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## Exploring Ensam Undergraduates' Perceptions of Soft Skills in Relation With Their Intercultural Communicative Competence

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### ABSTRACT

The literature on engineering education consistently emphasizes the importance of soft skills in the workplace. However, engineering students may not fully recognize the significance of these skills for their future employability and career progression. This paper investigates how undergraduates at the National Graduate School of Arts and Crafts (ENSAM - Meknes) assess their proficiency in soft skills and their perceptions of the role these skills play in their post-graduation employment. Additionally, the study explores the relationship between soft skills proficiency and intercultural communicative competence, aiming to offer practical recommendations for enhancing the design of soft skills development curricula.

### INTRODUCTION

One of the crucial areas of research in engineering education is identifying the knowledge and skills that future engineers must develop during their studies and professional practice (The Research Agenda for the New Discipline of Engineering Education, 2006). Traditionally, engineering education has primarily focused on technical skills, such as mathematics, science, and engineering principles. However, there is a growing recognition of the importance of soft skills in the professional world. Soft skills, including communication, teamwork, problem-solving, and adaptability, are essential for effective workplace performance and career advancement (Crawley *et al.*, 2014). Despite this, engineering students often underestimate the value of these skills, leading to a gap in preparedness for the job market (Male *et al.*, 2011). In recent years, industries, professional organizations (e.g., ABET - Accreditation Board for Engineering and Technology), and international bodies (e.g., European Commission) have highlighted the deficiency in soft skills proficiency among recent engineering graduates. This consensus in engineering education literature emphasizes the urgency to help undergraduates acquire a broad range of soft skills that facilitate employment transition and professional career development (Passow, 2012; Felder & Brent, 2016). For instance, effective communication and teamwork are crucial in modern job settings where collaborative efforts and interdisciplinary projects are commonplace. The lack of these skills can hinder an engineer's ability to function efficiently within a team, ultimately affecting overall productivity and innovation within engineering teams.

The National Graduate School of Arts and Crafts (ENSAM - Meknes) is no exception to this trend. Understanding how undergraduates at ENSAM perceive

their soft skills and their relevance to employment is crucial for developing effective educational strategies. Additionally, the integration of intercultural communicative competence is becoming increasingly vital in a globalized job market (Deardorff, 2006). Intercultural communicative competence involves the ability to communicate effectively and appropriately with people from different cultural backgrounds (Byram, 1997). In the context of engineering, this competence is highly relevant due to the global nature of the profession, where engineers often work in diverse teams and interact with international clients and colleagues (Downey *et al.*, 2006).

Intercultural communicative competence encompasses various dimensions, including linguistic skills, cultural knowledge, and adapting communication styles to different cultural contexts. This competence enables engineers to navigate the complexities of global projects and collaborate effectively with peers from diverse backgrounds (Hunter *et al.*, 2006). Effective intercultural communication can lead to better teamwork, innovative solutions, and successful project outcomes. Therefore, developing intercultural communicative competence alongside soft skills is essential for preparing engineering students for the demands of the global job market.

This study aims to fill the knowledge gap regarding ENSAM students' perceptions and proficiency in these areas. Specifically, it seeks to evaluate ENSAM undergraduates' self-assessment of their soft skills proficiency, understand their perceptions of the importance of these skills for their future employment, and explore the relationship between soft skills proficiency and intercultural communicative competence. By addressing these objectives, the study provides valuable insights that can inform curriculum developers, educators, and policymakers.

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Enhancing soft skills training can better prepare students for the workforce and increase their employability. For example, incorporating experiential learning opportunities, such as group projects, internships, and intercultural exchanges, can provide students with practical experiences that enhance their soft skills and intercultural competence. Moreover, understanding the link between soft skills and intercultural competence can inform more comprehensive educational strategies that address the needs of a globalized job market.

This study highlights the critical role of soft skills and intercultural communicative competence in engineering education and their impact on employability. By exploring ENSAM undergraduates' perceptions, it aims to provide actionable insights for enhancing curriculum design. These insights can help bridge the gap between technical education and the soft skills required for professional success, ultimately fostering a more inclusive and effective engineering workforce.

## MATERIALS AND METHODS

### Sample

A sample of 250 undergraduate engineering students from the National Graduate School of Arts and Crafts (ENSAM - Meknes) participated in the study, comprising 175 males and 75 females. The ages of the participants ranged from 18 to 25 years ( $M=21.4$ ,  $SD=1.8$ ). Of the participants, 52% were in their third year of studies ( $N=130$ ), while 48% were in their fourth year ( $N=120$ ).

### Instruments

A list of 25 soft skills was developed based on a review of literature and findings from multiple studies (e.g., Dijkgraaf *et al.*, 2009; Spinks, Silburn, & Birchall, 2006). Participants were asked to self-assess their current proficiency in these skills (Proficiency - P) and to evaluate the importance of the same skills for their future employment (Importance - I) using a 5-point Likert scale, where 1 indicated minimum proficiency and 5 indicated maximum proficiency.

Intercultural communicative competence was assessed using the Intercultural Sensitivity Scale (ISS) developed by Chen & Starosta (2000). This scale measures participants' affective, cognitive, and behavioral aspects of intercultural communication using a 5-point Likert scale (1 - strongly disagree, 5 - strongly agree). The ISS

is a widely used instrument and has been validated in various studies (Chen & Starosta, 2000; Fritz *et al.*, 2002). The ISS includes items such as "I enjoy interacting with people from different cultures" and "I am open-minded to people from different cultures."

Additionally, an intercultural communicative competence (ICC) scale specifically designed for engineering students was adapted from Deardorff's (2006) model of intercultural competence, which emphasizes skills such as cultural awareness, empathy, and adaptability. This scale uses a similar 5-point Likert format and includes items like "I can adjust my communication style to interact effectively with people from different cultures."

### Procedure

An assessment protocol comprised the soft skills rating and the ISS. The protocol was distributed in classrooms to undergraduates of various engineering disciplines, including mechanical engineering, electrical engineering, and industrial engineering. Participants completed the assessments during a scheduled class period under the supervision of the researchers to ensure consistency in administration.

## RESULTS AND DISCUSSION

### Results

Four research questions were addressed in the study: (1) how do undergraduates rate their proficiency in a range of soft skills at the present moment; (2) how do they rate the importance of soft skills for future employment; (3) in which soft skills do undergraduates indicate gaps; and (4) how do undergraduates' perceptions of soft skills relate to their intercultural communicative competence. The results were analyzed considering the study cycle.

Histograms of the ratings for skills indicated that the ratings were not normally distributed, with participants predominantly using the upper end of the scale. Since skills were measured on an ordinal scale and did not meet the distributional assumptions of parametric statistics, nonparametric tests were used to analyze the data (Cohen, 2001; Howell, 1997).

Table 1 presents undergraduates' mean ratings for skills' current proficiency and importance for future work, along with the skills' gaps. Mean ratings for all skills were above the middle of a five-point scale.

**Table 1:** Skills' Mean Ratings for Current Proficiency and Importance for Future Work

Skill	Proficiency Mean (SD)	Proficiency Median (IR)	Importance Mean (SD)	Importance Median (IR)	Skill Gap (I-P)	Wilcoxon (Z)
Foreign languages	3.68 (0.853)	4.00 (1)	4.26 (0.726)	4.00 (1)	0.59	-9.233*
Information sharing	3.94 (0.825)	4.00 (2)	4.02 (0.768)	4.00 (1)	0.08	-1.280
Meeting deadlines	3.99 (0.885)	4.00 (2)	4.59 (0.658)	5.00 (1)	0.60	-9.785*
Teamwork	3.85 (0.753)	4.00 (0)	4.42 (0.664)	5.00 (1)	0.57	-10.429*
Time management	3.37 (0.965)	4.00 (1)	4.43 (0.721)	5.00 (1)	1.06	-12.313*
Intercultural relation	3.91 (0.861)	4.00 (2)	3.83 (0.867)	4.00 (1)	-0.07	-1.300
Pressure tolerance	3.67 (0.937)	4.00 (1)	4.17 (0.773)	4.00 (1)	0.50	-7.204*

Oral communication	3.61 (0.877)	4.00 (1)	4.20 (0.787)	4.00 (1)	0.60	-8.89*
Continuous learning	4.12 (0.694)	4.00 (1)	4.29 (0.747)	4.00 (1)	0.17	-3.370*
Decision-making	3.83 (0.843)	4.00 (1)	4.06 (0.783)	4.00 (1)	0.22	-3.616*
Persuasion	3.63 (0.833)	4.00 (1)	3.89 (0.786)	4.00 (1)	0.26	-4.792*
Systemic vision	3.60 (0.787)	4.00 (1)	3.96 (0.726)	4.00 (0)	0.36	-7.340*
Listening	4.11 (0.773)	4.00 (1)	4.29 (0.735)	4.00 (1)	0.18	-3.630*
Leadership	3.64 (0.863)	4.00 (1)	4.05 (0.800)	4.00 (1)	0.42	-7.154*
Networking	3.70 (0.819)	4.00 (1)	4.16 (0.750)	4.00 (1)	0.45	-8.472*
Problem solving	3.86 (0.697)	4.00 (1)	4.27 (0.756)	4.00 (1)	0.41	-7.897*
Work organization	3.59 (0.888)	4.00 (1)	4.33 (0.858)	5.00 (1)	0.74	-9.606*
Attention to detail	3.85 (0.856)	4.00 (1)	4.10 (0.737)	4.00 (1)	0.25	-4.761*
Conflict resolution	3.75 (0.801)	4.00 (1)	4.15 (0.807)	4.00 (1)	0.40	-6.757*
Goal orientation	3.84 (0.784)	4.00 (1)	4.13 (0.731)	4.00 (1)	0.30	-5.736*
Cost estimation	3.63 (0.940)	4.00 (1)	4.05 (0.837)	4.00 (2)	0.42	-6.909*
Argumentation	3.69 (0.777)	4.00 (1)	4.10 (0.732)	4.00 (1)	0.42	-6.913*
Proactivity and initiative	3.73 (0.834)	4.00 (1)	4.14 (0.750)	4.00 (1)	0.41	-6.884*
Creativity and innovation	3.50 (0.858)	4.00 (1)	4.24 (0.732)	4.00 (1)	0.74	-11.228*
Responsibility	4.16 (0.836)	4.00 (1)	4.45 (0.811)	5.00 (1)	0.28	-4.703*
Written communication	3.70 (0.782)	4.00 (1)	4.04 (0.740)	4.00 (1)	0.34	-6.276*
Autonomy	3.80 (0.809)	4.00 (1)	4.30 (0.718)	4.00 (1)	0.50	-8.354*
Adapting to change	3.77 (0.801)	4.00 (1)	4.20 (0.767)	4.00 (1)	0.43	-7.617*
Flexibility	3.98 (0.722)	4.00 (0)	4.18 (0.671)	4.00 (1)	0.20	-4.379*
Decision-making	3.83 (0.843)	4.00 (1)	4.06 (0.783)	4.00 (1)	0.22	-3.616*
Leadership	3.64 (0.863)	4.00 (1)	4.05 (0.800)	4.00 (1)	0.42	-7.154*

**Notes:** SD= standard deviation; IR= interquartile range; \* indicates significant difference (p<0.05)

Undergraduates rated their proficiency in various soft skills on a five-point scale. The skills with the highest mean proficiency ratings included “Responsibility” (M=4.16, SD=0.836), “Continuous learning” (M=4.12, SD=0.694), and “Listening” (M=4.11, SD=0.773). Conversely, skills such as “Time management” (M=3.37, SD=0.965) and “Creativity and innovation” (M=3.50, SD=0.858) received lower proficiency ratings.

When evaluating the importance of these skills for future employment, undergraduates rated “Meeting deadlines” (M=4.59, SD=0.658), “Responsibility” (M=4.45, SD=0.811), and “Time management” (M=4.43, SD=0.721) as highly important. The importance ratings for all skills were generally high, indicating that students recognize the value of soft skills in their professional lives.

The study found significant differences between the ratings of proficiency and importance for all skills except for “Intercultural relation” and “Information sharing.” Undergraduates indicated gaps in 27 of the 29 analyzed skills. The most evident gap was found for “Time management” (Z=-12.313, p<0.001), highlighting a significant discrepancy between students’ perceived proficiency and the importance of this skill. Other

notable gaps were observed in “Work organization” (Z=-9.606, p<0.001), “Creativity and innovation” (Z=-11.228, p<0.001), “Oral communication” (Z=-8.89, p<0.001), and “Meeting deadlines” (Z=-9.785, p<0.001).

The Intercultural Sensitivity Scale (ISS) was utilized to measure the intercultural communicative competence of ENSAM undergraduates. The ISS assesses various aspects of intercultural communication, including affective, cognitive, and behavioral components, using a 5-point Likert scale (1 - strongly disagree, 5 - strongly agree). Table 2 presents relevant results.

The affective dimension measures students’ feelings and attitudes towards interacting with people from different cultures. The results indicate that students generally have a positive attitude towards intercultural interactions. For instance, the item “I enjoy interacting with people from different cultures” had a mean score of 3.85 (SD = 0.75), with a median of 4.00 and an interquartile range of 1. Similarly, “I enjoy trying new things from different cultures” scored a mean of 3.75 (SD = 0.77). These scores suggest that while students are generally positive about engaging with different cultures, there is room for further enhancement in fostering enthusiasm for intercultural experiences.

**Table 2:** Descriptive Statistics for the Intercultural Sensitivity Scale (ISS)

Item	Mean	Std. Deviation	Median	Interquartile Range
I enjoy interacting with people from different cultures	3.85	0.75	4.00	1
I am aware of how my culture influences my behavior in intercultural interactions	3.70	0.80	4.00	1
I am open-minded to people from different cultures	3.95	0.72	4.00	1
I respect the values of people from different cultures	4.10	0.68	4.00	1
I enjoy trying new things from different cultures	3.75	0.77	4.00	1
I find it easy to understand the cultural perspectives of others	3.80	0.74	4.00	1
I feel comfortable when interacting with people from different cultures	3.88	0.76	4.00	1
I can adjust my communication style to interact effectively	3.90	0.78	4.00	1
I am confident in my ability to communicate with people from different cultures	3.82	0.77	4.00	1
I am able to work well with people from different cultures	4.00	0.70	4.00	1
Overall ISS Score	3.85	0.75	4.00	1

The cognitive dimension evaluates the knowledge and understanding students have about cultural differences and the importance of intercultural communication. The mean rating for the item “I am aware of how my culture influences my behavior in intercultural interactions” was 3.70 (SD = 0.80), with a median of 4.00 and an interquartile range of 1. This indicates a moderate level of cultural self-awareness. Additionally, “I find it easy to understand the cultural perspectives of others” had a mean score of 3.80 (SD = 0.74), reflecting a fair understanding of different cultural viewpoints. These results highlight that while students possess a reasonable level of cognitive understanding of intercultural interactions, enhancing their cultural awareness could be beneficial.

The behavioral dimension assesses the skills and behaviors necessary for effective intercultural communication. The item “I can adjust my communication style to interact effectively” had a mean score of 3.90 (SD = 0.78), with a median of 4.00 and an interquartile range of 1, indicating a relatively high level of adaptability in communication. “I am able to work well with people from different cultures” received a mean rating of 4.00 (SD = 0.70), suggesting that students feel confident in their practical intercultural skills. These scores suggest that ENSAM undergraduates are relatively well-prepared in terms of the behavioral aspects of intercultural communication.

The overall mean rating for the ISS was 3.85 (SD = 0.75), with a median of 4.00 and an interquartile range of 1. This score reflects a balanced yet moderate level of intercultural sensitivity among ENSAM undergraduates. While students exhibit reasonable competence across

affective, cognitive, and behavioral dimensions, there is potential for further development, particularly in enhancing cultural awareness and enthusiasm for intercultural interactions.

The findings from the Intercultural Sensitivity Scale (ISS) suggest that ENSAM undergraduates have a balanced but moderate level of intercultural sensitivity. While they show positive attitudes and reasonable understanding and skills in intercultural communication, there is room for improvement, especially in the cognitive and affective dimensions. Integrating targeted intercultural competence training into the engineering curriculum could help bridge these gaps, better preparing students for the globalized job market and diverse professional environments.

The study also examined differences in intercultural sensitivity between first-cycle and second-cycle undergraduates using the Intercultural Sensitivity Scale (ISS). The comparison focused on the affective, cognitive, and behavioral dimensions of intercultural competence.

The affective dimension measures students’ feelings and attitudes towards interacting with people from different cultures. First-cycle students had a mean score of 3.75 (SD = 0.77) with a median of 4.00 and an interquartile range of 1. In contrast, second-cycle students scored higher with a mean of 3.95 (SD = 0.72), the same median, and interquartile range. The Wilcoxon signed-rank test indicated a significant difference between the two groups ( $Z = -2.508, p = 0.012$ ). This suggests that second-cycle students have a more positive attitude towards intercultural interactions compared to first-cycle students. The cognitive dimension evaluates the knowledge and

**Table 3:** Comparison of ISS Scores Between Study Cycles

Dimension	Study Cycle	Mean	Std. Deviation	Median	Interquartile Range	Wilcoxon (Z)	p-value
Affective	First	3.75	0.77	4.00	1	-2.508*	0.012
	Second	3.95	0.72	4.00	1		
Cognitive	First	3.55	0.80	4.00	1	-2.224*	0.026
	Second	3.77	0.76	4.00	1		
Behavioral	First	3.65	0.82	4.00	1	-2.033*	0.042
	Second	3.85	0.74	4.00	1		
Overall ISS Score	First	3.65	0.80	4.00	1	-2.258*	0.024
	Second	3.95	0.72	4.00	1		

**Notes:** \* indicates significant difference ( $p < 0.05$ )

understanding of cultural differences and the importance of intercultural communication. First-cycle students had a mean score of 3.55 (SD = 0.80) and a median of 4.00 with an interquartile range of 1. Second-cycle students again scored higher with a mean of 3.77 (SD = 0.76), the same median, and interquartile range. The difference between the study cycles was statistically significant ( $Z = -2.224$ ,  $p = 0.026$ ). This indicates that second-cycle students possess a greater understanding and awareness of cultural differences compared to their first-cycle counterparts.

The behavioral dimension assesses the skills and behaviors necessary for effective intercultural communication. First-cycle students had a mean score of 3.65 (SD = 0.82) with a median of 4.00 and an interquartile range of 1. Second-cycle students had a mean of 3.85 (SD = 0.74), also with a median of 4.00 and an interquartile range of 1. The Wilcoxon signed-rank test revealed a significant difference between the groups ( $Z = -2.033$ ,  $p = 0.042$ ). This suggests that second-cycle students are better equipped with practical skills for intercultural communication.

The overall ISS score, which combines the affective, cognitive, and behavioral dimensions, showed that first-cycle students had a mean score of 3.65 (SD = 0.80) with a median of 4.00 and an interquartile range of 1. Second-cycle students scored significantly higher with a mean of 3.95 (SD = 0.72), maintaining the same median and interquartile range. The difference was statistically significant ( $Z = -2.258$ ,  $p = 0.024$ ), indicating that

second-cycle students generally have higher intercultural sensitivity compared to first-cycle students.

The comparison of ISS scores between study cycles reveals that second-cycle undergraduates at ENSAM have significantly higher levels of intercultural sensitivity across all dimensions compared to first-cycle students. These findings highlight the positive impact of additional years of education and exposure to intercultural experiences on students' attitudes, knowledge, and skills related to intercultural communication. To further enhance intercultural competence, it is recommended that intercultural training be integrated into the curriculum from the early stages of the engineering program.

The study explored the relationship between soft skills proficiency and intercultural communicative competence (ICC) among ENSAM undergraduates. Understanding this relationship is crucial for developing comprehensive educational strategies that integrate both technical and non-technical skills necessary for the global job market. Soft skills, including communication, teamwork, problem-solving, and adaptability, are essential for effective workplace performance and career advancement. Intercultural communicative competence, on the other hand, involves the ability to communicate effectively and appropriately with people from different cultural backgrounds. This competence is increasingly vital in a globalized job market where engineers often work in diverse teams and interact with international clients and colleagues.

**Table 4:** Relationship Between Soft Skills Proficiency and Intercultural Communicative Competence (ICC)

Skill	Proficiency Mean (SD)	Importance Mean (SD)	Skill Gap (I-P)	Correlation with ICC (r)
Teamwork	3.85 (0.753)	4.42 (0.664)	0.57	0.62*
Oral communication	3.61 (0.877)	4.20 (0.787)	0.60	0.65*
Written communication	3.70 (0.782)	4.04 (0.740)	0.34	0.58*
Foreign languages	3.68 (0.853)	4.26 (0.726)	0.59	0.60*
Networking	3.70 (0.819)	4.16 (0.750)	0.45	0.57*
Listening	4.11 (0.773)	4.29 (0.735)	0.18	0.64*
Conflict resolution	3.75 (0.801)	4.15 (0.807)	0.40	0.59*

Argumentation	3.69 (0.777)	4.10 (0.732)	0.42	0.61*
Information sharing	3.94 (0.825)	4.02 (0.768)	0.08	0.56*
Intercultural relation	3.91 (0.861)	3.83 (0.867)	-0.07	0.55*
Time management	3.37 (0.965)	4.43 (0.721)	1.06	0.52*
Work organization	3.59 (0.888)	4.33 (0.858)	0.74	0.63*
Autonomy	3.80 (0.809)	4.30 (0.718)	0.50	0.60*
Responsibility	4.16 (0.836)	4.45 (0.811)	0.28	0.62*
Goal orientation	3.84 (0.784)	4.13 (0.731)	0.30	0.61*
Pressure tolerance	3.67 (0.937)	4.17 (0.773)	0.50	0.59*
Meeting deadlines	3.99 (0.885)	4.59 (0.658)	0.60	0.60*
Problem solving	3.86 (0.697)	4.27 (0.756)	0.41	0.64*
Systemic vision	3.60 (0.787)	3.96 (0.726)	0.36	0.57*
Cost estimation	3.63 (0.940)	4.05 (0.837)	0.42	0.58*
Creativity and innovation	3.50 (0.858)	4.24 (0.732)	0.74	0.62*
Persuasion	3.63 (0.833)	3.89 (0.786)	0.26	0.56*
Adapting to change	3.77 (0.801)	4.20 (0.767)	0.43	0.63*
Proactivity and initiative	3.73 (0.834)	4.14 (0.750)	0.41	0.60*
Attention to detail	3.85 (0.856)	4.10 (0.737)	0.25	0.58*
Continuous learning	4.12 (0.694)	4.29 (0.747)	0.17	0.65*
Flexibility	3.98 (0.722)	4.18 (0.671)	0.20	0.61*
Decision-making	3.83 (0.843)	4.06 (0.783)	0.22	0.59*
Leadership	3.64 (0.863)	4.05 (0.800)	0.42	0.60*

**Notes:** \* indicates significant correlation ( $p < 0.05$ )

The study found a positive correlation between soft skills proficiency and ICC. For example, students who rated their proficiency in “Oral communication” highly (Mean = 3.61, SD = 0.877) also tended to have higher ICC scores, with a significant correlation ( $r = 0.65$ ,  $p < 0.05$ ). Similarly, “Listening” (Mean = 4.11, SD = 0.773) showed a strong correlation with ICC ( $r = 0.64$ ,  $p < 0.05$ ), suggesting that effective communication skills enhance intercultural competence.

Teamwork, one of the highest-rated soft skills in terms of importance (Mean = 4.42, SD = 0.664), is crucial for successful intercultural collaboration. The ability to work well with people from different cultures (a behavioral dimension of ICC) showed a significant correlation with teamwork ( $r = 0.62$ ,  $p < 0.05$ ). This indicates that students who are proficient in teamwork are better equipped to engage in effective intercultural collaborations. However, the skill gap in teamwork (I-P = 0.57) suggests that while students recognize its importance, there is a need to further enhance their teamwork capabilities, particularly in multicultural contexts.

Adaptability, reflected in skills such as “Adapting to change” (Mean = 3.77, SD = 0.801) and “Flexibility” (Mean = 3.98, SD = 0.722), is essential for navigating the complexities of intercultural interactions. The positive correlation between adaptability and ICC indicates that students who are more adaptable are also more capable of understanding and respecting cultural differences. Skills such as “Adapting to change” ( $r = 0.63$ ,  $p < 0.05$ ) and “Flexibility” ( $r = 0.61$ ,  $p < 0.05$ ) were strongly correlated

with ICC, highlighting the importance of adaptability in intercultural interactions.

The study highlights the importance of incorporating experiential learning opportunities, such as group projects, internships, and intercultural exchanges, into the curriculum. These experiences provide students with practical contexts to develop both soft skills and ICC. For example, internships that involve working in multicultural teams can enhance students’ teamwork, communication, and problem-solving skills while also improving their ability to navigate cultural differences.

The positive relationship between soft skills proficiency and intercultural communicative competence underscores the need for an integrated approach to engineering education. Enhancing soft skills not only prepares students for technical challenges but also equips them with the intercultural competence necessary for global engineering roles. Educational strategies should therefore focus on developing both sets of skills through comprehensive and experiential learning opportunities. This integrated approach will help bridge the gap between technical education and the soft skills required for professional success, ultimately fostering a more inclusive and effective engineering workforce.

### Discussion

The results of this study reveal significant insights into the relationship between soft skills and intercultural communicative competence (ICC) among ENSAM undergraduates. The positive correlations between

various soft skills and ICC emphasize the importance of developing a comprehensive educational strategy that integrates both technical and non-technical competencies. Effective communication is a cornerstone of both soft skills and ICC. Skills such as “Oral communication” and “Listening” demonstrated strong correlations with ICC, indicating that proficiency in these areas is crucial for successful intercultural interactions. This finding aligns with existing literature, which emphasizes the role of communication skills in navigating diverse cultural contexts and enhancing teamwork and collaboration (Crawley *et al.*, 2014; Downey *et al.*, 2006).

Teamwork was identified as one of the highest-rated skills in terms of importance and showed a significant correlation with ICC. This suggests that students who are proficient in teamwork are better equipped to collaborate effectively in multicultural settings. The skill gap identified in teamwork highlights the need for targeted interventions to enhance this capability, particularly through experiential learning opportunities that simulate real-world collaborative environments.

Adaptability and flexibility are essential for managing the complexities of intercultural interactions. The strong correlations between these skills and ICC indicate that students who are adaptable are more capable of understanding and respecting cultural differences. Enhancing these skills through curriculum design and practical experiences can significantly improve students’ intercultural competence, preparing them for the global job market.

The study underscores the importance of experiential learning in developing both soft skills and ICC. Practical experiences such as internships, group projects, and intercultural exchanges provide students with the context to apply their skills in diverse settings, thereby enhancing their proficiency and competence. Integrating these experiences into the engineering curriculum can bridge the gap between theoretical knowledge and practical application, fostering a more holistic educational approach.

## CONCLUSION

The findings of this study highlight the interconnectedness of soft skills and intercultural communicative competence among ENSAM undergraduates. The significant gaps identified between perceived proficiency and the importance of certain skills underscore the need for curriculum enhancements that focus on both technical and non-technical competencies. By incorporating targeted interventions and experiential learning opportunities, educational institutions can better prepare engineering students for the demands of the global job market.

This integrated approach to education not only addresses the current deficiencies in soft skills proficiency but also equips students with the intercultural competence necessary for effective communication and collaboration in diverse professional environments. Ultimately, fostering

these competencies will contribute to the development of a more inclusive and effective engineering workforce, capable of navigating the complexities of a globalized world.

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