

Miscommunication in Maritime Contexts: Phase 3

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Review: Phase 1 & 2

- Phase 1: Comprehensive review exploring the causes and the contributing factors of miscommunication in maritime contexts, overview of teaching practices in MET programs worldwide, and recommendations for improvement.
- Phase 2: Exploratory analysis of multiple data sources identifying the linguistic, pragmatic, and socio-cultural factors that contribute to or cause miscommunication at sea.

Conclusions: Phase 1 and 2

- Miscommunication remains a leading source of accidents
- Numerous linguistic and pragmatic sources of miscommunication
 - Power, politeness, proficiency, etc.
- Language proficiency remains an issue, although complicated by other factors
- Need for improved MET materials drawing on tasks and real-world use
- Native English speakers also contribute to miscommunication

Language and Miscommunication at Sea

- 'Human element'
 - critical feature of all aspects of ship operation.
 - found to be the cause of over 90% of incidents involving collisions and groundings.
- Poor ME proficiency, lack of standardization in language, mismatches in expectations, and lack of a clear format for communication contribute to these failures.

Maritime English Training

- Genre-based approach to courses developed in 2010 by IMO
 - Focus often on grammatical items or structure rather than real-world use
- Needs analyses demonstrate
 - Lack of speaking or interactional practice
 - Mismatches between training and real-world use (e.g., Ahmmed et al., 2020; De Castro, 2020; Dirgeyasa, 2018; Saray et al., 2021)

Role of Pilots in Miscommunication

- Pilots play a critical role in terms of safety and communication
- Communication impacted by
 - environmental factors (stressful, loud, dynamic environment)
 - linguistic and cultural factors
- Needs analyses of pilots
 - Indonesian Pilots
 - Gaps in grammar, vocabulary, and pronunciation; use of SMCP; building rapport/relationships (Sari & Sari, 2021)
 - Need for more instruction on negotiation strategies; use of SMCP (Batu et al., 2024)

Phase 3: Background and Objectives

- Little to no research exploring English speakers' perceptions of linguistic and communicative needs.
- Examine the perspectives of pilots working in native-English speaking contexts regarding the contributing causes of miscommunication.
- Better understand communication breakdowns in domestic as well as international contexts.
- Identify
 - target tasks in which pilots perceive miscommunication as likely to occur
 - target topics in which pilots perceive the need for more professional development and support.

Phase 3: Research Questions

- Which on-board, ship-to-ship, and ship-to-shore tasks do pilots feel are prone to miscommunication?
- What tasks or factors related to communication do pilots perceive as needing more direct training and professional development?

Methodology: Participants

- 42 maritime professionals [United States (31), the United Kingdom (1), Australia (2), New Zealand (1), Canada (1), Panama (1), Japan (2)]
- 30 active or retired pilots (20.69 M years of experience)
- 4 active or retired masters (26.80 M years of experience)
- Pilot boat captains (2), Maritime English instructors (2), fleet training officer (1), shipping agent (1), and maritime lawyer (1).

Semi-Structured Interviews

- Purposive and snowball sampling
- All interviews were recorded and transcribed
- Each participant interviewed over zoom, phone, or in person
- Interviews were approximately 45-60 minutes
- Focused on identifying
 - gaps in training for both pilots and crew,
 - areas in need of professional development or awareness raising,
 - tasks in which miscommunication was likely to occur

Coding and Analysis

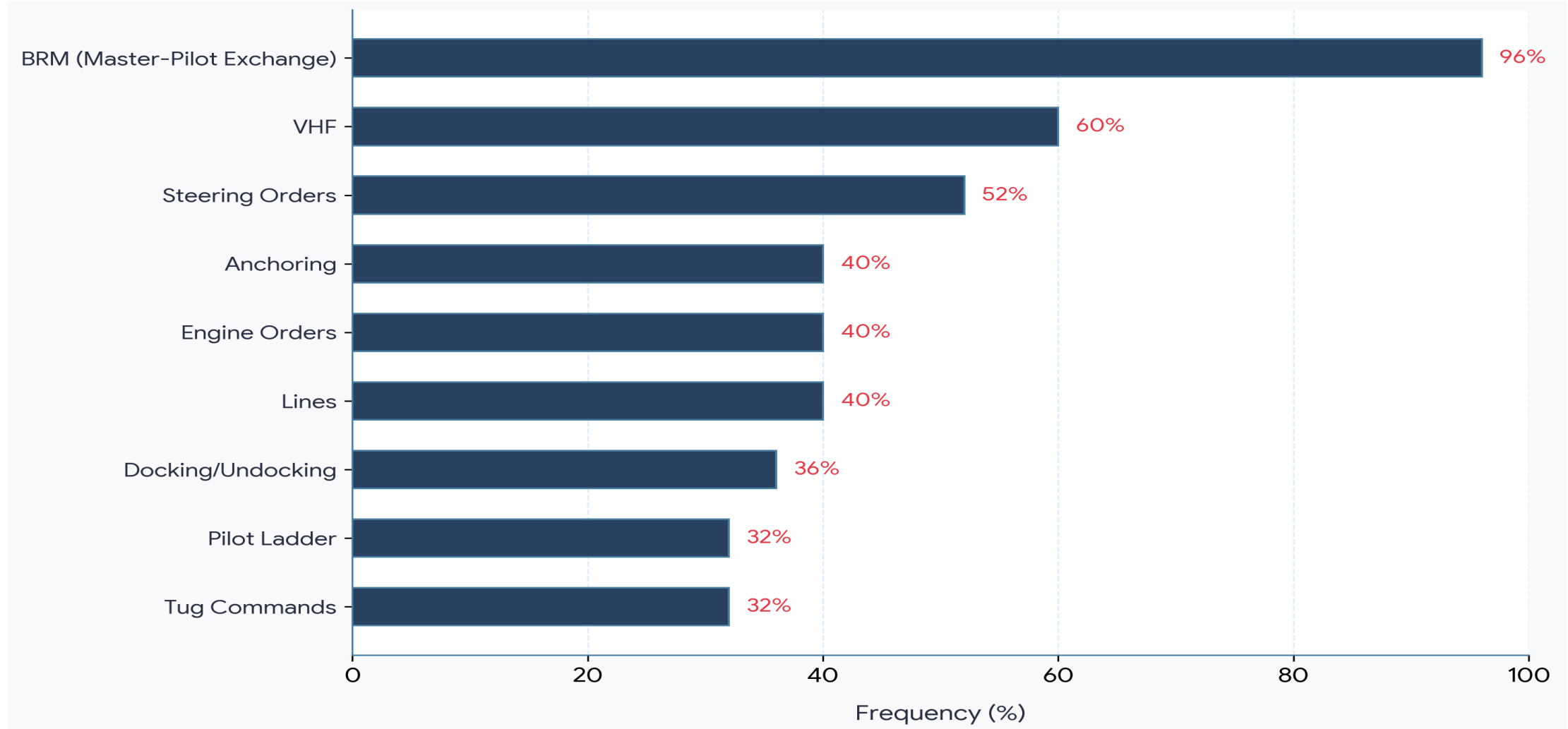
- Thematic analysis
- Iterative approach
- Data were coded for:
 - tasks that may be prone to miscommunication
 - tasks that were in need of more direct training
 - sources of miscommunication (e.g. type of linguistic and/or pragmatic source)
 - other contributing causes (e.g. failure to use all available communication opportunities).



Target Tasks Identified by Pilots

“In emergencies... communication just goes out the window... when the tension starts ramping up, people start miscommunicating even worse.” — Retired Pilot 998

Findings: Tasks Prone to Miscommunication as Identified by Pilots



Bridge Resource Management/MPX

- Most common task identified by pilots as prone to miscommunication (96%)
- Proficiency issues possible in MPX
- Task prone to false agreement/unreliable confirmation:
 - American Pilot 643: *"A lot of times... they're picking up every third word, maybe. And they'll just say, 'Yes, yes,' and have no idea what you just asked them to do."*
- Pilots may provide too much information and contribute to cognitive overload
- MPX essential for good communication, but not always directly trained
 - American Pilot/BRMP Instructor 392: *"Pilots know about the Master Pilot Exchange, but they don't practice doing it."*

VHF Communication

- Second most common task prone to miscommunication (60%)
- Supports previous findings that radio communication is crucial and difficult
- Need to improve crew familiarity with procedures
- Need for more negotiation strategies, such as comprehension and confirmation checks
 - Master: *“Asking a question of the other vessel a couple of times, people don't like to do that... But I think double checking is not a bad thing. Even if it does irritate the other guy. So what?”*

VHF Communication

- More training for pilots on using standard phrases (SMCP), especially for radio communication
 - American Pilot/BRMP Instructor 157: *“[training] might touch on it, but it doesn’t talk about this 96-page document on what communication you’re supposed to use and the whole procedure of radio communications.”*
 - Australian Pilot 606: *“I think it [SMCP] is helpful, especially when talking on the radio... Prefixing something with ‘question’ or ‘instruction’ beforehand is quite useful.”*

Steering Orders

- Third most common task (52%)
- Differences in international (port/starboard) and American (left/right) preferences for steering orders
 - American Pilot/BRMP Instructor 392: *“On American ships, you go left and right, not even port and starboard. If you go port starboard on some American ships, the helmsman won’t move the wheel.”*
- Need for accompanying gestures to reduce miscommunication
- Supports previous research in which steering orders identified as ‘highly needed’ task (Ahmmed et al., 2020)

Engine Orders

- 40% of pilots identified as task prone to miscommunication
- May involve languages other than English
- Repetition used as a strategy to confirm comprehension
 - American Pilot 851: *“allows you to know that they have, instead of waiting till the engines stop, you know that they've misunderstood you right away because they're repeating it back to you even though they misheard you.”*

Engine Orders

- Priming used by pilots to engage attention and promote understanding
 - American Pilot 830: *"I'll say, 'engine half ahead.' ... give a preparatory thing to get their attention and then tell them what you want."*
 - *"If the person controlling the bow thruster doesn't hear 'bow thruster' right away, he might not be paying attention... There's so much chatter going on and they're tuning it out."*
- Identified as 'needed task' in previous research (Ahmmed et al., 2020)

Anchoring and Lines

- 40% of pilots identified anchoring as prone to miscommunication
- Anchor and line orders problematic due to involvement of multiple people (e.g., pilot → captain → crew)
 - American Pilot 830: *“Anchor work... you're talking to the captain, the captain's talking to the people on the bow on the radio... a lot of different links.”*
- Anchor and line orders may also occur in non-English languages
 - Australian Pilot 144: *“There was conversations going on about anchors and conversations with the engineer and the pilots were just completely out of it.”*
- Novel tasks not directly identified in previous research (possible gap in training)
- Need for comprehension and confirmation checks

Pilot Ladder (Boarding and Disembarking)

- 32% of pilots identified pilot ladder tasks as prone to miscommunication
- Possible gap in training and real-world needs (has not been identified in previous research)
 - American Pilot 614: *"You have to educate them because they know zip about... pilot ladders."*
- Lack of consistency in communication amongst crew (multiple opportunities for breakdowns)
- Also highlighted by pilot boat captains as task in need of more training for international crew
 - American Pilot 765: *"It's two o'clock in the morning. I don't know who the person is out there putting that ladder out. Are they rigging it properly?" / "It's something that is very—it's dangerous, but, you know, when you add that language component to it."*

Docking/Undocking and Tug Commands

- Docking/Undocking
 - Task identified by 36% of pilots
 - Multiple commands, multiple opportunities for failure
 - Need for confirmation/comprehension checks
- Tug Commands
 - Task identified by 32% of pilots
 - Wide regional variation
 - Communication likely in shared native language
 - American Pilot 830: *“A common and infrequent, but possibly deadly mistake... the pilot gets confused on which tug is on the bow and which is on the stern.”*

Sources of Miscommunication:



*Training and Professional
Development Needs*

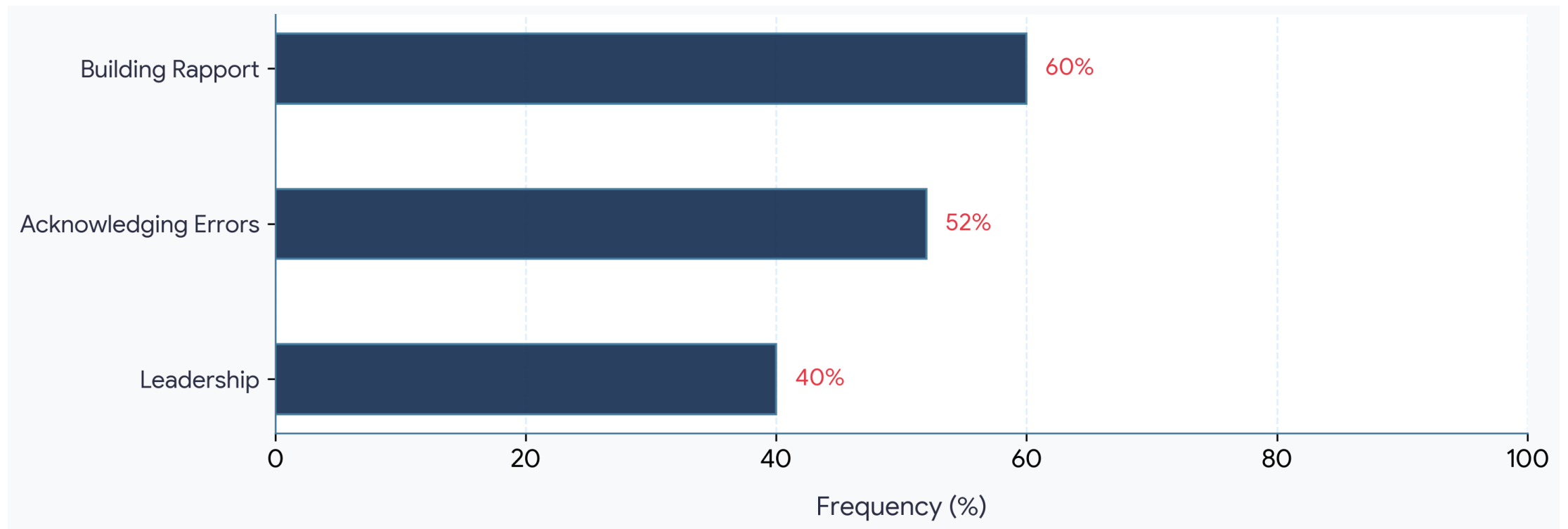
Factors Related to Miscommunication in Need of More Training as Identified by Pilots



Training and Professional Development

- 96% of pilots identified areas for improvement related to bridge resource management
- Topics further subcategorized:
 - Soft Skills (leadership, rapport, acknowledging errors)
 - Linguistic Factors (standardized language, proficiency issues, gestures, pronunciation, native-English speakers' role)
 - Pragmatic Factors (power and social distance, indirectness, agreement and face-saving strategies)

Soft Skills



Building Rapport

- Important for fostering successful MPX and BRM
- Necessary for creating cooperative environment and improving communication
 - American Pilot/BRMP Instructor 157: *“But there's, my approach was always, I didn't come in, you know, guns blazing, right, screaming, yelling, throwing my hands up, you know, you will call me Captain. Nothing like that. I come in with honey, try to work with, understand my situation, yes, work with that. And then if I have to, I will elevate things to, you know, follow the principle of my way, you know, to eventually get it done. Yeah, and that worked best. Because I think, as you know, if you come into a situation, and you're screaming and yelling, the crew doesn't really have the gumption or the initiative to challenge me, if I've made a mistake. Because trust me, and any pilot, you know, might not admit it, you know, firsthand, but, you know, we were fallible, right?”*

Building Rapport

- Identified strategies for building rapport
- Active listening, showing concern, acknowledging contributions or concerns
 - American Pilot 392: *“There's miscommunication because the captain is a little afraid to question the pilot, and then the pilot doesn't always welcome what the captain has to say, and you know, and so that leads to less interaction during a voyage, and then you reach a critical moment, and you're not engaged, right?”*
- Need for direct training and support related to rapport and relationship building
 - American Pilot/BRMP Instructor 392: *“Please and thank you go a long way, and a lot of pilots don't seem to have those words in their vocabulary, so I think miscommunication happens.”*

Acknowledging Errors

- Acknowledging errors and accepting mistakes identified as key soft skill for good communication (52% of pilots)
- Necessary for open communication
 - New Zealand Pilot 365: *“Captain, you must challenge me because pilots make mistakes. I forget things sometimes. I said, I'm human.”*
- Supports shared mental model and monitoring
- Aligns with previous work highlighting metacognition and growth mindset (Pazaver & Kitada, 2025)

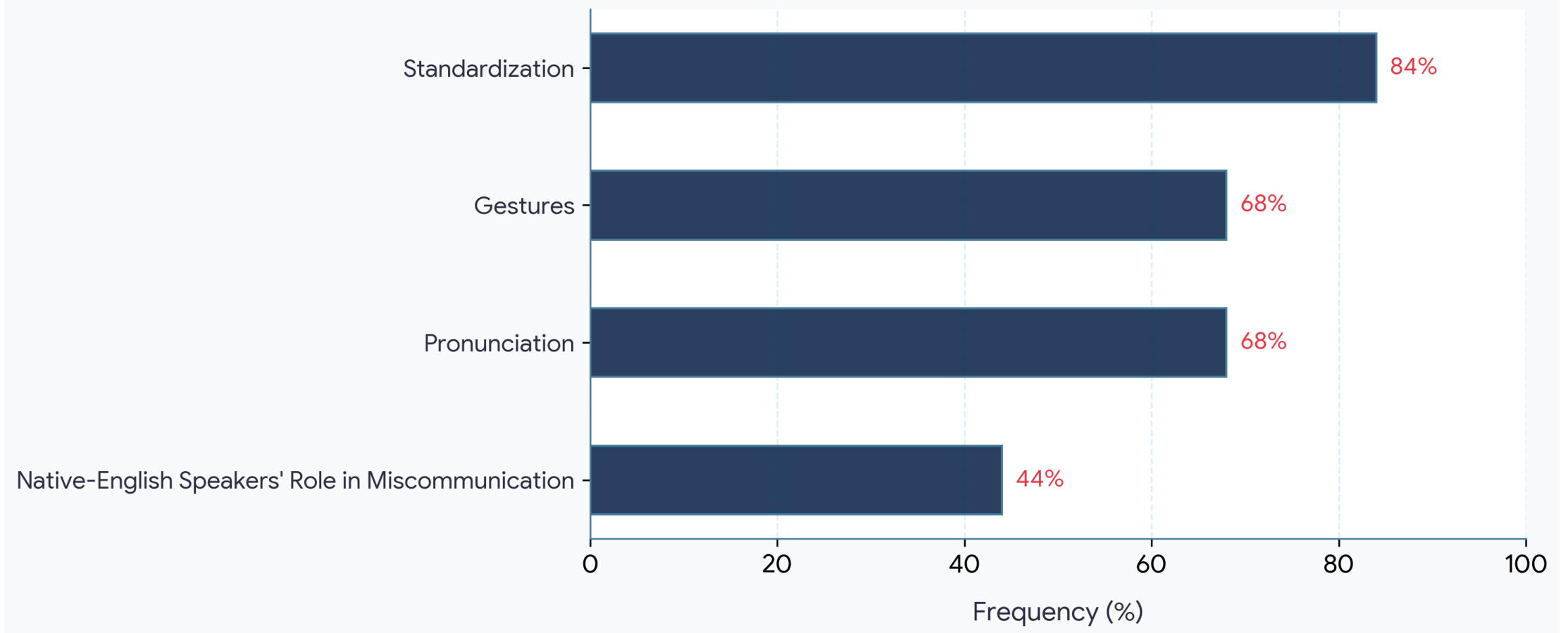
Leadership

- 40% pilots highlighted leadership as critical to communication
- Fosters cohesion and teamwork → supports communication
- Pilots highlighted planning and shared mental models
- Features of shared leadership
 - Retired Master: *“And I think that communication really does start at the top, and if the captain's not encouraging his younger officers to speak up, they're very, very likely not to say something when they need to say something, just assuming that you're the captain and you know what you're doing.”*

Leadership

- Role of culture and power/social distance
- Need for more direct training on strategies and features of effective leadership
 - American Pilot 998: *“Setting the tone. I think the maritime industry could bring that calmness and professionalism into their bridge. That would be a step ahead.”*
 - American Pilot/BRMP Instructor 157: *“a lot of on-the-job training trying to figure that out. Because as you’re training, you’re riding with other licensed pilots. And typically, everybody has their opinion on how to do things. But they don’t talk about how to communicate.”*

Linguistic Factors



Standardization

- 84% of pilots identified standardization as a factor impacting miscommunication
 - American Pilot 815: *“I think it’d be good for all pilots to just attend a couple-hour course on just some of the universal maritime language. And maybe there might be some pushback with American pilots because Americans think that it's English. What do I need to learn?”* -
- Lack of standardized terms across different American contexts
- Mismatches in terms of training related to standardized language for international mariners and for native-English speaking seafarers
 - 80% pilots interviewed reported little formal training or education related to standardized language

Standardization

- Limited experience with using the SMCP
 - American Pilot 854: *“I don’t even know what the standard Marine communication—I did this job for 35 years [...] In common practice [...] (SMCP) never came across my desk.”*
- General lack of explicit training for native-English speakers in terms of linguistic awareness or how to accommodate non-native English speakers’ lack of proficiency.
 - American Pilot/ BRMP instructor 926: BRMP courses *“may be like, ‘Be aware that [...] there are people speaking English as a second language.’ But that’s it. They don’t really go into what that actually means.”*

Proficiency Factors

- 80% of pilots highlighted proficiency as impacting communication
- Adds support to previous findings (Oraith et al., 2021; Phase 2)
- Communicative competence impacted during high stress situations
- Pilots highlighted that sometimes only one person on board would have sufficient proficiency
- Need for continued language training and support for international mariners

Gestures and Visual Aids

- 65% of pilots identified gestures as a feature important to communication
- Supports comprehension and adds visual support
 - American Pilot 844: *“You want to give [...] multiple indications of what you mean, not just verbal, but also [...] something you can see.”*
- Reduces listeners’ cognitive load and makes input more salient
- Reduces ambiguity
- Especially important for steering and engine orders
- Need for increased training on gestures for both international seafarers as well as pilots

Pronunciation

- 68% of pilots identified pronunciation as an issue that impacted communication
- Pilots cited pronunciation errors has having a negative impact on comprehension
 - American Pilot 876: *“I’ve had more issues with pronunciation than I’ve had with just the language itself, I think.”*
- Supports previous findings that pronunciation errors and accents contribute to miscommunication (Uchida & Takagi, 2012; Zhang & Cole, 2018)
- More training needed for international seafarers and pilots to support comprehension

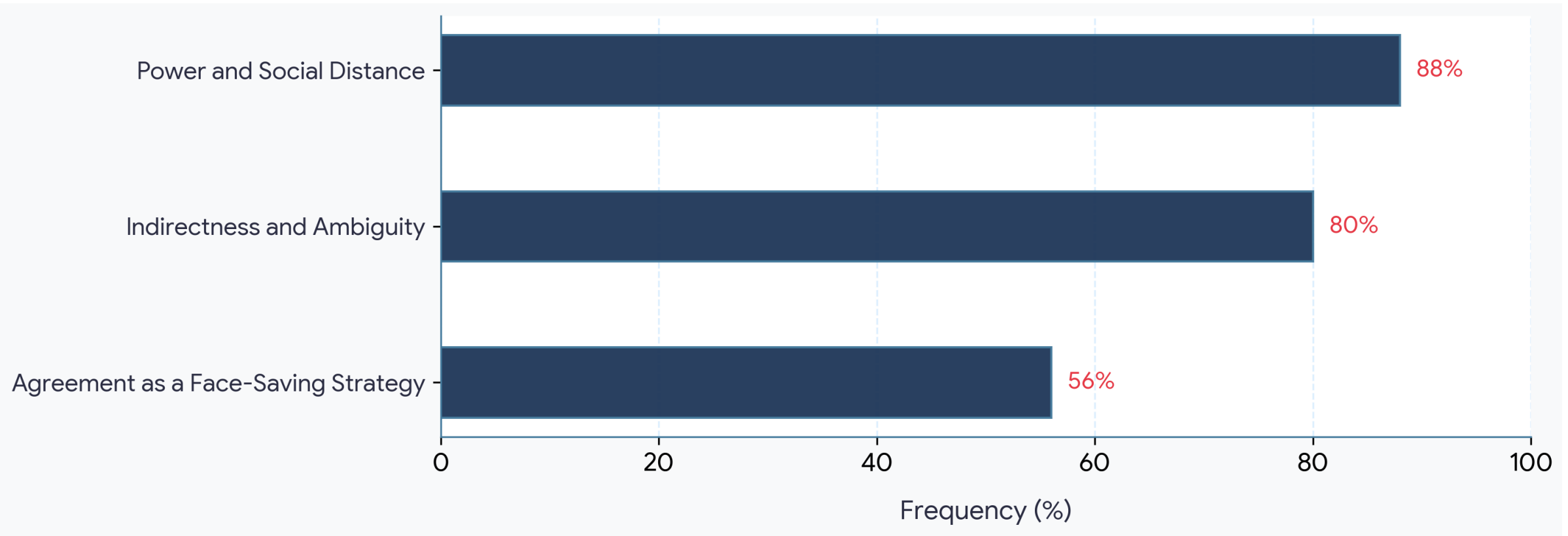
Native English Speakers and Miscommunication

- Focus from maritime industry has been on English learners
- 44% pilots highlighted role of native-English speakers
- Native Speakers (NS) contribute to miscommunication in multiple ways:
 - Failure to use standardized language
 - Lack of training in using SMCP or interacting with NNS
 - Use of 'plain' English
 - Rapid rate of speech
 - Regional variation
 - Need to approach communication as shared responsibility

Native English Speakers and Miscommunication

- Confirmation checks and comprehension checks still needed
 - American Pilot 876: *“Even between Americans, I have one experience where I was captain... I told him, hey, stop the bow thruster for a minute... And he didn't reply to me, and I thought he heard me, and he didn't, and we sucked a line up into the bow thruster.”*
 - American Pilot 998: *“Because he was good at his job, so I just kind of left it up to him to catch these orders I threw in the air, and it was wrong of me.”*

Pragmatic Factors



Power and Social Distance

- 88% of pilots identified power and social distance as factors impacting communication
- Pilots identified multiple issues:
 - Captains or crew ignoring orders due to perceived lower power or social distance
 - Crew failing to question orders or actions from higher-ranking interlocutors
 - Role of culture in open communication
 - American Pilot 876: *“And then the other problem we have in the industry would be the cultural differences. A lot of countries, the captain and the pilot are untouchable. Our status is to the point where they don't want to say anything to us.”*

Indirectness and Ambiguity

- 80% of pilots highlighted indirectness and ambiguity as impacting communication
- Supports previous findings identifying politeness/indirectness as contributing factors (Phase 2)
- Impacts international as well as native-English speaking seafarers
- Possible mismatches between underlying intent and understanding due to indirectness/politeness
- American Pilot 998: *"'You can single up now if you want to.' He was communicating that he had a hesitation in leaving, but neither one of them wanted to put their hat on that... I might have said, 'I'm not going anywhere right now.'"*

Indirectness and Ambiguity

- Culture, power, social distance all play a role on speakers' choices
 - Australian Pilot 606: *"So like, you know, like culturally, so some cultures, it's, you know, seen as like impolite or or like losing face to question someone in authority. And so I understand that there will be some there will be some people who won't be as willing to question what you're doing because that's just, you know, not culturally right."*
- Need for clear, direct commands and awareness of face-saving or face-threatening strategies

Agreement as a Face-Saving Strategy

- 56% of pilots highlighted communication challenges related to captains and crew using agreement and confirmation as face-saving strategies
- Used as a strategy to due to lack of comprehension or in an effort to obscure information
 - Face-saving behavior influenced by cultural background, beliefs, and hierarchies
 - American Pilot 003: *“They’ll smile at you and they’ll nod [...] and that tells you right away that these people don’t have a clue as to what you’re saying.”*
- Need to raise pilots’ awareness of face-saving strategies and cultural influence
- Need for confirmation and comprehension checks to reduce misunderstanding due to proficiency

Recommendations

- Develop target tasks to address these potential gaps for both international seafarers and pilots
- Raise pilots' awareness of factors impacting communication
- Provide more support for pilots' soft skills to support BRM and communication
- Provide direct training to support pilots in fostering good communication
- Provide support to pilots to improve accommodation of non-native English speakers

Thank you
for your
support of
this
research

Questions?

