. Emojis serve as "affective fluency markers" and are automatically retrieved. This lessens the strain on working memory and validates Paivio's Dual-Coding Theory (1986).
Controlled Processing Context Academic / Formal Interaction	12	18.5%	High level of monitoring and executive function. Students use strategic selection and suppress automatic emotional emojis. This demonstrates register control and metalinguistic awareness (Clark, 1996).
Affective Processing Context Emotional Support Interaction	12	18.5%	Processing load for emotion regulation. As "external affective regulators" (Gross, 1998), emoji help encode empathy and lower the cognitive cost of expressing emotions.
Total	65	100%	

The DAC-P Model predicts that Principle 1 is supported by the high frequency of emoji in the Automatic Processing Context, while Principle 2 is reflected in the low frequency in the Controlled Processing Context. The aforementioned table offers crucial proof that emoji usage is essentially linked to underlying cognitive architecture and processing demands rather than being solely determined by social convention. Three different psycholinguistic mechanisms are revealed by the distribution across the three processing contexts.

1. Automatic Processing Context: Cognitive economy and efficiency. Emoji usage predominates in casual communication (63.0%), suggesting a dependence on automaticity. Automatic processes in psycholinguistics are quick, simple, and require little attention (Schneider & Shiffrin, 1977). Emojis have become lexicalized in this context. The word "funny" is now stored in the mental lexicon. It is chosen by the brain to reduce cognitive load and increase communication effectiveness. The Principle of Least Effort in language production is in line with this. Additionally, using visual symbols in addition to text encourages dual-coding, which speeds up processing and improves message retention.
2. Controlled Processing Context: Cognitive economy and efficiency. Emoji usage predominates in casual communication (63.0%), suggesting a dependence on automaticity. Automatic processes in psycholinguistics are quick, simple, and require little attention (Schneider & Shiffrin, 1977). Emojis have become lexicalized in this context. The word "funny" is now stored in the mental lexicon. It is chosen by the brain to reduce cognitive load and increase communication

effectiveness (Clark, 1996). The Principle of Least Effort in language production is in line with this. Additionally, using visual symbols in addition to text encourages dual-coding, which speeds up processing and improves message retention.

3. Affective Processing Context: Externalized Emotion Regulation

4. It can be mentally taxing to produce language during emotionally charged conversations. It takes a lot of resources to access precise emotion vocabulary. Users switch to "affective processing" during these times, as Table 4 illustrates. Emoji are used as cognitive tools to control emotions (Gross, 1998). The sender externalizes a complex internal state without having to express it verbally by inserting 😊.

This lessens the emotional expression's cognitive burden. The emoji eliminates the need for intricate pragmatic inference by giving the recipient a clear, direct cue for affective decoding. Emoji thus serve as a link between linguistic expression on the outside and internal cognitive-affective states.

In summary, the distribution of 63%, 18.5%, and 18.5% supports the central thesis of the DAC-P Model: emoji use is systematically influenced by cognitive demand rather than occurring at random. Processing is automatic and fluid in low-stakes peer interactions. Executive control is used to strategically monitor and choose emojis in high-stakes academic situations. The cognitive system uses emoji to regulate emotions in emotionally charged support interactions in order to lower the cost of articulation. This demonstrates how emoji have become an essential part of digital language processing in Iraqi students' psycholinguistic systems.

4.2 Summary to Chapter Four:

The results presented in this chapter give the Digital Affective-Cognitive Processing Model (DAC-P Model) substantial empirical support. The analysis shows that emoji are not decorative elements for Iraqi university students. These are essential psycholinguistic instruments that are employed to:

1. Reach cognitive economy
2. Use executive control to manage social interactions, and
3. Control how you express your emotions. The study's overall conclusions and implications are presented in the following chapter.

5. Summary of Findings and Conclusion

5.1 Summary of Findings:

The purpose of this study was to examine how emojis function as digital affective regulators in Iraqi university students who use WhatsApp. The following important conclusions were drawn from the examination of 200 screenshots and the Digital Affective-Cognitive Processing Model (DAC-P Model). The following key findings emerged:

1. Cognitive Economy is Primary: According to the findings, 58.5% of emoji usage had a cognitive purpose. This demonstrates that emoji are mostly used by Iraqi students to improve processing fluency and lessen cognitive load. Emoji function as "affective fluency markers" that simultaneously convey propositional and emotional meaning, making up for the absence of paralinguistic cues in CMC, according to Dual-Coding Theory (Paivio, 1986).
2. Strategic Social Management: Social use accounted for 24.6% of emoji usage. This supports the DAC-P Model's Executive Function component. By carefully choosing emojis like and to manage social relationships, soften requests, and control the digital register, particularly in formal or hierarchical contexts, students exhibit high metalinguistic awareness (Clark, 1996).
3. External Emotion Regulation: Emotional emojis were used in 16.9% of cases. Gross's (1998) Process Model of Emotion Regulation and the Affective Processing component are supported by this. When there is a lot of emotional strain, students use emojis such as ❤️ and 😊. This serves as a means of evoking empathy and social support while lowering the cognitive cost of expressing emotions.
4. Context Modulates Processing: Emoji usage is dynamic, as Table 4 demonstrated. Automatic contexts accounted for 63%, controlled contexts for 18.5%, and affective contexts for 18.5%. This demonstrates the fundamental idea of the DAC-P Model, which states that communicative context and cognitive demand dynamically modulate emoji deployment.

5.2 Conclusion:

This study concludes that emoji are not just decorative elements. Emojis are essential psycholinguistic tools that are incorporated into the digital communication architecture for Iraqi university students. By showing that emoji have three interrelated functions—optimizing cognitive resources, facilitating social coordination through executive control, and regulating emotional expression—the DAC-P Model offers a strong explanation for this phenomenon. Students have adapted to the limitations of CMC by creating a hybrid communication system in which text carries propositional content and emoji carries affective and metapragmatic content, as evidenced by the widespread use of "Text + Emoji" (32.5%). This has important ramifications for comprehending 21st-century communication skills and digital literacy.

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