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Interpersonal Intercultural Adaptation Orientations: A Qualitative Study of Engineering Professionals

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Abstract: Professionals in engineering and many other fields are often expected to work on global teams, setting the stage for frequent interpersonal interactions that span cultural boundaries. To further investigate the nature of such experiences, the findings presented in this paper are based on data collected via interviews and focus groups with 23 technical professionals who had varying levels of exposure to intercultural teamwork. Using an inductive thematic analysis approach to our data, we initially observed contrasting patterns of dyadic interactions in the examples and remarks of our study participants. Through further analysis, we developed a two-dimensional framework for such interactions that takes into consideration a given individual's orientation toward both their own cultural defaults and the defaults held by others in interpersonal teamwork situations. The five specific orientation patterns we identified are arranged from lesser to greater levels of individual concern for one's own cultural defaults, along with the defaults and norms held by others. In addition to representing a novel contribution to the existing research literature, we anticipate that our findings are useful for intercultural education and training initiatives, including raising awareness of cultural adaptation strategies and orientations among students and professionals. We also hope that our results help stimulate further research on intercultural adaptation, especially in the context of dyadic and other collaborative interactions that are commonplace in global work settings.

1. Introduction

In globalized education and work environments, individuals communicate and collaborate with partners from all over the world. This is true in many fields, including engineering, where professionals are expected not only to perform technical tasks but also to work in teams with members from diverse cultural backgrounds (Ortiz-Marcos et al., 2020). Such expectations are reflected in current accreditation requirements, which indicate that graduates of engineering degree programs should be able to "function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives" (ABET, 2021). Likewise, many reports on the future of work have more generally underscored the importance of teamwork effectiveness, including the ability of professionals to foster inclusiveness (Dondi et al., 2021).

In any intercultural collaboration, how people adapt, or the orientation they hold in managing interpersonal intercultural relationships, is a critical component to understand. These orientations toward adaptation can relate to team members' overall ability to achieve satisfactory individual-level team outcomes (Lloyd & Härtel, 2010) and build relationships (Leung et al., 2014), which ultimately affect their job performance, personal development, and team effectiveness (Balakrishnan et al., 2022; Zimmerman, 2010). Ample research has theorized and examined intercultural approaches in general as well as predictors of the development of intercultural competence. Two primary foci of past work include documenting how individuals' personal qualities and growth (e.g., attitudes, knowledge, skills) affect their experience as sojourners in a foreign culture, and identifying various structural or ideological approaches that guide intercultural adaptation (Berry, 2005).

However, research on how individuals adapt to interpersonal intercultural differences when working in teams has been scarce. While intercultural theories are abundant, they often overlook the interpersonal or dyadic unit as a site of adaptation. Conversely, interpersonal theories that focus on dyads tend to be relatively silent on how cultural dimensions, such as power, status, and identity, shape these interactions. Moreover, these dynamics cannot be fully understood in isolation; they must be examined within the context of professional and organizational cultures and norms, which influence the extent to which certain behaviors are expected, appropriate, or effective. A systematic framework conceptualizing how individuals approach cross-cultural interpersonal work relationships is lacking, even though this issue is relevant to many modern-day professional and school settings. To address this gap, this study

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investigates what adaptation orientations individuals may use in interpersonal intercultural collaborations based on interview data from engineering professionals with varying levels of experience working on multicultural teams.

In the following sections, we first review the literature on intercultural and interpersonal adaptations to highlight gaps in our understanding of interpersonal intercultural adaptation orientations using examples from global engineering teamwork. We then present our research question and a qualitative empirical approach to address it, followed by a discussion of our findings and their implications for engineers and other professionals, trainers/mentors of intercultural development, and scholars. We intend that this paper will contribute to the extant literature on intercultural collaboration in workplace settings.

2. Literature Review

2.1. Theories of Intercultural Adaptation

Since the birth of scholarly intercultural studies centered on international relations and diplomacy during the post-World War II era (Leeds-Hurwitz, 1990), researchers have long been interested in cross-cultural dynamics, especially in the processes of intercultural adaptation and in the development of individuals' capacity to engage in those processes. Berry (1980), for example, formulated a 2x2 matrix model of acculturation to describe the adaptive strategies of migrants along the axes of orientation towards their native and their new cultures, which was later expanded to involve more complex societal processes (Berry, 2005).

Many early intercultural adaptation theories also focused on voluntary sojourners, for instance, temporary expatriates visiting international locations for business, government, volunteer, or personal reasons. These theories are often categorized broadly into two different types: those that delineate the cognitive, affective, and behavioral characteristics (or knowledge, attitudes, and skills) of adaptive capacities (Spitzberg & Changnon, 2009) and those that conceptualize intercultural communicative competence as developmental frameworks (Hammer, 2015). The developmental model approach focuses on overarching orientations towards interacting across differences. Examples of this paradigm include the Developmental Model of Intercultural Sensitivity or DMIS (Bennett, 1993) and subsequent works, including the Intercultural Development Continuum (Hammer, 2011) and pendulum model of intercultural competence development and maintenance (Acheson & Schneider-Bean, 2019), all of which postulate growth from more ethnocentric or monocultural orientations towards more adaptive multicultural modes of interacting across cultural difference. More recently, Chen (2022) proposed a multidimensional model of cross-cultural competence tailored to professional settings, emphasizing communication, adaptation, and action competencies. This framework integrates cognitive, affective, and behavioral dimensions, highlighting the importance of consciousness and context in workplace adaptation and offering a more applied lens for understanding intercultural competence in organizational environments.

Other relevant work that takes a more critical approach, acknowledging the importance of power dynamics, especially in conflict resolution, is intercultural facework theory (Ting-Toomey & Oetzel, 2001) and critical cultural awareness (Christopher et al., 2014). These critical theories emphasize self- and other-awareness, as well as attention to identity, positionality, and context. As a point of comparison, where many models of intercultural competence focus pragmatically on *effectiveness* (meeting communicative goals) and *appropriateness* (meeting cultural expectations), the work of Ting-Toomey (1999) also highlights the need for interactions to be relationally and personally *satisfactory* (face-supportive and identity-validating) for the involved parties. Building on these critical perspectives, Holmes (2017) critiques traditional positivist models and advocates for a more nuanced understanding of intercultural communication in global workplaces, emphasizing power asymmetries and translingual practices. Similarly, Darvin and Sun (2024) explore how identity is constructed and negotiated in intercultural encounters, foregrounding race, class, and nationality as central to communication dynamics. These works underscore the importance of positionality and ideology, pushing beyond competence frameworks to interrogate the socio-political dimensions of intercultural interaction.

2.2. Theories of Interpersonal Adaptation

A parallel literature on communication adaptation has put forth a set of theories with a focus on interpersonal, and especially dyadic, adaptation in communication contexts. More specifically, these are theories that describe how individuals modify their own behaviors to adapt to communication partners, a process also referred to as communication accommodation (Giles & Ogay, 2007). Giles (1973) originally proposed the communication accommodation theory or speech accommodation theory, which has become influential across disciplines such as communication and psychology. The theory posits that accommodation speech acts during social encounters are relational; a person's accommodation serves a primary function of managing their relationship with their communication partner. In particular, people shift their speech both consciously and unconsciously in a wide range of linguistic (e.g., word choice, grammar), paralinguistic (e.g., speech rate, pitch), and nonverbal (e.g., facial expression, posture) ways to regulate their social distance from the partner (or group) they are interacting with. Accommodating or converging to a common speech style similar to their partners' are approaches to reduce distance. In contrast, non-accommodation or divergence from partners' speech style is a way to maintain or increase social distance (Gallois et al., 2005). Overall, empirical evidence across disciplines suggests that accommodation level shapes social encounters, such that it can predict mutual liking, understanding, and satisfaction in communication (van Baaren et al., 2003).

Beyond similarity in speech styles among communication partners, a growing body of research has focused on two independent dimensions of difference in interpersonal communication styles: agency/dominance and communion/warmth (Kiesler, 1996; Sadler et al., 2009). Agency encompasses interpersonal dominance, power, and control in social encounters, while communion involves union, friendliness, and affection (Bakan, 1966). The models posit that the communication style of a person in the social interaction affects the style of their partner (e.g., dominant behaviors can elicit submissive behavior in response), and the styles of the dyadic interaction are not static; people mutually adapt throughout the interaction, and the level of match/mismatch can predict relationship outcomes. These dimensions are not only theoretically significant but also practically impactful; for instance, Roongruangsee, Patterson, & Ngo (2022) found that affiliative (communion-oriented) communication styles significantly enhance psychological comfort and satisfaction in healthcare interactions, highlighting the relational consequences of stylistic choices in professional settings.

Some recent research moves beyond a narrow focus on a few factors influencing interpersonal dyads. For example, Solomon and colleagues (2021) propose a dynamic dyadic systems approach, which conceptualizes interpersonal communication as a co-regulated process shaped by both partners in real time. This framework emphasizes the fluid and reciprocal nature of dyadic interactions, offering a systems-level view that complements existing models of interpersonal adaptation. In short, the theories of interpersonal adaptation highlight the importance of understanding both the similarities and differences in communication styles, the multiple dimensions that can simultaneously come into play, and the dynamic, mutual influences that shape interpersonal interactions.

2.3. Theoretical Integration and Current Research

Taken together, many intercultural and interpersonal adaptation theories are supported by empirical evidence. While they provide a strong foundation for understanding interpersonal intercultural orientations, the current state of scholarship remains limited. Although research on intercultural theories has explored how issues of cultural differences may influence interpersonal interactions (Berry, 2005), the primary focus is on the accommodation of a person to a different culture as a whole, for example, the adaptation of sojourners such as international students, expats, and tourists to their host culture with little attention to interactions among individuals of different cultural backgrounds (i.e., individuals adapting to each other in a collaborative work environment). More recent work, such as Chen (2022), begins to address workplace-specific adaptation, yet still lacks emphasis on team-level interpersonal dynamics. Moreover, although interpersonal adaptation theories have been applied to intergroup contexts (Ota et al., 2007), most research focuses on non-professional relationships, such as romantic dyads and friendships, and the literature tends to focus on specific cultural and ethnic groups. Rare studies such as Rafailidou (2023) that highlight the challenges and opportunities of multicultural teamwork also underscore the need for more nuanced models of interpersonal adaptation at the group level in diverse professional settings. Additionally, interpersonal accommodation research has mainly focused on healthcare and family-related communication rather than team and multicultural contexts (Ayoko et al., 2002; Barlow et al., 2024). This body of work reveals three persistent gaps: intercultural research often overlooks the interpersonal dynamics that shape dyadic interactions; interpersonal research tends to ignore how cultural backgrounds influence those dynamics; and both disciplines rarely examine these processes within small group or industry settings, where organizational and professional norms critically shape what kinds of adaptive behaviors are expected, appropriate, or effective in teams.

In the current research, we fill these gaps by focusing on variations in individuals' orientations when negotiating their own and their partner's "cultural way" of doing things in a teamwork context. Specifically, given the applicability of intercultural and interpersonal research in contemporary engineering professional practices in global industries, this study aims to broadly explore the challenges that multicultural engineering teams face. The research team aimed to shed light specifically on *what interpersonal intercultural adaptation orientations engineering professionals use in multicultural teamwork, and how these orientations are reflected in individual behaviors*.

3. Methods

The results presented in this paper are based on data collected from *n*=23 total study participants. Participants were recruited primarily through ads and flyers posted on LinkedIn and Facebook, targeting individuals with engineering experience. Interested participants first completed a screening survey that included demographic and professional experience items. To be included in the study, interview participants were required to have at least 2 years of experience in the engineering field and to report having worked on teams that demonstrated some diversity. Demographic characteristics for the study participants are summarized in Table 1.

Table 1: Participant demographics

Demographic		Interview Participants	Focus Group Participants
n		17	6
Race/ethnicity (# (%))	White	9 (53%)	4 (67%)
	Asian	7 (41%)	0
	Black/African American	0	0
	Hispanic/Latino	1 (6%)	0
	Native Hawaiian/Pacific Islander	0	0
	Mixed Race	0	1 (17%)
	No response	0	1 (17%)
Country (# (%))	Brazil	1 (6%)	0
	China	1 (6%)	0
	India	4 (24%)	0
	Panama	0	1 (17%)
	Russia	1 (6%)	0
	Spain	1 (6%)	0
	Thailand	1 (6%)	0
	United States of America	7 (41%)	4 (67%)
	Venezuela	1 (6%)	0
	No response	0	1 (17%)
Gender identity (# (%))	Woman	5 (29%)	4 (67%)
	Man	11 (65%)	1 (17%)
	Nonbinary/third gender	1 (6%)	0
	No response	0	1 (17%)
Industry sector (#)	Automotive	2	0
	Computer/Electronic	1	0
	Construction	1	0
	Education	1	0

Demographic		Interview Participants	Focus Group Participants
	Financial	1	0
	Food	1	0
	Information Technology	2	0
	Machinery Manufacturing	1	0
	Metal Engineering	1	0
	Military/Defense	2	0
	Non-profit/NGO	1	0
	Oil and Gas	2	0
	Transportation	2	0
	Utilities	2	0
	Other	3	5
	No response	0	1
Years of engineering experience	Mean	8.52	19.40
	SD	5.50	7.54
	Median	8.00	20.00
	Range	2 - 30+	10 - 30+
On average how often do you work in a multicultural team on a day-to-day basis at your workplace? (# (%))	a. A little	0	0
	b. Moderate	1 (6%)	1 (27%)
	c. Quite a bit	3 (18%)	1 (17%)
	d. Very much	13 (76%)	3 (50%)
	No response	0	1 (17%)
To what extent do members of your team(s) in the workplace differ in their racial, ethnic, or national backgrounds? (# (%)).	1-All members have the same background	0	0
	2	0	0
	3-Some group members backgrounds differ from other	11 (67%)	2 (33%)
	4	6 (35%)	2 (33%)
	5 - Each group member has their own unique background	0	0
	No response		1 (17%)
To what extent would you say you are experienced working in a multicultural team? (# (%)).	A little	1 (6%)	0
	Moderately	2 (12%)	1 (17%)
	Quite a bit	7 (41%)	3 (50%)
	Very much	7 (41%)	1 (17%)
	No response	0	1 (17%)

Source: Calculated by the authors

To support data saturation and enhance methodological rigor, we intentionally collected data from two complementary sources: individual interviews and focus groups. This two-pronged data collection approach enriched the meaning-making process by leveraging the strengths of each format. Interviews allowed for privacy and depth in personal reflection, while focus groups facilitated socially constructed insights through group dialogue. Two focus groups were conducted, each with 3 participants, and the remaining 17 participants were interviewed individually. The two focus groups were conducted with individuals from one multinational consumer goods firm based in the U.S., while the interviewees were affiliated with a wide variety of organizations and industry sectors. One focus group member did not complete the demographic survey. Two of the focus group participants later volunteered to participate in member-checking.

Reflecting our study's broader focus, we developed and deployed a three-part interview and focus group protocol that included questions about: 1) participants' past experiences working on multicultural teams, including successes and challenges, 2) the strategies participants have witnessed or used to improve multicultural teamwork processes and outcomes, and 3) other advice or resources they would recommend to improve multicultural team performance. A complete copy of the protocol is provided in the Appendix below. Throughout the interview and focus group sessions we used a critical incident approach (Flanagan, 1954), encouraging participants to give detailed accounts of challenging experiences and conflict situations to identify specific individual and group factors relevant to multicultural teamwork outcomes.

Data collection was conducted virtually via Zoom and facilitated by two members of the research team. The focus groups were both 56 minutes long, while the interviews ranged from 18 to 36 minutes, with an average of 26 minutes. The focus groups and interviews were audio recorded and machine-transcribed, then manually checked for accuracy and de-identified by a member of the research team. All data were collected following appropriate human subjects research procedures approved by Purdue University's institutional review board under protocol IRB-2021-1356. The pseudonyms presented in the findings were created for participants by the research team.

We analyzed the focus group and interview transcripts using an inductive thematic analysis approach with four main phases (Braun & Clark, 2006): 1) *data familiarization*, where each transcript was separately read by two team members, who individually wrote brief analytical memos summarizing key observations and inferences for periodic review by the larger team; 2) *identification of themes*, where the team more holistically discussed the full corpus of transcripts and memos with the goal of identifying topics for further analysis; 3) *clustering of data*, where the lead author used the memos as a guide for identifying and extracting specific examples of cultural adaptation from the transcripts, while at the same time iteratively sorting and clustering the excerpts into themes or categories; 4) *mapping*, where the lead author wrote up findings for the final set of five themes that emerged through this process, while working with the second author to develop and refine a conceptual map of the findings.

3.1. Reflexivity and Member Checking

We acknowledge that the researchers' own positions and experiences may contribute to the interpretation of participants' responses and lived experiences. To enhance the rigor and validity of the study, we engaged in ongoing self-reflexivity both individually and as a research team throughout the analysis and interpretation process. Our team composition itself reflects diverse perspectives in terms of identities and life experiences, disciplines, and institutional roles. The authors include individuals who identify as men and women; are currently in faculty, administrative, and graduate student roles; and have disciplinary expertise in social and organizational psychology, engineering education, and intercultural communication. Research team members brought expertise across quantitative, qualitative, and mixed-methods research. Each author has prior intercultural collaboration experience; one is a first-generation immigrant and international worker, and the other has prior engineering industry experience.

To further enhance the verisimilitude of our interpretations, we conducted a member-checking session with participants from the original focus groups. All seven focus group participants were invited; two responded and were provided both a summary of the findings and the full manuscript for review. These participants then engaged in an hour-long discussion with two authors, responding to prompts designed to elicit reflection and critique:

- How does each orientation resonate with professional interactions you have participated in or witnessed?
- What team examples come to mind that might align with these orientations?
- What work experiences have you had that may contradict the framework or suggest additional orientations?
- How does the way the orientations are organized into an "effectiveness" hierarchy from 0 through 4 sit with you?

This member-checking process provided an opportunity to validate our interpretations, refine our framework based on participant feedback, and consider the alignment of the theoretical model with the lived experiences of engineers working in diverse teams. We turn next to our study findings, but will return to some key takeaways from the member-checking session in the discussion section that follows.

4. Findings

Our findings are organized as visually summarized below, with one section dedicated to each adaptation pattern identified in our data. The findings are ordered to reflect increasing aptitude or competence in effectively and appropriately managing intercultural dynamics. We begin with examples of participants avoiding adaptation, then turn to patterns suggesting increased awareness of and concern for one's own (or a majority group's) cultural defaults and/or others' cultural defaults. Note that additional definitions and explanations are provided in the findings when specific terminology is used in ways that diverge from previous scholarly literature or common lay understandings.
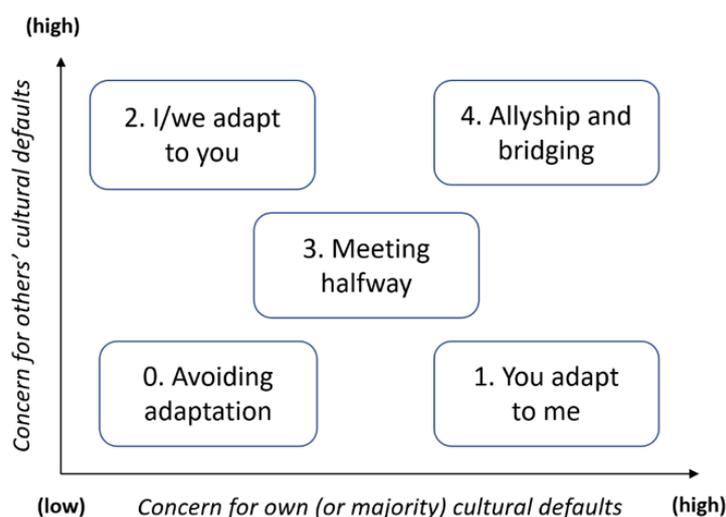

Figure 1: Map of intercultural adaptation orientations. Source: By the authors

4.1. Avoiding Adaptation

The first category of findings centers on how some participants actively avoided cultural adaptation, including by disregarding or downplaying cultural differences. For example, Mark (all participant names are pseudonyms), an experienced US-based professional, simply declared an absence of "any racial bias or anything like that" in his organization. On the other hand, Oleg, a US-based engineer originally from Russia, observed that "most cultural things were just mannerisms […] The way different people behave." In addition to suggesting that individual differences are more significant than cultural variation, this same interviewee went on to characterize his "multicultural" experiences as "mostly anecdotes and funny jokes and things like," in essence, framing cultural differences as not important enough to necessitate adaptation.

Interestingly, these two interviewees also commented on organizational norms as a leveling mechanism, thereby reducing the need for individual employees (especially those from dominant groups) to understand and adapt to culturally different colleagues. For example, Oleg described how "you have to go through corporate training right away. I don't want to say that I enjoyed it, but they make it very clear that certain rules were to be, you know, followed." And as Mark explained, "I would say, most people were pretty much conformed to the, will say the standard work day and the way we get the job done."

Another kind of avoidance involves deferring to a colleague or superior when encountering difficult cross-cultural situations. Oleg, for instance, noted "it always works to go around it like asking the manager instead." Likewise, Nicole described an example of a failed cross-cultural interaction that she blamed on the other party and then let a supervisor handle the issue: "someone sorted it out for me." Raj, an early career engineer, offered another example of deferring to a coworker, albeit motivated by his shared cultural heritage with members of a counterpart group abroad: "I didn't want to get involved, because I, being an Indian might, and I thought they might have, think I might have a bias [so] I had the scrum master get involved, and they did work it out peacefully." These kinds of hand-offs or delegations require the involvement of others who are more adept at managing cross-cultural situations, e.g., by meeting halfway or by bridging, as discussed in more detail below.

4.2. You Adapt To Me

Evidence coded under this adaptation theme centers on the idea that other parties involved in cross-cultural interactions or encounters should adapt their behavior to the subject's expectations and preferences. This tendency is most strongly reflected in a story from Sirin, who worked as an engineer for a Japanese-owned manufacturing facility in her home country of Thailand. She described an encounter with a Japanese manager who, while visiting her local facility, raised questions about the size of a delegation proposed for an upcoming visit to Japan:

> He asked me, 'Why do these people need to go? Why can't you do this in our plant, why we have to go there?' I just said like, no, we can't do, because what, when I tried to explain [...] like because of what, he says, came from nowhere, like, 'why you say no?' or something like that. We spoke at the same time, and he thought that I tried to argue, make an argument with him. Yeah, yeah, I try to make an argument with him! I didn't listen to him. He walked out of the room. He didn't wait for me to finish my report.

One likely explanation for this disagreement centers on cultural differences in communication styles, including a preference among many Japanese for indirect messaging, especially in situations involving disagreement (Gudykunst et al., 1996). Other factors might also have been in play, including differences in employee rank and assumptions about how subsidiary and headquarters staff should interact. In this scenario, a more appropriate way to handle the exchange would likely begin with an affirmative replyto show that the subject heard and understood the manager's objection, followed by a tactful response that introduces an alternative position. Yet Sirin seems to feel no need to change her approach. In fact, later during the same interview, she again reflected on this situation, stating: "It wasn't my fault, he didn't listen to me completely, what I really wanted to explain. So yeah, it wasn't my fault or … just like okay, I'm done, I went back home straight away, I didn't even wait until we finish working at five." When asked how the situation turned out, she said she let her manager sort out the disagreement, thereby revealing a retreat from *adaptation* when the other party, in her view, did not sufficiently adapt to her.

While this was the most direct example found in our data, anecdotes shared by other participants hint at similar dynamics. For example, Scott, an experienced US-based engineer, described an event in which a highly educated non-native presenter was not well received by a more traditional, male, older audience. Noting that "it was not a good experience for him or anybody," Scott implied that he learned the importance of choosing a speaker who was a "good fit" for the audience to accommodate or appeal to the default preferences of dominant cultural groups.

4.3. I/We Adapt To You

The next set of findings concerns participants adapting their behavior and expectations based on their understanding of individual and contextual factors. These examples in turn reflect two more specific kinds of adaptation, one with a deficit connotation and the other with a more neutral or even positive framing. The former is well captured by Mark, the late-career professional introduced above, who explained you sometimes "had to make certain allowances for people." As he elaborated:

> So people came to this country, you know say after they graduated from university somewhere else, or like coming to this country some of their language skills were not nearly as strong in English as many of the team members[...]so we had to make allowances for that and sometimes it was more challenging for them to get up and be able to make presentations to say a broader audience whether, when they were more challenged.

In this passage, non-native speakers are characterized as less effective and facing greater "challenges" when communicating, including during presentations. Mark went on to explain that such individuals were at times given "some coaching and some helping" and mentioned specific adjustments to expectations, such as "allowing say, for more time to get the information across because it came over at a slower pace." As this example suggests, the majority group adapts in two main ways: by actively supporting or "coaching" the non-native communicators, and second, by encouraging more open and accommodating attitudes toward listening. Nonetheless, the adaptation is largely reactive and upholds a hierarchy favoring the preferences and norms of the majority group.

Other examples from our dataset reflect more proactive approaches to adaptation amid cultural differences. For instance, Isabel, a non-native mid-career professional working in the US, observed a pattern where "people are looking at me when I'm speaking, they're looking at me confused. But they're not confused because of what I'm saying, [but] because they're trying to figure me out." As she further explained, "because they're, you're trying to figure out where I'm from. So, one of the strategies I start with [is] where I'm from right away." Isabel thus takes proactive measures to disclose the source of her accent to reduce distractions and improve listening among the individuals with whom she interacts. Yet this can also be viewed as a kind of countermeasure against the biases and preconceptions of native English speakers.

A more positive example of proactive adaptation is reflected in remarks from Mary, an experienced American professional who had spent time living and working in South Korea, namely in describing how she "had to learn to speak last" given that "it's such a hierarchical culture." She went on to explain that, as a foreign expert and manager, "As soon as I gave an opinion, it became the thing that they should do, and so you absolutely cannot just willy-nilly brainstorm at the team because they'll take like your ideas and say, oh, that, that's what we must do. And that's not the intent that, you know, at least most Americans have, right? And so that was hard." Here we find an expatriate adapting her own behavior in ways that reflect her understanding of prevailing cultural norms in the host setting.

4.4. Meeting Halfway

Another pattern identified in the data involved meeting halfway when significant cultural or other differences were present. Initial evidence for this theme can be found in Lin's remarks, a woman of Chinese origin working as a US-based engineer in the transportation sector. She especially noted cultural limits on "how close I can get to them [other employees]" given that "I just don't have as much shared, [in] common." She observed that when unfamiliar cultural references surfaced, she could "laugh with them and kind of still be in the group, I just couldn't contribute." When asked about specific strategies she employed when working with diverse colleagues, Lin noted the importance of "finding common ground." Yet she also discussed working closely with someone who held very different political views, noting the importance of "being respectful" and observing that it was okay to "agree to disagree on things." She went on to advocate for "a skill that people need to have […] I mean, just to be okay when they don't see things the same way, yeah, and still have a relationship." Such remarks reflect a sense of awareness of – and pragmatic responsiveness toward-both similarity and difference in cross-cultural interactions. Indeed, this individual's comments suggest that attempts to "meet halfway" may not be fully mutual or successful; i.e., the effort might not be reciprocated or lead to a closer, more trusting relationship with colleagues. Yet the attempt itself is likely important as a reflection of a given individual's openness and willingness to bridge differences.

A second, and arguably more successful, example is Sara, a mid-career US professional deployed to a Latin American country to assist with a plant start-up. As a woman in a leadership position, she observed cultural differences in how gender and hierarchy operated at the plant, which, in turn, negatively affected her ability to communicate with and issue directives to local workers. As she went on to explain, "the big strategy was really meeting halfway." More specifically, she described how she built a close relationship with a local plant manager at the site and "found this really great balance where instead sometimes if I had information to communicate, didn't feel that I was breaking through in their culture, having them listen, I would communicate the information to him and then he would take that and communicate it to the team." Sara went on to note that this approach sometimes made her "feel a little bit lesser" and that she "had to let some of my pride down," but acknowledged that achieving the company's objectives and goals was ultimately her top priority. Underscoring the bidirectional nature of these interactions, she additionally observed that "I'm learning their culture, they're learning mine," and reported that "we made progress, I was able to go out to the floor […] I could tell a lot of stories too around safety and safety culture, but I was able to break through in some of those situations, and then we had to meet halfway and celebrate the meet halfway." As this example illustrates, meeting halfway requires mutual adaptation in order to effectively span cultural and other differences.

4.5. Allyship And Bridging

A fourth and final category is characterized by active efforts to mediate or bridge cross-cultural differences beyond the dyadic level, with three more specific patterns evident in our data. The first involves members from a majority cultural group helping minority individuals adapt to unfamiliar environments, norms, and practices. For example, Mary described how, as a US-based professional working in China, she observed and addressed challenges in brainstorming during team meetings:

> And then the conflicts can happen, right? So, you know, I know people who like really don't like brainstorming, and then other team members will look at them and go, you know, "Contribute, for goodness' sake, what's wrong with you," right? But in China, the school system is completely different, and so brainstorming like that is really, really hard, right? And so you take those people aside, you're like, "Hey, let's talk about this ahead of time, let's just work through it, so that when they walk in the meeting, they can contribute." Because otherwise everybody else looks at me like, "What the heck, right?"

As this passage reveals, Mary first demonstrates allyship by showing a nonjudgmental understanding of why brainstorming can be difficult for her Chinese colleagues. She then describes a specific strategy to help address this issue, namely by giving her foreign colleagues opportunities to reflect on issues or questions in advance so they can productively contribute in meetings without feeling put on the spot.

Cindy, another US-based participant and late-career engineer, described a different kind of allyship behavior in supporting non-native English speakers. More specifically, she reported working with a Chinese colleague who "was very conscientious of not saying [her] English correctly." As she went on to explain within a non-deficit framework:

> I tried to help her feel more comfortable by sharing an example with her, where we had […] a senior President, and we were in a meeting with 40 people, and she was answering a question, and she couldn't think of the word, and she said, "What's that word?" And the person sitting next to her gave her the word. "Thank you so much, I really appreciate it." So I use that example with my mentee to say, "It's okay. I only know one language, and I can't even imagine answering questions in another language. I'm not going to judge you because you use the word wrong, gender, or the wrong preposition."

Cindy also reported engaging in a second kind of allyship behavior: trying to educate others about the challenges faced by non-native speakers, especially in answering questions after a formal presentation. As she went on to explain in describing a situation involving a Latinx colleague: "I tried to point out to the other individual leaders that it's not that she doesn't have confidence. English is their second language, so she's thinking, so she's not answering the questions quickly[...] I'm trying to get people to see things differently, and maybe not be so quick to judge." As these comments suggest, Cindy directly encourages and supports her junior colleagues and mentees while also working to shift perceptions and increase awareness of bias among her native-language peers. In her own words, she describes such efforts as "educating people who are judging a scenario inappropriately, unconsciously."

Another example of allyship can be found with Sara, an engineering manager who learned to generate special characters to reproduce accent marks in people's names. She explained how she "communicated across the organization how to do it. It's very simple, it's the control key, now the apostrophe key, and then type the letter, and it puts the accent mark over. When I started to teach it, people were using it." Sara took active efforts to encourage cross-culturally appropriate behaviors among her peers, especially to show respect and appreciation for individuals from minority or non-native cultural groups.

A third and final pattern in this category involves active efforts to bridge or mediate differences. Ed, an experienced US-based professional, described repeatedly taking on a "peacemaker" role when conflicts surfaced between colleagues in a multi-cultural environment: "you talk to the people, and you get them over time talking to each other. And it's like, hey... I think you may be assuming something that I'm not sure was actually there on the part of another person." He additionally noted that such situations seemed to occur when "people couldn't get along for what I think, it probably goes back to assuming ill intent." Ed described how he intervened, namely by "trying to open doors for people to see maybe in a different way than how they've been observing somebody else," explaining how he tried to "build some common ground" with the opposing colleague as a step toward reestablishing direct dialog between the individuals in conflict. In addition to highlighting active, targeted efforts to diffuse interpersonal conflicts that may, in part, stem from cultural differences, this example shows how this leader used perspective-taking strategies to help colleagues see situations from other points of view.

5. Discussion

Overall, our qualitative study revealed variations in individuals' orientations when negotiating differences between their own and their partner's cultural defaults, in a context common and critical to education and work settings: multicultural teamwork. Based on experiences and insights shared by the technical professionals in our study, we identified five differentiable orientations participants adopt in multicultural teamwork interactions and articulated how these orientations are reflected in individual behaviors. These behaviors fit well within an organizing framework that breaks down the interpersonal intercultural dynamics into two dimensions: concern for one's own (or majority) cultural defaults and concern for the other person's cultural defaults in interpersonal situations.

While the terminology used in the orientation map may feel familiar, drawing on established interpersonal and intercultural communication literature, the contribution of this work lies in integrating those theoretical foundations and applying them to teamwork in technical professional settings. By grounding the framework in lived experiences from engineering professionals, the study offers a context-sensitive model that enhances the rigor and validity of existing theory. The orientations provide verisimilitude in how they reflect real-world interactions, and their relevance to collaborative work environments makes them especially useful for understanding and improving multicultural team dynamics.

Table 2: Summary of intercultural adaptation orientations

Orientation	Description	Sample Quote or Example
0. Avoiding adaptation	Actively avoiding cultural adaptation, including by disregarding or downplaying cultural differences	"Most people were pretty much conformed to the [...] standard work day and the way we get the job done." (Mark)
1. You adapt to me	Other parties in cross-cultural interactions or encounters should adapt their behavior to the subject's expectations or preferences	"It wasn't my fault, he didn't listen to me completely." (Sirin)
2. I/we adapt to you	Adapting one's own behavior and expectations with an awareness of others' cultural characteristics and contextual considerations	In South Korea, Mary described how she "had to learn to speak last" given that "it's such a hierarchical culture."
3. Meeting halfway	Mutual adaptation, with behaviors reflecting awareness of cultural similarities and differences, as well as the limits of one's own agency	"This really great balance where instead sometimes if I had information to communicate, didn't feel that I was breaking through in their culture, having them listen, I would communicate the information to him and then he would take that and communicate it to the team." (Sara)
4. Cultural allyship and bridging	Active efforts to mediate or bridge cross-cultural differences	"I'm trying to get people to see things differently, and maybe not be so quick to judge the, the scenario as it's happening." (Cindy).

Source: By the authors

As Table 2 illustrates, the participants reported a range of strategies in interacting across cultural differences that reflect increasing levels of concern for their own and others' cultural defaults, from *0. Avoiding Adaptation* to two unidirectional adaptation orientations, *1. You Adapt to Me* and *2. I/We Adapt to You*, to two bidirectional orientations, *3. Meeting Halfway* and *4. Allyship and Bridging*. In addition to the categorical distinctions between these strategies, it is important to explore the significance of the order of strategies within this framework. Although interviewees typically did not explicitly recognize the impact of their adaptation strategies or articulate the reasons for their behaviors, those behaviors are located within real-world contexts. Examining the behaviors themselves, beyond the ways participants reported them, reveals a progression from *0. Avoiding Adaptation* to *4. Allyship and Bridging*. First, moving from avoiding adaptation to unidirectional and bidirectional adaptation demands greater awareness of context and power dynamics, as these orientations presuppose an understanding that adaptation is needed and that one or more parties bear the burden of that adaptation, given the context. The orientations also progress in terms of effort, with bidirectional adaptation potentially more challenging and time-consuming than avoiding adaptation or unidirectional adaptation. Finally, the orientations progress with regard to increasing likelihood of interpersonal and team effectiveness, with bidirectional strategies more indicative of intercultural competence and the outcomes that result from engaging appropriately, effectively, and satisfactorily across cultural differences (Ting-Toomey, 1999).

These findings offer key theoretical as well as practical contributions. Theoretically, the study begins to address the gap noted in the literature review for dyads within the multicultural teamwork context (Ota et al., 2007). The orientations identified in this study go beyond psychological adaptations and speak to concrete dyadic behaviors and choices individuals make to adapt (or not) to another person with different cultural defaults. By organizing individual adaptation strategies into a two-dimensional framework (see Figure 1 above), this work provides a map for future studies to organize, assess, and systematically study specific adaptation behaviors. This primarily data-driven framework resonates with and empirically supports existing

theory-driven frameworks on interpersonal dynamics. For instance, the framework aligns with interpersonal conflict management styles (De Dreu et al., 2001) and adaptation strategies of immigrants to a host culture (Berry, 2005). These models have inspired numerous endeavors for measurement, empirical validation, and training and development (e.g., Friedman et al., 2000; Chen & Gabrenya Jr, 2021). Much like the 2x2 matrix for conflict styles, our proposed model considers concern for both an individual's own *and* another's norms within an intercultural dyad. Additionally, the intercultural adaptation orientations offer a unique contribution in that they attend to cultural differences at the individual level. Whereas conflict management style research leans toward the interpersonal without much attention to the involved individuals as cultural beings, and immigrant adaptation research focuses on newcomers' interactions with their new culture at the societal level, the current findings sit between the two, attending to the dynamics present in dyads within multicultural team environments that are so common in the contemporary global workforce.

Interestingly, the findings also map well onto other recent intercultural theories. The pendulum metaphor for intercultural competence development and maintenance (Acheson & Schneider-Bean, 2019), for example, highlights the pitfalls of focusing too much on either cultural similarities or differences. Just as the denial and minimization orientations from the pendulum framework over-emphasize similarity and miss important cultural differences that may be in play in team interactions, *0. Avoiding Adaptation* assumes human universality or a lack of impactful divergence in cultural values, communicative norms, etc. On the other end of the pendulum's swing, polarization – and, to a lesser extent, acceptance – focus on cultural differences, with people operating within these orientations potentially viewing cultures in terms of binaries and hierarchies. Polarization especially aligns with the two unidirectional orientations in the adaptation strategies framework: *1. You Adapt to Me* and *2. I/We Adapt to You.* Finally, the two bi-directional orientations, *3. Meeting Halfway* and *4. Allyship and Bridging* represent the balance point of the pendulum where both similarity and difference are acknowledged, and cross-cultural adaptation is navigated in more nuanced ways.

One key benefit of the current framework is its emphasis on contextual and personal factors. Participants' strategic approaches to adaptation were not necessarily consistent – that is, the categorization of behaviors in the five matrix categories can vary based on many factors, such as who is involved and the dynamics between them. Team members might react differently when they feel outnumbered or marginalized, when there is a clear power differential at play, when their identity is threatened in some way, when they care for (or do not care for) a teammate, when they lack the emotional or cognitive resources to manage the labor of adaptation, or when they are situated in an unfamiliar cultural context. While explicit mentions of power and affective state were rare in the interviewee data, we infer from the situations and behaviors described by participants that contextual and personal factors sometimes play a role. Contemporary theories of intercultural conflict resolution strategies and immigrant adaptation orientations address these factors to some extent. Ting-Toomey and Oetzel (2001), for instance, discuss how relationship parameters (pp. 39-41), prejudice and racism (pp. 73-39), power imbalances (p. 108), and proportional representation within teams (pp. 113-4) may impact the strategies employed by participants in conflict situations.

In the current study's framework, there seems to be a particularly strong relationship between strategies and participants' awareness of, and reaction to, power structures. Although these relationships need to be explored further in future research, interpersonal intercultural adaptation orientations arguably vary in their potential impact on existing power dynamics. In *0. Avoiding Adaptation*, participants either seem unaware of how power operates in the context or choose to operate within dominant power structures to accomplish their avoidance. Both approaches accept and reinforce existing hierarchies and power imbalances. Likewise, with *1. You Adapt to Me* and *2. I/We Adapt to You*, participants are typically behaving in ways that reify prescriptive and normative expectations of who 'should' adapt to whom. While these two unidirectional orientations require awareness of power structures, that awareness seems to be unquestioning of existing hierarchies. In contrast, the bidirectional adaptation orientations move beyond awareness to active resistance of power structures, i.e., *3. Meeting Halfway*, with a tacit acknowledgement that each teammate accommodating the other involves sharing the burden of adaptation, and *4. Allyship and Bridging* strategies that work to dismantle power structures more intentionally, visibly, and broadly, i.e., beyond the dyad itself.

In addition to these many theoretical insights, this study offers several practical contributions. The framework could be leveraged, for example, in preparing current and future engineers and other professionals for successful interactions in diverse teams. A scientific approach to professional development involves intentional training that develops the knowledge, skills, and attitudes needed for multicultural team effectiveness instead of merely relying on multicultural exposure (Jaiswal et al., 2024). The current framework holds promise for generalizability beyond the immediate research context, given the diversity of the sample. With only 48% of participants in the study originating from the US, the findings likely speak to diverse experiences globally and in multinational organizations. The framework could also be utilized in various educational contexts, including higher education courses, professional training, mentoring interactions, and community of practice discussions in engineering and other disciplines. For example, the framework could provide a starting point for self-reflection of both student and professional members of diverse workgroups, raising awareness of their own and others' cultural adaptation strategies and orientations. These orientations could also be useful for application to mindful practice, allowing learners/trainees to more intentionally approach their group interactions in the future and make thoughtful adaptive choices responsive to their contexts rather than reacting on autopilot to within-group differences.

Insights from our member-checking session further underscore the complexity of applying the framework in practice. Participants emphasized the importance of context in shaping both their decision-making processes and the perceived value of adaptation strategies. For example, the orientation "we adapt to you" was not necessarily viewed as condescending or submissive by the participants in member-checking; instead, this strategy had positive connotations of offering respect, and its appropriateness was seen as dependent on situational factors such as professional roles (e.g., client relationships) and geographic location, rather than solely on sociohistorical power dynamics. Additionally, participants told several stories illustrating how organizational constraints and structural limitations can restrict individuals' capacity to enact allyship, suggesting that this orientation is not always the most beneficial or feasible strategy. These reflections challenge a simplistic interpretation of the framework's hierarchical structure and illustrate the messiness of lived experience that linear models cannot fully capture.

Further, the framework underscores the critical need for mindfulness and intentionality in choosing adaptation strategies. Understanding the connection between strategies and power structures could enhance individuals' mindfulness of their role

vis-à-vis such structures so that they intentionally choose behaviors that align with their values. Mindful of such connections, cultural allyship and bridging become key strategies for leadership within teams and organizations, since, given their more active resistance to power structures, this orientation extends beyond the dyad in terms of impact.

The current study has limitations and would benefit from additional research. The study's sample size generally meets the rigor standards for qualitative grounded theory research methods. Although the convenience sampling yielded participants representing diverse regions, roles, and organizations, this work would be enriched by a more intentionally globally representative sample (e.g., to include intercultural workers from Middle Eastern and African regions). And despite methodological and logistical advantages in standardizing the language of our data collection efforts, offering the study only in English likely limited the representativeness of the sample in the global intercultural and engineering environment. Moreover, this is a single study that would benefit from replication with additional samples and scenarios, including those beyond technical professionals and English-speaking contexts. Notably, this study lacked data on the makeup of the groups to which participants were adapting and how culturally similar or distant group members were. While beyond the scope of this study, cultural identity and distance are key directions for future research to more fully flesh out the factors that may influence the adaptive choices group members make. Methodologically, the inclusion of both focus groups and interviews as the study's format presents strengths and limitations. Even though participants were asked similar questions across formats, the format itself could have affected the results. For instance, the dynamics within the focus groups and their demographic composition may have influenced participants' responses. The focus groups were also from a single company, thus limiting variation among this subset of participants in terms of organizational culture and industry sector. Inevitably, a question for future investigation arises from these demographics: To what extent do organizational and disciplinary cultures shape dynamics within diverse groups and the adaptive approaches that group members may choose? Further, the decision to include the two formats was mainly driven by convenience (scheduling and recruitment) rather than by a theoretical justification. Future studies should consider replicating the study in both similar and alternative formats to more systematically examine and verify the phenomenon observed here.

The findings reported here also help pave the way for future research to explore variations within a person over time in their orientations in interpersonal and intercultural settings. It is expected that the proposed framework can allow meaningful interpretations of both individual differences and within-person differences, yet these assumptions await empirical evidence to support. Because validation is needed that goes beyond mere replication of the study and inductive analysis of qualitative data to empirical documentation of the occurrence of approaches within the framework, it would be especially beneficial to develop a psychometrically valid measure to capture the different orientations in the framework. With such a measure, future research could examine the potential outcomes of these orientations and systematically document the extent to which the orientations affect intercultural communication, relationships, and performance at the personal and dyadic levels.

6. Conclusions

Professionals in engineering and many other fields are often expected to work on global teams, setting the stage for frequent interpersonal interactions that cross cultural boundaries. However, prior research on dyadic orientations and behaviors in intercultural teamwork settings is limited. Based on our interview and focus group data, we developed a two-dimensional framework for such interactions that considers a given individual's orientation toward both their own cultural defaults and those of others in interpersonal teamwork situations. The five specific orientation patterns we identified are arranged from lesser to greater levels of individual concern for one's own cultural defaults, along with the defaults and norms held by others. We anticipate that our findings are useful for intercultural education and training initiatives, including raising awareness of cultural adaptation strategies and orientations among students and professionals. We also hope that our results help stimulate further research on intercultural adaptation, especially in the context of dyadic and other collaborative interactions that are commonplace in global work settings.

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Appendix

Interview and Focus Group Protocol

Section 1: Personal Experiences (15 mins for interviews, 20-25 mins for focus group)

1. We want to know your past experiences working in a culturally diverse team:

    a. What was your most memorable experience, positive or negative?
    [probe context: background of people, team tenure, power differentials, etc.]

    b. How might cultural differences come into play in your teamwork?
    What were the specific differences that affected you and your team?

2. What did you struggle with the most while working in a multicultural team?

    a. How might the challenges within the team have affected your behavior and your team's performance?

    b. Follow-up: Is there a multicultural team experience that is particularly productive [if the person only focuses on negative] /difficult [if only focuses on positive]

    c. How typical are these positive and negative incidents compared to your day-to-day multicultural teamwork experience?

Section 2: Mindset and Strategies (5-10 mins for interviews, 15-20 mins for focus groups)

3. Have you tried doing anything to improve the processes and outcomes of working in a multicultural team?

    a. What specific actions did your team take to overcome challenges or leverage differences?

    b. What worked or did not work? Or, is there anything you tried that didn't work?

    c. To what extent are these strategies transferable/applicable across different teams and contexts?

Section 3: Ideas and Suggestions (5 mins for interviews, 15 mins for focus groups)

4. What advice would you give to other engineers and current engineering students to help improve their experience and performance in multicultural teams?

    a. What resources/training do you wish you had?

Closing (2 mins for interviews, 5 mins for focus groups)

As we reach the end of the session, I'd like to invite you to share any final thoughts you have about the conversation, multicultural teamwork, or any other concluding thoughts you have. For example, are there any questions we should have asked but didn't?