

From a language-only approach to a broader view of communicative competence for intercultural communications in aviation



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Workshop purpose

- Present results from a research study that explored the communicative needs and **the several competencies** required by the **multicultural context of international radiotelephony**, giving voice to aviation stakeholders from **diverse linguistic and cultural backgrounds**;
- Engage participants in discussions based on research findings, in relation to the dimensions of **awareness, knowledge, skills and attitudes** and across the domains of:

**Aviation English,
English as a Lingua Franca,
Intercultural Awareness, and
Interactional Competence.**



Background

- As aviation has grown in **complexity** and aeronautical communications have turned into a **globalized** and intercultural enterprise, training the **next generation of pilots and air traffic controllers** for effective and efficient communication requires a more **comprehensive approach**.
- Effective communication in the **multicultural context of pilots and controllers radiotelephony** requires a range of knowledge, skills and attitudes that goes beyond language alone.



Does the ICAO testing policy address all the **multiple factors** that affect communication in this occupational domain?

Research questions

RQ1

- What theoretical models of language use would account for the communicative needs of pilots' and ATCOs' occupational domain?

RQ2

- How can this construct be articulated and specified from the models to a framework which informs test development?

RQ3

- What components of the construct are validated by key aviation stakeholders?

Overarching framework

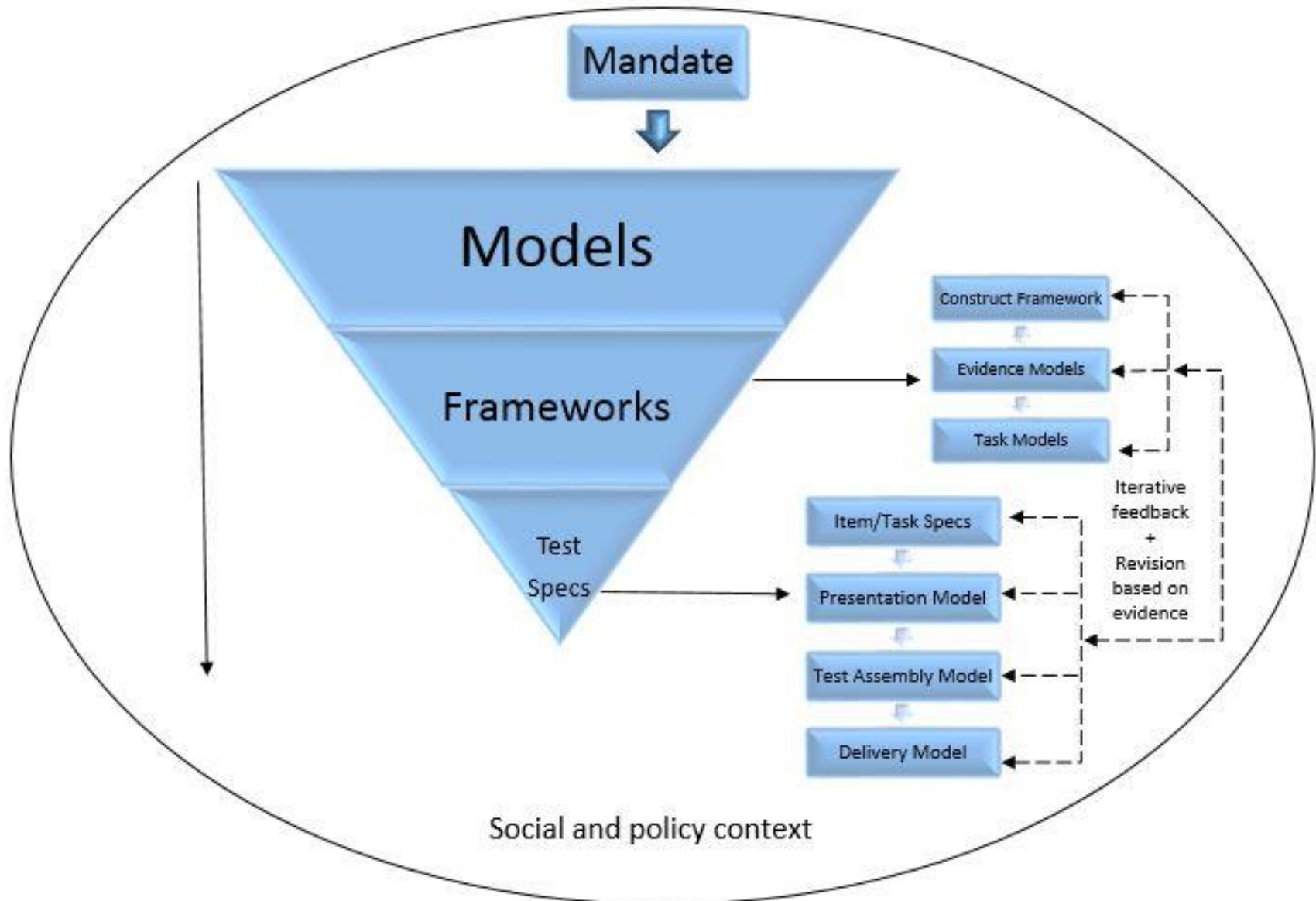


Figure 1. Test development process (adapted by Monteiro from Fulcher and Davidson, 2009)

Methodology: Qualitative study

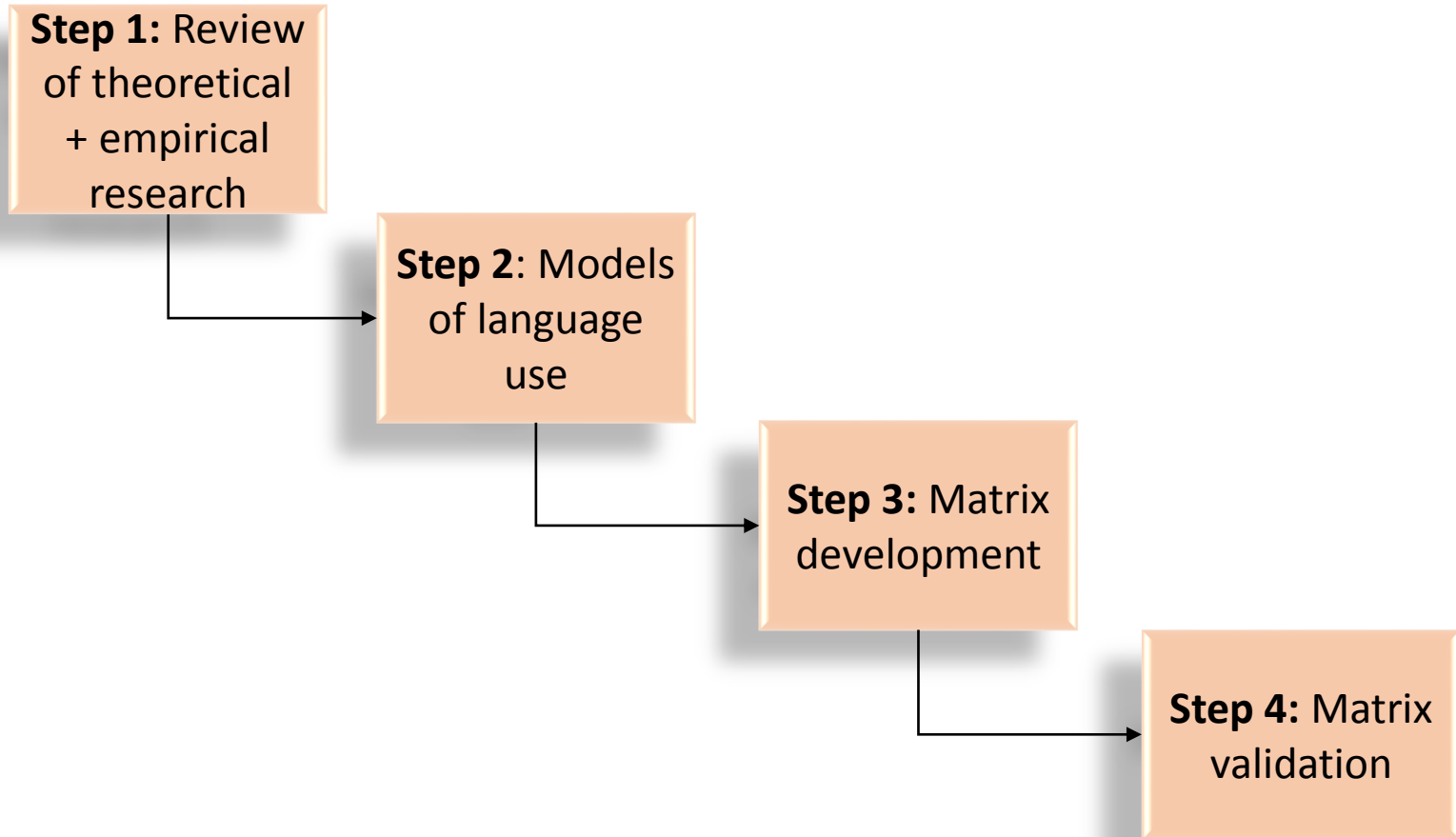


Figure 2: Diagram of steps within the qualitative study

➤ **Step 1: A systematic review of theoretical and empirical research:**

➤ **Aviation English (AE) and English as a lingua franca (ELF)**

ELF definitions: Jenkins, Cogo and Dewey (2011); Seildhofer(2004);

ELF interactions: communities of practice (Seildhofer, 2009)

AE and ELF: Estival and Farris (2016); Harding and McNamara (2017);

ICAO (2010); Kim (2012); Kim and Elder (2009)

➤ **Aviation English and Intercultural Awareness (ICA)**

Hofstede's cultural dimensions (1991) and aviation studies:

Hazrati (2015); Helmreich and Merritt (1998); Monteiro (2012, 2016a, 2016b)

Intercultural communicative competence: Byram (1997); Camerer (2014); Scollon and Scollon (2001)

ICA and ELF: Baker (2012, 2015, 2017)

Interculturality: Keskies (2014)

Negotiation: Hua (2015)

➤ **Aviation English and Interactional Competence (IC)**

IC definitions: Hall (1999); Kramsch (1986); Young (2011);

Roever and Kasper (2018)

Accommodation and ELF: Baker (2012); Cogo and Dewey (2012);

Jenkins (2000); Seildhofer (2009); Sweeney and Hua (2010)

AE and IC: Douglas(2014); Estival et al. (2016); ICAO (2010); Kim (2013, 2018); Kim and Elder (2009); Read and Knoch (2009)



Step 2: Models

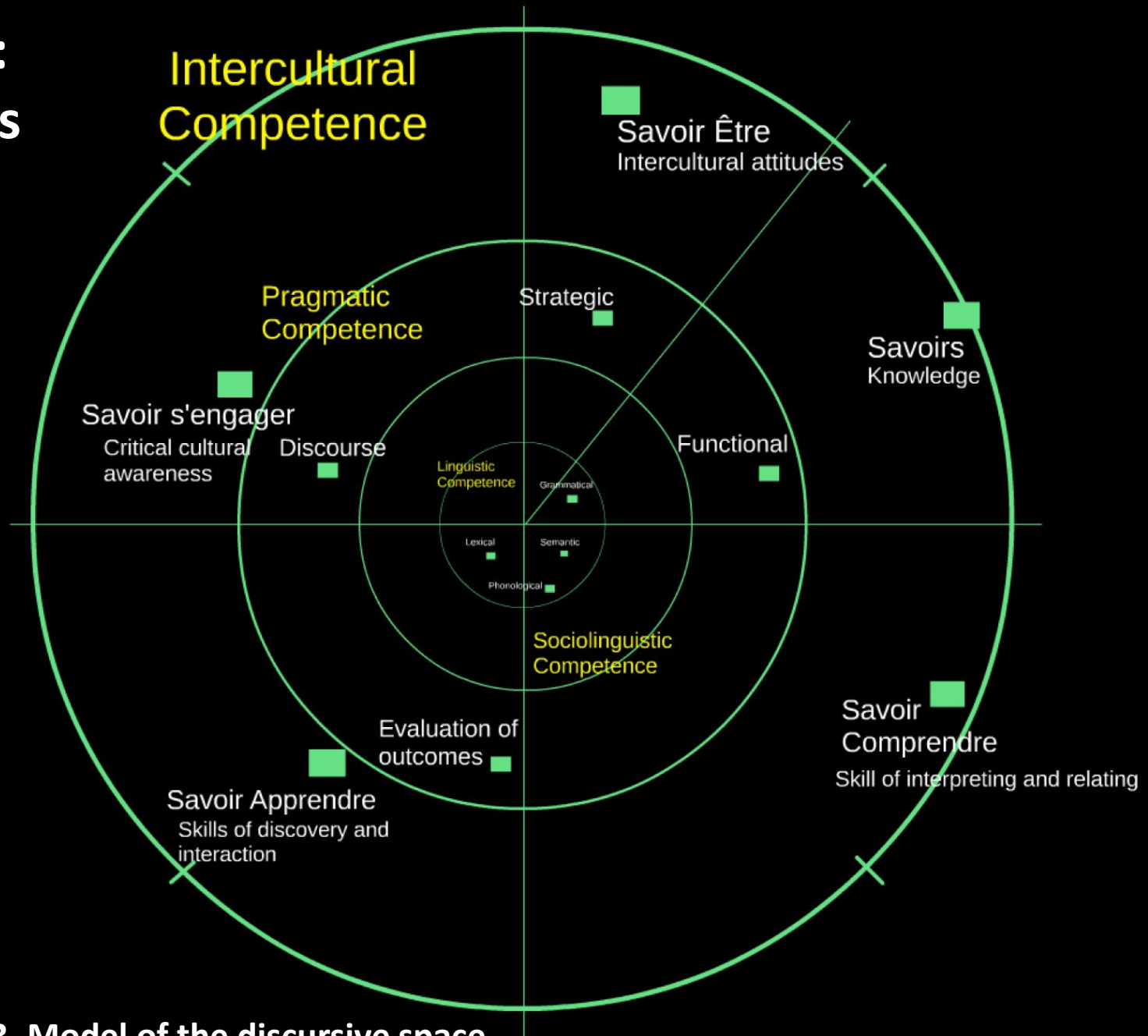


Figure 3. Model of the discursive space
(Monteiro, 2016a)

➤ Step 2: Models

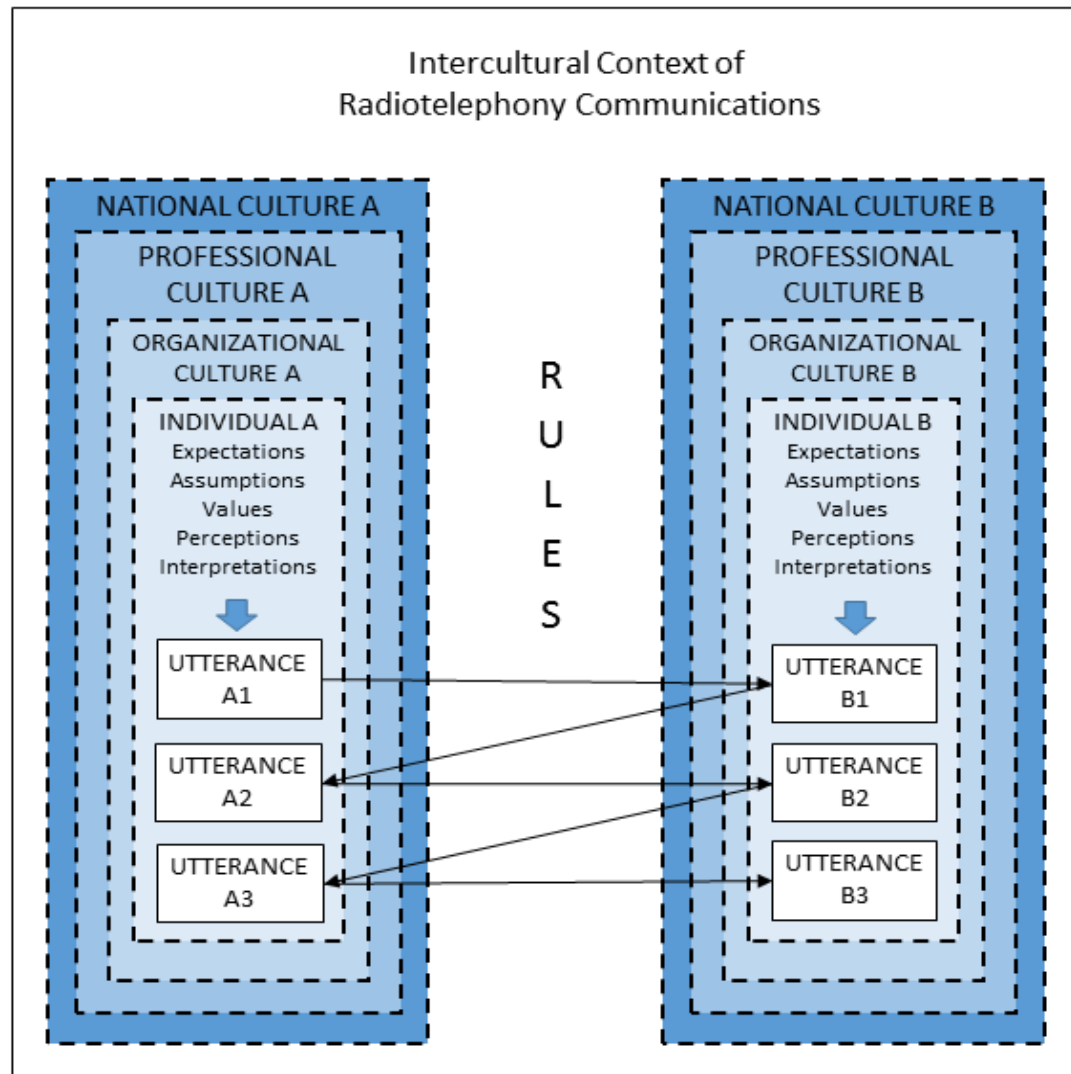
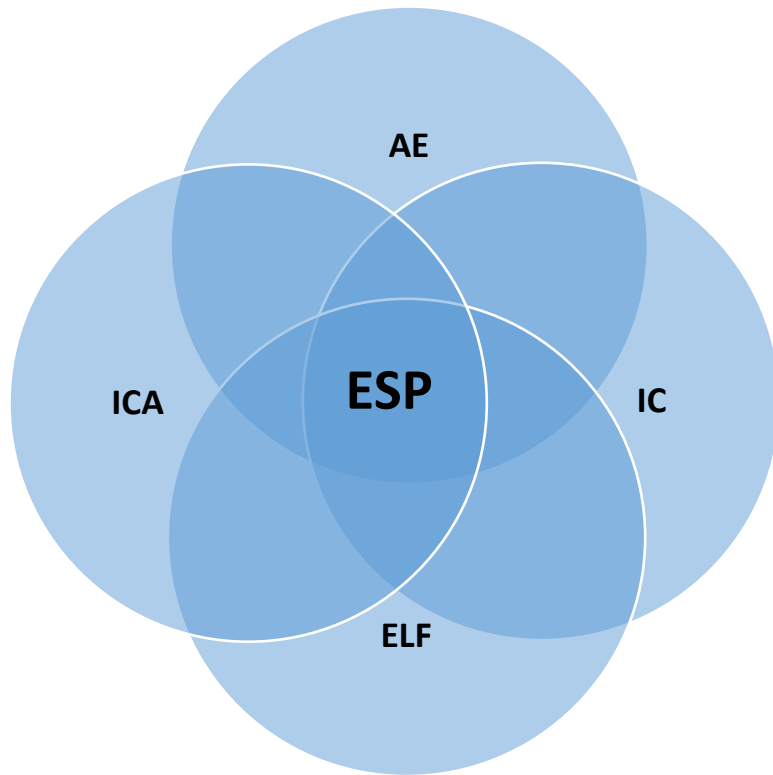


Figure 4. Model of the communicative demands of the RT occupational context (Monteiro, 2016b)

➤ Step 2: Models



AE – Aviation English

ELF – English as a Lingua Franca

ICA – Intercultural awareness/competence

IC – Interactional competence

These four areas have a crucial role in pilot-ATCO communications, showing **several points of contact.**

Figure 5. ESP= AE, ELF, ICA and IC overlap
(Monteiro, 2016c)

➤ Step 3:

Development of a matrix of construct specification within the aviation RT domain

	Awareness	Knowledge	Skills	Attitudes
Aviation English				
English as a lingua franca				
Intercultural Awareness/ Competence				
Interactional Competence				

➤ **Step 4 – Matrix validation with stakeholders:** **(1) language testers, ESL teachers –** **16 MA and 4 PhD students**

- Findings from the literature review were initially triangulated with a group of stakeholders (e.g., language testers, ESL teachers), to whom I showed the structure of the matrix and had a brief discussion on the possible key components of the cells;
- A cross-check was undertaken in each cell of the matrix in order to verify if these components were already part of the draft matrix proposed in Step 3 or if they were new components that emerged from this discussion.

➤ Step 4 – Matrix validation with stakeholders: (2) occupational experts

- **Participants** – 128 aviation stakeholders:
20 native speakers + 108 non-native speakers of English
52 male + 76 female

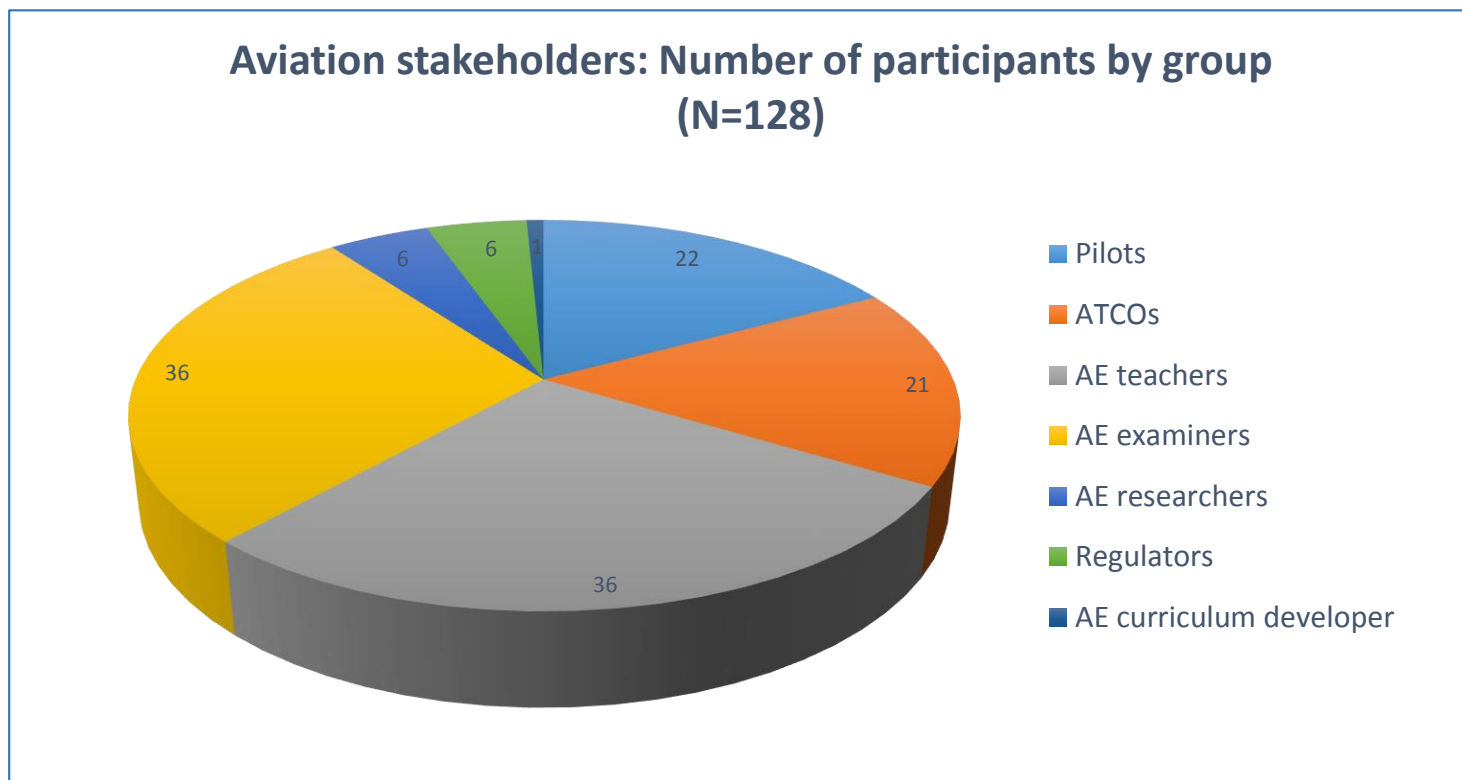


Figure 6. Number of participants by group of stakeholders

➤ Step 4 – Matrix validation with stakeholders: (2) occupational experts

- **Procedures**

- **26 focus group discussions** with a mix of participants in each group (pilots, ATCOs, AE teachers, etc);
- each group received the transcript of **one authentic RT communication scenario** (total of 6 scenarios) + a set of questions to guide the discussions (same questions to all groups);
- group discussions were audio-recorded;
- researcher moderated inter-group discussions in which **crucial aspects of each scenario were presented**;
- focus group discussions were transcribed and imported to NVivo version 12.

➤ Step 4 – Matrix validation with stakeholders:

- **Analysis**

- First cycle coding - data coded according to the four dimensions of interest: **awareness, knowledge, skills and attitudes**
- Second cycle coding - verify which components of the construct in the draft matrix would be validated, the weight of each component and whether new components would emerge from the focus group discussions.
- Inter-coder reliability - **Cohen's Kappa = .81**

- **Results**

Table 1. Weighting of construct components based on coding references

	AW	K	S	AT	Total
AE	189	160	165	552	1066
ELF	82	14	105	178	379
ICA	143	37	26	159	365
IC	9	14	123	30	176
Total	423 ^a	225 ^a	419 ^a	919 ^a	1986 ^a

^a Overlap counted.

Step 4 – Matrix validation with stakeholders:

Results:

Table 2:
Construct
components
mentioned by
the highest
number of focus
groups

	Aviation English
	English as a Lingua Franca
	Intercultural Awareness
	Interactional Competence

Construct component	Domain/ dimension	Number of focus groups
Background knowledge	AE/K	26
Professional tone and attitude	AE/AT	25
Compliance with prescribed rules and procedures (e.g., use of phraseology, readback/hearback)	AE/AT	25
Politeness	ICA/AT	19
Situational awareness	AE/AW	19
How the cultural background of participants can impact the complex and dialogic nature of their communications	ICA/AW	19
Patience	ELF/AT	18
Assertiveness	AE/AT	17
Communicate effectively in routine and in highly unpredictable situations	AE/S	17
Clarity, conciseness and correctness	AE/AT	17
Collaborative behavior	ELF/AT	15
Avoid any kind of superiority of one variety over another	ELF/AT	15
Standard phraseology	AE/K	14
Self-confidence	AE/AT	14
Rules of use that characterize the domain	AE/AW	14
Plain English for the specific purpose of aeronautical RT communications	AE/K	14
Language proficiency (ability to use the language)	AE/S	13
Communicative/interactional skills	IC/S	13
Crew Resource Management (CRM)	AE/S	12
Group identities and authority gradients in aviation	AE/AW	12
Challenges faced by speakers of ELF and interlocutors' possible linguistic difficulties	ELF/AW	12
Willingness to cooperate	ICA/AT	12
Eliminate ambiguous expressions and sentence patterns	ELF/S	12
Deal adequately with apparent misunderstandings, by checking, confirming and clarifying	IC/S	11
Adapt linguistic forms to the communicative needs at hand	ELF/S	11
Threats presented by cross-cultural communications	AE/AW	11

Step 4 – Matrix validation with stakeholders

Table 3: Final matrix of construct specification

Construct definition within the aviation radiotelephony domain				
	Awareness	Knowledge	Skills	Attitudes
Aviation English	<ul style="list-style-type: none"> - situational awareness (67) - group identities and authority gradients in aviation^a (50) - rules of use that characterize the domain^a (27) - threats presented by cross-cultural communications (19) 	<ul style="list-style-type: none"> - background knowledge (rules and procedures) (78) - standard phraseology (36) - plain English for the specific purpose of aeronautical RT communications (26) - communication as a Human Factor (6) 	<ul style="list-style-type: none"> - Crew Resource Management (CRM) (55) - language proficiency (ability to use the language) (45) - communicate effectively in routine and in unpredictable situations (39) - conflict management (12) 	<ul style="list-style-type: none"> - professional tone and attitude (195) - compliance with prescribed rules and procedures (e.g. use of phraseology, readback/hearback) (193) - assertiveness (87) - clarity, conciseness and correctness (37)
English as a lingua franca	<ul style="list-style-type: none"> - challenges faced by speakers of EFL and interlocutors' possible linguistic difficulties (34) - difficulty presented by the use of jargon, idioms, slang and colloquialisms (17) - the need to speak English as a lingua franca^a (17) - different varieties of English and speech communities (9) 	<ul style="list-style-type: none"> - nuances of the language (5) - language as a social practice (4) - one's own communicative style and the problems it could pose to ELF interactions (3) - characteristics of one's L1 phonology that may influence English pronunciation (2) 	<ul style="list-style-type: none"> - adjust and align to different communicative systems (new patterns of phonology, syntax, discourse styles) (23) - eliminate ambiguous expressions and sentence patterns (21) - adapt linguistic forms to the communicative needs at hand (20) - self-repair, rephrase, paraphrase, and clarify (13) 	<ul style="list-style-type: none"> - patience (68) - collaborative behavior (45) - avoid any kind of superiority of one variety over another (39) - tolerance (12) - openness and humility to negotiate differences (12)
Intercultural Awareness/Competence	<ul style="list-style-type: none"> - how the cultural background of participants can impact the complex and dialogic nature of their communications (58) - power distance (27) - gender expectations (17) - face concern (12) 	<ul style="list-style-type: none"> - what is involved in intercultural interaction (11) - potential threats posed by intercultural communications (11) - different cultural frames of reference (communication style, conflict management, face-work strategies, etc.) (10) - how social groups and identities function (3) 	<ul style="list-style-type: none"> - move beyond cultural stereotypes and generalizations (11) - engage with and negotiate sociocultural differences (5) - engage with politeness conventions (5) - accommodate to difference and to multilingual aspects of intercultural communication (4) 	<ul style="list-style-type: none"> - politeness (90) - willingness to cooperate (25) - respect (20) - readiness to suspend disbelief about other cultures and belief about one's own (9) - willingness to relativize one's own values, beliefs, behaviors (9)
Interactional Competence	<ul style="list-style-type: none"> - shared responsibility for successful communication (5) - discourse as co-constructed among participants (3) - communication as 'a two-way negotiative effort' (1) 	<ul style="list-style-type: none"> - register specific to the practice (10) - an appropriate participation framework (3) - the processes we go through to solve communication issues (1) 	<ul style="list-style-type: none"> - deal adequately with apparent misunderstandings, by checking, confirming and clarifying (44) - communicative/interactional skills (36) - accommodate to the constraints of the context and perceived ability of the hearer (20) - declare non-understanding (9) 	<ul style="list-style-type: none"> - avoid intimidating/threatening (10) - cooperation (9) - tolerance (6) - flexibility (4)

a. In yellow, components of the construct confirmed by aviation stakeholders.

b. In bold, components of the construct confirmed by language testers/EFL teachers.

c. In blue, additional components of the construct suggested by aviation stakeholders.

d. As underlined text, additional components of the construct suggested by language testers/EFL teachers.

Discussion:

➤ Some components in the draft matrix **were not mentioned** in the focus group discussions or **did not receive a lot of comments**. Therefore, they do not appear in the final matrix. For example:

- AE: knowledge of *“language functions used in RT”*;
- ELF: knowledge of *“different pragmatic norms for different contexts”*;
- ICA: knowledge of *“causes and processes of misunderstandings between members of different cultures”*;
- IC: skills to *“build a sphere of ‘inter-subjectivity’ through collaborative efforts”*.



However, they are also **relevant for successful international RT communications**, requiring a **greater awareness** to be achieved among those involved in RT communications.

Discussion:

- Findings confirm the **narrow view of proficiency defined by the current ICAO LPRs**, that is, the current language proficiency testing **underrepresents the international RT communication construct**.
- *“when test content is highly specialized, and is based on complex concepts which are familiar to only a limited group of language users, good language proficiency alone will no longer be sufficient for effective performance” (Douglas, 2000, p. 34);*
- *“linguistically oriented criteria alone cannot capture the key aspects of communication in this professional setting” (Kim, 2012, p. 229);*
- *“building effective intercultural communication skills is at least as important as building linguistic accuracy, if not more so” (Snow, 2018, p. 69);*
- *“the co-constructed nature of interactional competence is not at all reflected in the traditional linguistic-based ICAO rating scale. Interaction in the setting of air traffic control demands not just good language skills but also sufficient professional knowledge” (Kim, 2018, p. 420).*

Conclusion:

- Results indicate that intercultural communications in aviation require a broader view of communicative competence, including **specific purpose language ability** and **background knowledge** (AE), the need to **speak English as a lingua franca** and to **adjust to the communicative needs at hand** (ELF), to **accommodate and negotiate sociocultural differences** (ICA), and to **solve misunderstandings** between members of different cultures, while at the same time **sharing responsibility for successful communication** (IC).
- This applies to both first language (L1) speakers of English, and those who speak English as a second (L2) or additional language.
- Construct components overlap across the domains and dimensions, but more critically, a problem with one of them can be, many times, exacerbated by other issues specified in different cells of the matrix.
- In order to address the training needs of the next generation of pilots and ATCOs we need teachers that **are mindful of the multiple factors that impact multicultural RT communications in aviation.**

Workshop activity

How would you apply these research findings to the development and implementation of training?

In groups, consider one domain of the matrix and discuss:

What practical activities would you suggest to:

- Raise **awareness**?
- Impart **knowledge**?
- Develop **skills**?
- Improve **attitudes**?



Workshop activity - example

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1				
2				

Thank you for your
attention and participation!

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