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Assessing Digital Pragmatic Competence in Email and WhatsApp Requests and Refusals by Learners of Arabic as a Second Language

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Research Article

Keywords: Arabic as a second language, digital pragmatics, language assessment, pragmatic appropriateness judgment, requests, refusals

Posted Date: May 26th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-9495792/v1

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Additional Declarations: No competing interests reported.

Abstract

Digital communication now mediates much of student-faculty interaction, yet pragmatic assessment in Arabic has rarely examined how learners perform face-sensitive speech acts across digital media. This mixed-methods study investigated how learners of Arabic as a second language judged and produced requests and refusals in academic email and WhatsApp, with particular attention to proficiency, cultural background, and medium. Quantitative data came from a Pragmatic Appropriateness Judgment Task (PAJT) completed by 65 international students at a Saudi university; qualitative data came from scenario-based think-aloud interviews with 20 participants. The results showed clear speech-act differences: refusals were rated and produced as markedly more indirect than requests. Request performance displayed culturally patterned variation consistent with pragmatic transfer, whereas refusal performance followed a more interactional and non-linear pattern across cultural groups and proficiency levels. Pragmatic alignment with Saudi academic norms was stronger in email than in WhatsApp and increased with proficiency, especially in the more formal email channel. The qualitative data further showed that learners actively monitored politeness, power relations, and medium-specific expectations when composing their responses. The study contributes to Arabic language assessment by showing how a context-sensitive pragmatic judgment task, supplemented by verbal-report data, can reveal medium effects and sociopragmatic variation that are often missed in general proficiency measures. Implications are offered for assessing and teaching digital pragmatic competence in Arabic.

Introduction

Digital communication now constitutes a routine part of university life, shaping how students negotiate requests, refusals, clarification, and deference in interactions with instructors and peers. In such environments, language ability is not exhausted by grammar and vocabulary alone; it also includes the capacity to judge contextual appropriateness and to enact relationships through medium-sensitive pragmatic choices. For language assessment, this means that digitally mediated performance is no longer peripheral. It is part of the communicative ability that learners must demonstrate in contemporary academic settings.

Among the most interactionally delicate acts in academic communication are requests and refusals. Both are face-threatening acts because they can impose on the recipient, resist an expectation, or expose the writer to the risk of sounding rude, abrupt, or socially unaware (Yao et al., 2021). When these acts are poorly handled, the result may be miscommunication, damaged rapport, or negative judgments about the learner's competence. These risks are heightened in institutional contexts where power asymmetries are salient and where digital channels often reduce contextual cues that would otherwise support interpretation.

For learners of Arabic in Saudi Arabia, these challenges are compounded by sociocultural distance and by the relative scarcity of assessment tools that capture pragmatic performance in authentic digital situations. Learners may rely on first-language routines when composing Arabic messages, and such

transfer can produce socially inappropriate performances even when the language is grammatically accurate (Koike & Felix-Brasdefer, 2012). Although previous work has examined Arab learners' speech acts in English and has explored selected Arabic speech acts in online interaction, much less is known about how non-Arab learners of Arabic manage requests and refusals across different digital media, or how such performance may be meaningfully assessed.

This study addresses that gap by examining learners' judgments and productions of requests and refusals in academic email and WhatsApp interactions at the University of Ha'il. Substantively, the study contributes to interlanguage pragmatics in Arabic. From an assessment perspective, it also shows how a pragmatic appropriateness judgment task, combined with think-aloud evidence, can illuminate medium effects, sociopragmatic alignment, and developmental variation that are often obscured in general proficiency measures. In this way, the study aligns with current interest in context-sensitive language assessment and in the use of technology-mediated tasks to assess communicative ability.

Research Questions

This study is guided by three questions:

1. How do L2 learners of Arabic judge and produce requests and refusals in academic computer-mediated communication (email and WhatsApp)?
2. To what extent are these performances associated with pragmatic transfer from learners' first languages and cultural backgrounds?
3. How are learners' performances related to Arabic proficiency and communication medium, and how do these patterns inform the assessment of digital pragmatic competence in Arabic?

Literature Review

Speech Acts, Politeness, and Interlanguage Pragmatics

Speech Act Theory (Searle, 1976) conceptualizes utterances as social actions performed to achieve particular interactional goals. Requests and refusals are especially important within this tradition because they are typically dispreferred and face-threatening, and therefore require careful mitigation and strategic politeness work (Brown & Levinson, 1987; Yao et al., 2021).

Within interlanguage pragmatics, these speech acts have attracted sustained attention because learners frequently transfer L1 sociopragmatic norms into L2 use (Kasper & Blum-Kulka, 1993). Such transfer may occasionally facilitate communication, but it also often produces pragmatic failure when learners misjudge the expectations of the target context (Eshreteh, 2014). Research consistently shows that even advanced learners struggle to perform refusals and requests in culturally appropriate ways, including in digital academic settings (Al Masaeed et al., 2018; Alsalem, 2024; Alfghe & Mohammadzadeh, 2021).

This body of work likewise underscores the value of explicit pragmatic instruction (Canbolat et al., 2021; Derakhshan & Shakki, 2023).

Pragmatics in Computer-Mediated Communication

Recent scholarship highlights the added complexity of computer-mediated communication (CMC) in shaping the performance of requests and refusals. Unlike face-to-face interaction, digital exchanges via email or instant messaging often reduce contextual cues, heightening the risk of misinterpretation and pragmatic failure (Harb, 2016, 2020; Vakhobova et al., 2025). For instance, learners may overgeneralize politeness markers or rely on culturally inappropriate levels of directness, particularly in institutional settings such as student–teacher emails (Kuriri, 2023; Al-Khatib, 2021). Research into Arabic-speaking learners also suggests that religious expressions and culturally bound routines are transferred into online academic discourse, further complicating intercultural interpretation (Jarrah & Alghazo, 2023).

Parallel to this, studies in Arab and EFL contexts emphasize that sociocultural background and communicative medium intersect to influence learners' strategy use in requests and refusals. Aljanabi (2016) and Chen (2016) found that students' email requests often diverge from target-like norms, tending toward excessive directness or over-apologizing, while Boutros (2025) demonstrated similar pragmalinguistic mismatches in Egyptian learners' apology emails. In synchronous and asynchronous digital interactions, pragmatic patterns are also shaped by power dynamics and group identity (Almghamis, 2025; Romsa et al., 2017). Collectively, these findings suggest that pragmatic development in CMC requires more than exposure to L2 input—it calls for targeted instruction that integrates digital discourse practices into pragmatic training.

CMC is not a single, homogenous channel but a cluster of modalities—synchronous and asynchronous, microblogging and messaging—each with distinct affordances that shape pragmatic behavior. Comparative work shows that learners perform differently across environments, with synchronous CMC often approximating spoken turn-taking while asynchronous modes (e.g., email) encourage more reflective but potentially decontextualized formulations (Ribeiro, 2018; Taguchi & Sykes, 2013). Corpus-based studies reveal emergent conventions in online peer commentary (Taguchi, Kaufer, et al., 2017), while experimental research demonstrates that CMC can heighten learner noticing but also freeze routines into formulaic patterns (Eslami et al., 2015; Xu, 2016). Modality effects are particularly salient for face-threatening acts: refusals, for example, are realized differently in email and instant messaging, a trend echoed in studies across languages such as Mandarin and Australian English (Li, 2022) and ESL email requests (Dinç-Altun, 2021).

Social media and messaging apps further complicate pragmatic repertoires by introducing multilingual practices, genre-specific norms, and identity-driven code-switching. On platforms like Twitter and Facebook, L2 users repurpose orthographies, scripts, and discourse markers to construct stance and solidarity (N. A. N. Mat Isa, 2014; McEntee-Atalianis et al., 2023). In WhatsApp and other IM contexts, learners employ abbreviated politeness formulas, emojis, and prefabricated routines—strategies that can either mitigate ambiguity or heighten misinterpretation depending on shared norms (Ahmed & Al-Kadi,

2016; Fadilah & Vinola, 2024). In Gulf and Saudi contexts specifically, religiously framed formulae, heightened relational sensitivity, and evolving attitudes toward code-mixing inflect online interaction patterns (Almghamis, 2025; Ben Nafa, 2015; Jarrah & Alghazo, 2023). Together, this research highlights that medium and platform are not neutral backdrops but active variables shaping pragmatic strategy choice.

Instructional and developmental studies further show that pragmatic competence in CMC is learnable and responsive to pedagogy. Explicit instruction and task-based CMC activities can significantly enhance learners' ability to select appropriate strategies (Jeon & Kaya, 2008; Derakhshan & Shakki, 2023). Technology-mediated pedagogies, including asynchronous practice platforms and immersive simulations, provide structured opportunities for practicing digital facework (Crogman et al., 2025, 2024; Taguchi & Sykes, 2013). Yet research also warns that untutored exposure to online multilingual environments can entrench non-targetlike routines (Shively, 2025; Xing & Gao, 2018). These findings underscore the need for empirical studies that examine how learners actually deploy requests and refusals in Arabic digital discourse across modalities.

Arabic Pragmatics and L2 Learners

Arabic pragmatics is distinguished by cultural preferences for indirectness, the frequent integration of religious or formulaic expressions, and an emphasis on maintaining relational harmony through face-work (Jarrah & Alghazo, 2023; Al-Khatib, 2021). For instance, refusals in Arabic are commonly realized through indirect strategies such as providing elaborate reasons, offering alternatives, or extending apologies, rather than issuing a direct negative response (Morkus, 2009). These strategies are not merely linguistic choices but reflect broader sociocultural values of deference, hospitality, and solidarity, all of which shape how politeness and appropriateness are negotiated in interaction.

While this body of work has contributed to understanding the sociopragmatic underpinnings of Arabic interaction, much of the existing research has concentrated on Arab learners' pragmatic transfer into English or other L2 contexts (Elasfar & Mustafa, 2021; Alfghe & Mohammadzadeh, 2021). Far less attention has been directed toward learners acquiring Arabic as a second or foreign language, particularly in digital environments where norms of politeness and appropriateness are undergoing reconfiguration. Some studies have begun to address these gaps: Al Masaeed et al. (2020) examined multidialectal practices and proficiency effects in L2 Arabic refusals, while other research has investigated the role of collaborative dialogue in the L2 development of Saudi learners in classroom settings (Almghamis, 2025). Nonetheless, detailed investigations of non-Arab learners performing face-threatening acts such as digital requests and refusals remain scarce, leaving an important gap in our understanding of how cultural, linguistic, and technological factors intersect in the development of Arabic pragmatic competence.

Synthesis and Research Gap

Taken together, the reviewed literature establishes three points. First, requests and refusals are pragmatically demanding and central to L2 communicative competence. Second, computer-mediated communication is not a neutral channel but a distinct communicative environment with its own affordances and risks. Third, Arabic pragmatics is shaped by sociocultural norms that are especially relevant in academic interaction. What remains underexplored, however, is how non-Arab learners manage requests and refusals in Arabic digital discourse, how their performances vary across medium, proficiency, and cultural background, and how these differences may be captured through assessment tasks designed for digitally situated communication. The present study responds directly to that gap.

Theoretical and Assessment Framework: Digital Face-Work and Pragmatic Alignment

The framework adopted in this study brings together three complementary domains - Speech Act Theory and Politeness, Interlanguage Pragmatics, and CMC Pragmatics - to explain how L2 learners of Arabic make pragmatic choices in digital academic communication. Together, these domains frame requests and refusals as outcomes of universal politeness pressures, learner-specific developmental variables, and the affordances of the digital medium. They also provide the interpretive basis for the Pragmatic Appropriateness Judgment Task (PAJT) used in the study by identifying the dimensions along which learners' judgments and productions were compared.

1. Speech Act Theory and Politeness

This first domain treats requests and refusals as face-threatening acts that require speakers to balance communicative intent with interpersonal sensitivity (Brown & Levinson, 1987). Speakers typically manage that balance through degrees of directness, mitigation, supportive moves, and formulaic politeness expressions. This domain therefore provides the foundation for Hypothesis 1, which predicts systematic differences in strategy use across speech acts.

2. Interlanguage Pragmatics

At the learner level, pragmatic performance is shaped by the interplay of L1 transfer and L2 proficiency. L1 transfer introduces culturally grounded routines of deference, directness, and politeness, while increasing L2 proficiency supports greater awareness of target sociopragmatic expectations and greater flexibility in adjusting linguistic form to context.

- **L1 Transfer** introduces culturally embedded norms of directness, deference, or politeness, which may initially influence learners’ strategic preferences in the target language.
- **L2 Proficiency**, in contrast, enhances awareness of the socio-pragmatic expectations of the host culture and enables more target-like adjustments.

Together, these learner-level forces shape the evolving interlanguage repertoire through which requests and refusals are produced. This domain underpins Hypothesis 2 and also informs Hypothesis 3 by clarifying how proficiency conditions learners’ movement toward target-like performance.

3. CMC Pragmatics

At the intersection of these three domains lies Digital Face-Work: the learner's ongoing negotiation of politeness, power, and cultural appropriateness in digitally mediated academic contexts. In this framework, pragmatic outcomes emerge from the interaction of universal principles, learner variables, and situational affordances rather than from any single factor in isolation.

Figure 1 presents this framework visually. The overlapping domains represent universal, individual, and contextual influences on L2 pragmatic behavior, while their intersection captures the learner's digital face-work as the point at which strategy choice, judgment of appropriateness, and alignment with Saudi academic norms are negotiated.

Hypotheses

Drawing on the theoretical framework and literature, the study advances the following hypotheses:

H1: There are statistically significant differences in the types of strategies L2 learners of Arabic employ for requests and refusals in digital communication, with refusals showing a greater use of indirect strategies (e.g., reasons, excuses) and requests combining direct head acts with mitigating devices (e.g., politeness markers, justifications).

H2: There are statistically significant differences in learners' request and refusal strategies across cultural groups, reflecting pragmatic transfer from their L1 backgrounds.

H3: There are statistically significant differences between learners' productions and Saudi academic norms, particularly in the use of formulaicity and indirectness. Learners with higher L2 proficiency will demonstrate more target-like performances, and the medium of communication (email vs. WhatsApp) will significantly influence strategic choices, with emails eliciting more formal and elaborated constructions.

Methods

Research Design

This study employed a convergent parallel mixed-methods design. Quantitative and qualitative data were collected during the same phase of the project, analyzed separately, and then brought together in an integrated interpretation. This design was selected to combine the breadth of quantitative patterning with the explanatory depth of qualitative evidence, thereby strengthening the validity of the overall account.

Participants

The study sample comprised 65 international students enrolled in the Arabic Language Unit for Non-Native Speakers at the University of Ha'il, Saudi Arabia, during the 2024–2025 academic year (1447 AH). Participants were selected using purposive sampling to ensure diversity in both proficiency and cultural background, variables central to the study's aims (Table 1).

Table 1. Participants' Characteristics (N = 65)
This table summarizes the distribution of participants by proficiency level, cultural background, gender, age range, and length of residence in Saudi Arabia.

Variable	Category	n	% of Total
Proficiency Level	Beginner	10	15.4%
	Lower Intermediate	10	15.4%
	Upper Intermediate	17	26.2%
	Advanced	28	43.1%
Cultural Background	Southeast Asia	21	32.3%
	West Africa	17	26.2%
	South Asia	13	20.0%
	Europe/Australia	14	21.5%
Gender	Male	36	55.4%
	Female	29	44.6%
Age Range	18–22 years	24	36.9%
	23–27 years	27	41.5%
	28+ years	14	21.5%
Length of Residence	Less than 1 year	26	40.0%
	1–2 years	25	38.5%
	3+ years	14	21.5%

Proficiency levels were determined through the university's standardized placement procedures and grouped as Beginner, Lower Intermediate, Upper Intermediate, and Advanced. Because Advanced learners constituted the largest subgroup (43.1%), the sample also provided useful leverage for examining pragmatic behavior at higher levels of L2 development.

Cultural background was grouped into four regional categories—Southeast Asia, West Africa, South Asia, and Europe/Australia—to support cross-cultural comparison. Additional demographic information was collected through a background questionnaire, including first language, age, gender, country of origin, length of residence in Saudi Arabia, and self-reported Arabic proficiency.

Instruments

To capture both judgment-based and production-based dimensions of digital pragmatic competence, the study employed two instruments:

1. Pragmatic Appropriateness Judgment Task (PAJT) (Quantitative): This instrument assessed receptive and evaluative pragmatic competence. It consisted of 12 contextualized university-based scenarios, each followed by three candidate responses that varied in directness, formality, and sociopragmatic appropriateness. Participants rated the appropriateness of each response on a 5-point Likert scale (1 = very inappropriate, 5 = very appropriate). The PAJT therefore generated structured evidence about how learners interpreted pragmatic fit across speech acts and media.
2. Scenario-Based Think-Aloud Interviews (Qualitative): To complement the PAJT and to examine productive competence and metapragmatic awareness, a purposive subsample of 20 participants (five from each cultural group) completed individual semi-structured interviews. In each session, participants responded to four new scenarios (two requests and two refusals) by composing an email or WhatsApp message in real time while verbalizing their thought processes. The interviewer used flexible prompts to elicit reasoning about wording, politeness, audience, and cultural expectations.

Data Collection Procedures

The following procedures were systematically implemented:

1. Ethical approval for the study was secured from the University of Ha'il Institutional Review Board (IRB).
2. Participants were recruited through formal announcements within the Arabic Language Unit, and informed consent was obtained from all participants before data collection, with assurances that participation was voluntary and that responses would be treated confidentially.
3. All 65 participants first completed the online PAJT and the accompanying background questionnaire.
4. From the initial pool, 20 participants were purposively selected for the follow-up interviews, ensuring representation across proficiency levels and cultural groups.

Data Analysis

Data were analyzed in two parallel strands corresponding to the two instruments.

Quantitative analysis: Likert-scale responses from the PAJT were analyzed in SPSS (Version 28). Descriptive statistics were calculated to identify the strategies rated as most and least appropriate, and inferential tests were then used to compare mean ratings across proficiency levels, cultural groups, and

communication media. Because the PAJT functioned as the study's primary assessment task, the quantitative analysis focused on whether it differentiated performance across theoretically relevant learner and contextual variables.

Qualitative analysis: The think-aloud transcripts were analyzed thematically following Braun and Clarke (2008). Initial open coding identified recurrent patterns in learners' reflections, after which related codes were consolidated into broader themes. The analysis focused on metapragmatic awareness, evidence of L1 transfer, perceptions of power, and strategies for managing face in digital interaction.

Integration: In the final analytic stage, the two strands were integrated. Quantitative patterns in learners' appropriateness judgments were interpreted alongside the qualitative evidence explaining why participants selected particular forms and how they reasoned through sociopragmatic choices. This integration yielded a fuller account of learners' digital pragmatic competence by connecting what they judged with how they planned and produced language, thereby strengthening the assessment interpretation of the findings.

Results

This section reports the results relevant to the three hypotheses. It begins with speech-act differences, then turns to the role of cultural background and proficiency, and finally considers alignment with Saudi sociopragmatic norms across email and WhatsApp. Throughout, the results are interpreted not only as pragmatic patterns but also as evidence about what the PAJT and accompanying verbal reports were able to capture about digital pragmatic competence.

4. Quantitative Findings

This section reports the statistical findings relevant to the three hypotheses. It begins with speech-act differences, then turns to the role of cultural background and proficiency, and finally considers alignment with Saudi sociopragmatic norms across email and WhatsApp.

4.1. Strategies and Speech Act Differences (Testing H1)

Hypothesis 1 (H1) predicted that learners would employ significantly more indirect strategies when performing *refusals* than when performing *requests*. To test this hypothesis, an indirectness score was computed for each participant by averaging their appropriateness ratings on the Pragmatic Appropriateness Judgment Task (PAJT) for the most indirect response options across all relevant scenarios.

A paired-samples t-test compared the mean indirectness scores for refusals and requests. As shown in Table 2, the results confirmed the hypothesis: learners were significantly more indirect when performing refusals (M = 3.88, SD = 1.05) than when performing requests (M = 2.05, SD = 1.18), $t(64) = 15.42$, $p <$

.001, Cohen's *d* = 2.12. This large effect size indicates a strong and consistent preference for greater indirectness in the more face-threatening act of refusal.

Additional descriptive analysis revealed that while requests were generally more direct, learners often incorporated **mitigating expressions** (M = 3.21, SD = 1.05), suggesting a hybrid pragmatic strategy that combines direct request forms with politeness markers.

Table 2. Paired-Samples t-Test Comparing Indirectness Scores for Requests vs. Refusals
This table reports the comparison of mean indirectness scores across the two speech acts and indicates the magnitude of the difference between requests and refusals.

Speech Act	Mean	SD	*t*	*df*	Sig. (2-tailed)	Cohen's *d*
Refusal (RF)	3.88	1.05	15.42	64	< .001	2.12
Request (RQ)	2.05	1.18				

Table 2 shows a robust contrast between the two speech acts. Refusals elicited substantially greater indirectness than requests, indicating that learners treated refusals as the more face-threatening act and therefore drew more heavily on mitigation and supportive moves. Requests, by contrast, were relatively more direct, though often softened through modifiers and politeness markers.

4.2. Influence of Culture and Proficiency (Testing H2)

Hypothesis 2 (H2) proposed that learners' pragmatic strategy use would vary according to L1 cultural background and L2 proficiency level. Two-way factorial ANOVAs were conducted to test these effects separately for requests and refusals.

Requests

For request indirectness, significant main effects were found for both Proficiency Level, $F(3, 47) = 3.15$, $p = .032$, partial $\eta^2 = .14$, and Cultural Group, $F(3, 47) = 2.89$, $p = .044$, partial $\eta^2 = .13$. No significant interaction effect was observed ($p = .55$), indicating that these factors influenced request strategies independently.

Post hoc comparisons using Tukey's HSD revealed a developmental pattern: Beginner learners (M = 2.20) were significantly more indirect than Advanced learners (M = 1.54, $p = .041$). This pattern suggests that as proficiency increases, learners shift toward more pragmatically efficient and contextually calibrated directness. A clear L1 transfer effect also emerged, with learners from South Asia using significantly more indirect strategies than those from Europe/Australia ($p = .038$).

Refusals

For refusal indirectness, no significant main effects were found for Proficiency (p = .428) or Cultural Group (p = .708). However, a significant interaction between the two factors emerged, $F(9, 47) = 2.21$, p = .035, partial η^2 = .26. This indicates that the relationship between proficiency and indirectness varies across cultural backgrounds.

Follow-up simple effects tests revealed that the effect of proficiency was significant only for the South Asia group (p = .035). As shown in Table 3, learners from this group displayed a non-linear trajectory: indirectness peaked at the Lower-Intermediate level (M = 2.50) before declining sharply at the Upper-Intermediate level (M = 1.25). This pattern suggests a complex interplay between L1 pragmatic norms and L2 developmental adjustment when performing the highly face-threatening act of refusal.

Table 3. Mean Indirectness Scores (and SD) for Refusals by Cultural Group and Proficiency
This table presents refusal indirectness means and standard deviations across cultural groups and proficiency levels to illustrate group-specific developmental patterns.

Cultural Group	Beginner	Lower-Int.	Upper-Int.	Advanced
Southeast Asia	2.10 (0.90)	1.95 (1.10)	2.05 (1.00)	1.88 (0.90)
West Africa	2.05 (1.20)	2.15 (1.00)	1.90 (1.10)	1.95 (0.80)
South Asia	1.80 (0.80)	2.50 (1.30)	1.25 (0.70)	1.90 (1.00)
Europe/Australia	2.25 (1.10)	1.85 (0.90)	2.10 (1.20)	2.00 (1.10)

Table 3 further shows that refusal patterns were not developmentally uniform across groups. The South Asia subgroup displayed the clearest fluctuation across proficiency levels, whereas the other groups remained comparatively stable. These results suggest that culture does not simply add a fixed effect to pragmatic performance; rather, it shapes the trajectory through which refusal strategies are recalibrated over time.

4.3. Alignment, Proficiency, and Medium Effects (Testing H3)

Hypothesis 3 (H3) posited that learners' pragmatic alignment with Saudi socio-pragmatic norms would be influenced by proficiency level and communication medium (email vs. WhatsApp). To test this, a two-way mixed-design ANOVA was conducted with Proficiency Level as a between-subjects factor and Communication Medium as a within-subjects factor.

The results showed a significant main effect of Communication Medium, $F(1, 61) = 7.71$, p = .007, partial η^2 = .11, indicating that learners' pragmatic choices were more target-like in email (M = 3.25, SD = 0.55) than in WhatsApp (M = 2.98, SD = 0.61).

A significant main effect of Proficiency Level was also observed, $F(3, 61) = 5.22$, $p = .003$, partial $\eta^2 = .22$, with alignment increasing steadily as proficiency improved. Advanced learners demonstrated markedly higher alignment than Beginners, reflecting increased sensitivity to context and register.

Importantly, a significant interaction between Medium and Proficiency emerged, $F(3, 61) = 3.40$, $p = .024$, partial $\eta^2 = .15$. As shown in Table 4, this interaction indicates that the positive effect of higher proficiency was more pronounced in the formal email context. Although all learners aligned more closely with target norms in email than in WhatsApp, the proficiency gap was largest in this medium. This pattern suggests that advanced learners capitalize on the greater planning time and formality afforded by email to produce more target-like pragmatic forms, whereas the spontaneity of WhatsApp communication constrains this advantage.

Table 4. Mean Alignment Scores (and SD) by Medium and Proficiency Level
This table shows learners' mean alignment with Saudi academic norms across email and WhatsApp by proficiency level.

Proficiency Level	Medium: Email	Medium: WhatsApp
Beginner	3.05 (0.68)	2.75 (0.55)
Lower-Intermediate	3.15 (0.45)	2.90 (0.61)
Upper-Intermediate	3.30 (0.50)	3.05 (0.65)
Advanced	3.50 (0.48)	3.20 (0.59)
Overall Mean	**3.25**	**2.98**

4.4. Summary of Quantitative Findings

Taken together, the quantitative analyses support the study's main claims. H1 received strong support, H2 received partial support, and H3 received clear support. Across the results, pragmatic performance emerged as a function of speech-act type, learner background, proficiency, and communication medium rather than as a single linear developmental pattern.

Overall, the quantitative findings indicate that L2 pragmatic competence in digital interaction is shaped by contextual, cultural, and developmental pressures operating simultaneously. Both the speech act itself and the medium through which it is performed proved decisive in structuring learners' choices.

4.5 Qualitative Insights and Mixed-Methods Integration

The qualitative strand, based on think-aloud protocols from 20 participants, adds an interpretive layer to the statistical results by revealing the cognitive and sociocultural reasoning underlying learners' choices.

Thematic analysis identified three recurrent and interconnected themes: metapragmatic awareness and the negotiation of politeness, pragmatic transfer from the L1, and the mediating role of the communication medium.

Theme 1: Metapragmatic Awareness and the Negotiation of Politeness

Across proficiency levels, learners exhibited a high degree of metapragmatic reflection, consciously monitoring their linguistic choices to ensure politeness and appropriateness, particularly in institutional or power-asymmetric contexts. Several participants articulated uncertainty about the appropriate formal or deferential expressions in Arabic. As one upper-intermediate learner noted, “I know how to be polite in English, but in Arabic I’m not sure what is considered too direct or too casual.” Such reflections highlight the tension between grammatical competence and socio-pragmatic control. Learners frequently invoked culturally resonant expressions (e.g., Insha’Allah, May God bless you, Peace be upon you) as strategic markers of respect and alignment with local communicative norms. This self-aware search for “safe” formulaic language underscores the learners’ developing sensitivity to Arabic politeness conventions and aligns with H1’s evidence that indirectness and mitigation serve as preferred strategies for managing face relations.

Theme 2: Evidence of Pragmatic Transfer

In line with the quantitative evidence supporting H2, the qualitative data revealed strong evidence of L1-based pragmatic transfer. Learners’ initial drafts and spoken reflections often mirrored communication patterns from their native languages before deliberate modification toward target-like Arabic norms. A South Asian participant commented, “In my language, saying ‘please give me’ is normal, but in Arabic I feel I must explain more and ask softly.” Similarly, a West African participant described, “We never refuse directly; we tell a story first. So when I write in Arabic, I do the same.” These insights demonstrate that transfer is not a static influence but an active, self-regulated process: learners identify potential cross-cultural mismatches and attempt to adjust through mitigation and elaboration. This metapragmatic negotiation illustrates the dynamic interplay between transfer and developing interlanguage competence observed in the quantitative group differences for request strategies.

Theme 3: The Mediating Role of the Communication Medium

The influence of the communication medium emerged as a pervasive theme, corroborating the quantitative results associated with H3. Participants consistently distinguished between the formal, deliberative nature of email communication and the more spontaneous, conversational tone of

WhatsApp exchanges. One intermediate learner explained, “Email feels like an official letter—you must be very polite and complete. But WhatsApp is more like talking, short and friendly.” This awareness shaped learners’ pragmatic behavior: emails prompted greater attention to structural conventions, lexical precision, and mitigation, while WhatsApp elicited concise and direct messages more aligned with oral interaction norms. Notably, advanced learners appeared better able to maintain appropriateness across both media, suggesting that proficiency enhances pragmatic adaptability. The qualitative data thus reinforce the statistical finding that proficiency interacts with medium, with the email context amplifying the benefits of higher L2 competence.

Table 5 synthesizes the qualitative findings from the think-aloud interviews by linking each major theme to representative behavioral codes, illustrative quotations, and its interpretive significance. Together, these patterns illuminate the cognitive, linguistic, and contextual dimensions of learners’ pragmatic reasoning during digital communication tasks.

Table 5. Summary of Major Themes from Qualitative Think-Aloud Interviews
This table synthesizes the major qualitative themes, representative behavioral codes, sample quotations, and their interpretive significance.

Theme	Codes (Participant Behaviors & Perceptions)	Illustrative Quotes	Significance & Implications
1. Navigating Politeness and Face-Work	• Strategic use of excuses • Lexical and interactional mitigation • Sensitivity to power dynamics	"I'll blame the professor. It's the safest way." "I feel bad just saying no. I'll add, 'But if you want, we can meet up...'" "This is a public refusal... My reputation is on the line."	This theme was **central** to learners' reasoning, demonstrating high metapragmatic awareness. It shows that learners actively manage social risk, especially in hierarchical academic relationships, rather than simply applying linguistic rules.
2. Pragmatic Transfer and Cross-Cultural Awareness	• Explicit L1–L2 comparisons • Norm-related anxiety • Adoption of local formulas	"If I were texting in English, I'd just say, 'Sorry man, group's full.' But in Arabic, I feel I need to be more… roundabout." "It's like everyone else has a secret rulebook for politeness..." "I learn... by watching how my Saudi friends text and email."	This theme was **foundational** to understanding learners' starting points. It reveals that L1 transfer is not a passive process but an active, conscious negotiation where learners identify cross-cultural differences and attempt to adapt to L2 norms.
3. The Mediating Role of the Communication Medium	• Formality distinction (email vs. WhatsApp) • Attention to structure in formal contexts • Strategic channel choice for privacy	"WhatsApp is for fast communication; email is for serious things." "Because this is an email, the sentences must be complete..." "I won't reply in the group... I'll send him a direct message instead."	This was a **pervasive** theme, highlighting that the digital medium is not a neutral backdrop but a powerful variable shaping pragmatic choices. Learners strategically alter their language to fit the perceived formality and social function of each platform.

Note. The significance of each theme was determined by its prevalence across participant interviews and its explanatory power in accounting for learners' pragmatic decision-making.

The analysis summarized in Table 5 points to the layered reasoning involved in learners' pragmatic decision-making. The dominant theme, Navigating Politeness and Face-Work, reflects participants' sensitivity to social risk, especially in asymmetrical interactions with professors. The prominence of this theme is also consistent with the lexical profile of the think-aloud corpus, where terms linked to politeness, interpersonal risk, and interlocutor status recur most strongly.

Pragmatic Transfer remained foundational to many learners' first intuitions, but the language of the protocols suggests that immediate task attention was directed more strongly toward face management and medium-specific constraints. In this sense, the frequency data serve as a supplementary indicator of

lexical emphasis rather than as a standalone measure of thematic importance. Figure 2 visualizes the most salient lexical items in the think-aloud dataset.

Within the word cloud, high-frequency items such as personal, positive, professor, feel, polite, refusal, and respectful point to learners' heightened concern with face and relational management. Other terms, including change, think, language, transfer, and know, reflect active comparison between L1 and L2 pragmatic systems. Words such as message, write, email, WhatsApp, subject, and line highlight the extent to which technological medium itself structured learners' pragmatic reasoning.

4.6 Integrated Summary of Results

Taken together, the quantitative and qualitative strands portray L2 Arabic pragmatic development as an adaptive and context-sensitive process. Learners increasingly regulate their language in relation to formality, interlocutor power, and medium, yet L1 pragmatic schemas continue to shape initial responses, especially in requests. Email appears to facilitate reflection and planning, whereas WhatsApp places greater pressure on spontaneous pragmatic control. These converging findings therefore underscore the multi-layered nature of interlanguage pragmatic competence (see Table 6).

Table 6. Joint Display: Integration of Quantitative and Qualitative Findings
This joint display integrates the statistical results with the qualitative explanations to show how both strands converge in answering the study questions.

Research Question / Hypothesis	Quantitative Finding (What)	Qualitative Finding (Why)	Integrated Conclusion (Synthesis)
RQ1 & H1 (Strategies and Speech Acts)	Refusals were significantly more indirect than requests ($p < .001$), and requests employed extensive mitigation.	Participants described refusals as face-threatening acts requiring elaborate explanations, while requests were seen as permissible but in need of polite softeners.	Learners' strong preference for indirect refusals stems from explicit metapragmatic awareness of the social risks involved, particularly in hierarchical academic contexts.
RQ2 & H2 (Cultural / Pragmatic Transfer)	Significant group differences appeared in request indirectness ($p = .010$), with some groups using more direct request forms.	Learners reported initially composing requests using L1 conventions before consciously softening or elaborating in Arabic.	Pragmatic transfer manifests as an L1-driven default directness that learners gradually recalibrate through self-awareness and adaptation to Arabic norms.
RQ3 & H3 (Medium and Proficiency Effects)	The medium influenced both receptive and productive alignment (Email > WhatsApp), with a significant proficiency × medium interaction ($F(3,57)=3.40$, $p=.024$).	Participants viewed email as formal and hierarchical, demanding precision, while WhatsApp was seen as informal but still socially sensitive.	The communication medium acts as a contextual frame guiding pragmatic orientation: formal media promote target-like elaboration, whereas informal media reveal learners' reliance on spontaneous, speech-like strategies.

Discussion

This study examined how learners of Arabic judged and managed digital face-work when performing requests and refusals in academic computer-mediated communication. The mixed-methods results show that performance is shaped by a dynamic interaction among speech-act type, L1 transfer, proficiency, and communication medium. Rather than reflecting a single developmental line, learners' performances reveal ongoing negotiation between linguistic resources, sociocultural expectations, and the affordances of the task environment. For language assessment, the findings indicate that digitally situated pragmatic ability can be meaningfully differentiated when the task is sensitive to medium, power relations, and speech-act demands.

The results first confirmed a clear differentiation in learners' strategies across speech acts, strongly supporting H1. The finding that participants were significantly more indirect when performing refusals than requests aligns with politeness theory (Brown & Levinson, 1987), which posits that dispreferred acts carry greater face threat. This quantitative pattern was corroborated by the qualitative data, where learners described refusals directed at professors as high-risk acts requiring careful mitigation to maintain social harmony, a norm well documented in Arabic pragmatics (Morkus, 2009). Requests, while less threatening, were not performed without care; learners employed a hybrid strategy of direct head acts softened by mitigation, balancing communicative clarity with politeness. From an assessment

perspective, this contrast suggests that speech-act type should be treated as a substantive source of variation in pragmatic task design rather than as incidental contextual detail.

The role of L1 transfer and L2 proficiency emerged as significant yet complex, particularly when comparing the two speech acts. For requests, the analysis supported H2 by revealing independent main effects for both culture and proficiency. The finding that learners from South Asia used significantly more indirectness than those from Europe/Australia confirms that L1 pragmatic norms serve as an initial template for L2 production (Kasper & Blum-Kulka, 1993). Concurrently, the developmental trend showing that beginners were more indirect than advanced learners suggests a move toward greater pragmatic efficiency and calibrated directness as L2 competence increases. This pattern indicates that request performance follows a relatively interpretable developmental path, which is encouraging for assessment because it suggests that judgments of appropriateness can discriminate among proficiency levels when scenarios are contextualized appropriately.

In contrast, refusal performance was less predictable. The absence of main effects for culture or proficiency, coupled with a significant interaction effect, points to a more intricate developmental process. Rather than showing uniform progression, refusal behavior appears to be shaped by culture-specific trajectories of adjustment. The non-linear trajectory of the South Asia group illustrates this complexity: learners from cultures with elaborate refusal norms may initially over-apply these strategies in the L2 before recalibrating toward target-like forms as sociopragmatic awareness grows. For assessment, this finding cautions against treating pragmatic competence as a simple linear scale. High-stakes facework may require task sampling across multiple situations and media so that performance is not overinterpreted from a single task type.

The study also underscored the powerful mediating role of communication medium. The results confirmed H3, showing that learners' alignment with Saudi sociopragmatic norms was significantly higher in email than in WhatsApp. More importantly, the interaction between proficiency and medium revealed that the benefits of higher L2 proficiency were most pronounced in the formal, asynchronous context of email. The qualitative data reinforced this pattern, as learners explicitly distinguished between email as an official, planned channel and WhatsApp as a faster, more speech-like medium. This medium sensitivity matters directly for language assessment: pragmatic ability in digital environments cannot be assumed to transfer automatically across platforms, and technology-mediated assessment tasks should therefore specify channel, audience, and degree of formality rather than collapsing them into a generic prompt.

Overall, the findings extend interlanguage pragmatics by demonstrating the importance of interaction effects, medium sensitivity, and non-linear development in high-stakes communicative acts. They also contribute to language assessment by showing that a judgment task such as the PAJT, especially when interpreted alongside verbal-report evidence, can capture theoretically meaningful variation in digital pragmatic competence. Pedagogically, the results suggest that instruction and assessment should

move beyond generic politeness formulas and instead cultivate metapragmatic awareness of how speech act, cultural background, proficiency, and digital medium intersect in actual communication.

Limitations and Future Research

Several limitations should be noted. The study was conducted within a single Saudi institutional context, and the resulting patterns may not generalize fully to other Arabic-speaking regions or academic environments. In addition, although scenario-based tasks and think-aloud protocols elicited rich and comparable data, they cannot capture all of the pressures and contingencies of naturally occurring interaction. The PAJT was used here as a context-sensitive assessment task rather than as a fully validated stand-alone test, so broader claims about operational assessment use should be made cautiously.

Future research could address these limitations through longitudinal designs, corpus-based analyses of naturally occurring learner communication, and comparative studies across Arabic-speaking settings. Further work is also needed on pragmatic assessment in Arabic, including task refinement, broader validation evidence, and investigations of how digitally mediated pragmatic ability relates to wider measures of language proficiency and academic performance.

Conclusions and Implications

The study shows that effective digital communication in L2 Arabic requires learners to balance linguistic accuracy, cultural sensitivity, and the affordances of particular platforms. In performing requests and refusals, learners are not simply exchanging information; they are engaging in digital face-work that shapes their academic relationships and social identities. Their development appears to involve the gradual recalibration of L1 pragmatic routines toward Saudi academic norms under the combined influence of proficiency and medium.

For the field of language assessment, the findings highlight the value of incorporating digitally situated pragmatic tasks into Arabic language programs, especially where students routinely interact with instructors through email and messaging applications. Arabic as a second language curricula and assessment practices should therefore move beyond a narrow emphasis on grammar alone and include explicit attention to digital pragmatics. This entails:

- Raising metapragmatic awareness of how L1 and L2 pragmatic conventions differ, particularly in high-stakes academic communication.
- Teaching medium-specific registers, highlighting the differing norms and expectations of formal email versus informal messaging platforms.
- Providing formulaic repertoires of culturally appropriate expressions for politeness, mitigation, and refusal, enabling learners to communicate effectively and confidently in digital academic contexts.

Embedding these elements within instruction and assessment would better prepare learners for the nuanced demands of online intercultural communication and would support more valid interpretations of what learners can actually do in contemporary academic settings.

Abbreviations

CMC: computer-mediated communication; IRB: Institutional Review Board; L2: second language; PAJT: Pragmatic Appropriateness Judgment Task.

Declarations

Ethics approval and consent to participate

The study was approved by the University of Ha'il Institutional Review Board (IRB), University of Ha'il, Saudi Arabia. All procedures involving human participants were conducted in accordance with the ethical standards of the University of Ha'il Institutional Review Board and with the Declaration of Helsinki and its later amendments. Written informed consent to participate was obtained from all participants before data collection.

Consent for publication

Not applicable.

Funding

This study was supported by an internal university research grant (project RG-25 038). The funder had no role in the design of the study; the collection, analysis, or interpretation of data; the writing of the manuscript; or the decision to submit the article for publication.

Author Contribution

B.S.A. conceived the research idea and devised the research design. K.N.A. wrote the first draft of the manuscript. W.A. conducted the statistical analysis and prepared the visual materials. M.O.A. carried out the investigation. All authors contributed to reviewing, revising, and finalizing the manuscript.

Acknowledgement

The authors gratefully acknowledge the support of the Deanship of Scientific Research and the Humanities Research Center at the University of Hail for funding this study through an internal university research grant (Project No. RG-25 038). The funder had no role in the design of the study; the collection, analysis, or interpretation of data; the writing of the manuscript; or the decision to submit the article for publication.

Data Availability

The datasets generated and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Figures

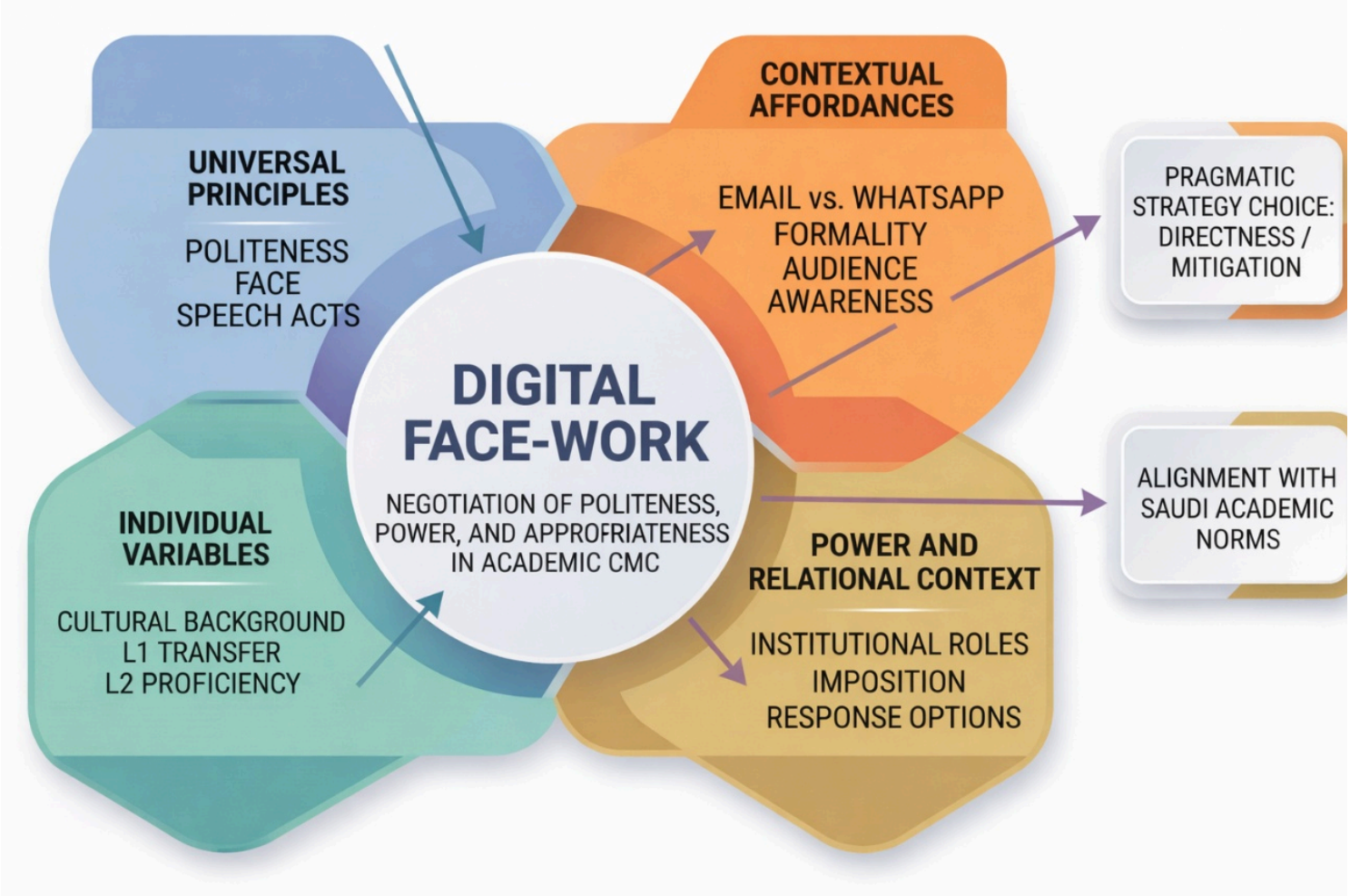


Figure 1

The Digital Face-Work Framework

The framework illustrates how universal principles of politeness, individual learner variables, and contextual affordances converge to shape digital face-work. Through this central negotiation, learners select strategies that vary in directness, mitigation, and alignment with target sociopragmatic norms.



Figure 2

Word Cloud of Key Concepts from Think-Aloud Protocols
The word cloud visualizes the most frequent lexical items in the think-aloud dataset and highlights learners' recurrent attention to politeness, face management, interlocutor status, and medium-specific concerns during digital message composition.