

How Simulation Enhances Communication as an integration tool in ab-initio air traffic controller training

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Simulation - Workshop



Communicative skills - Useful phrases

I DON'T UNDERSTAND

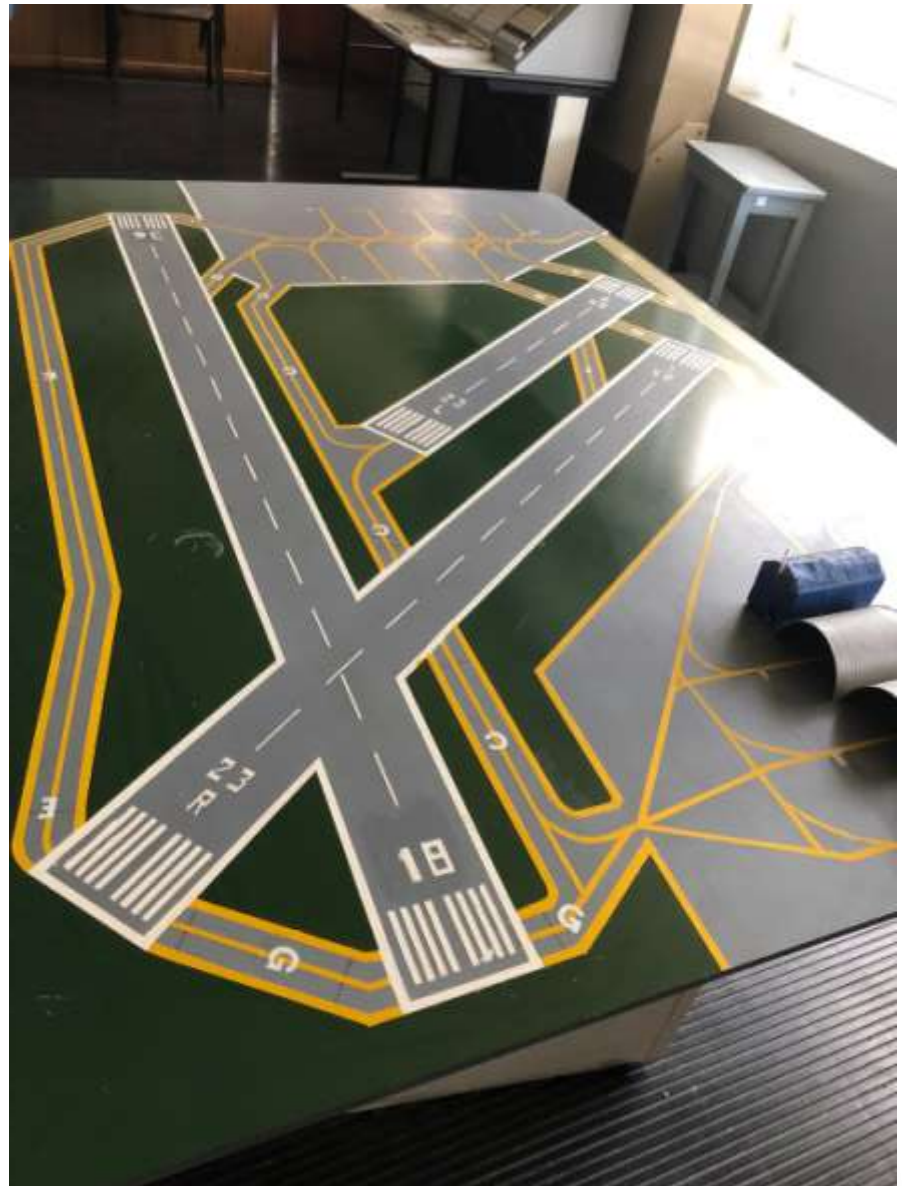
SAY AGAIN

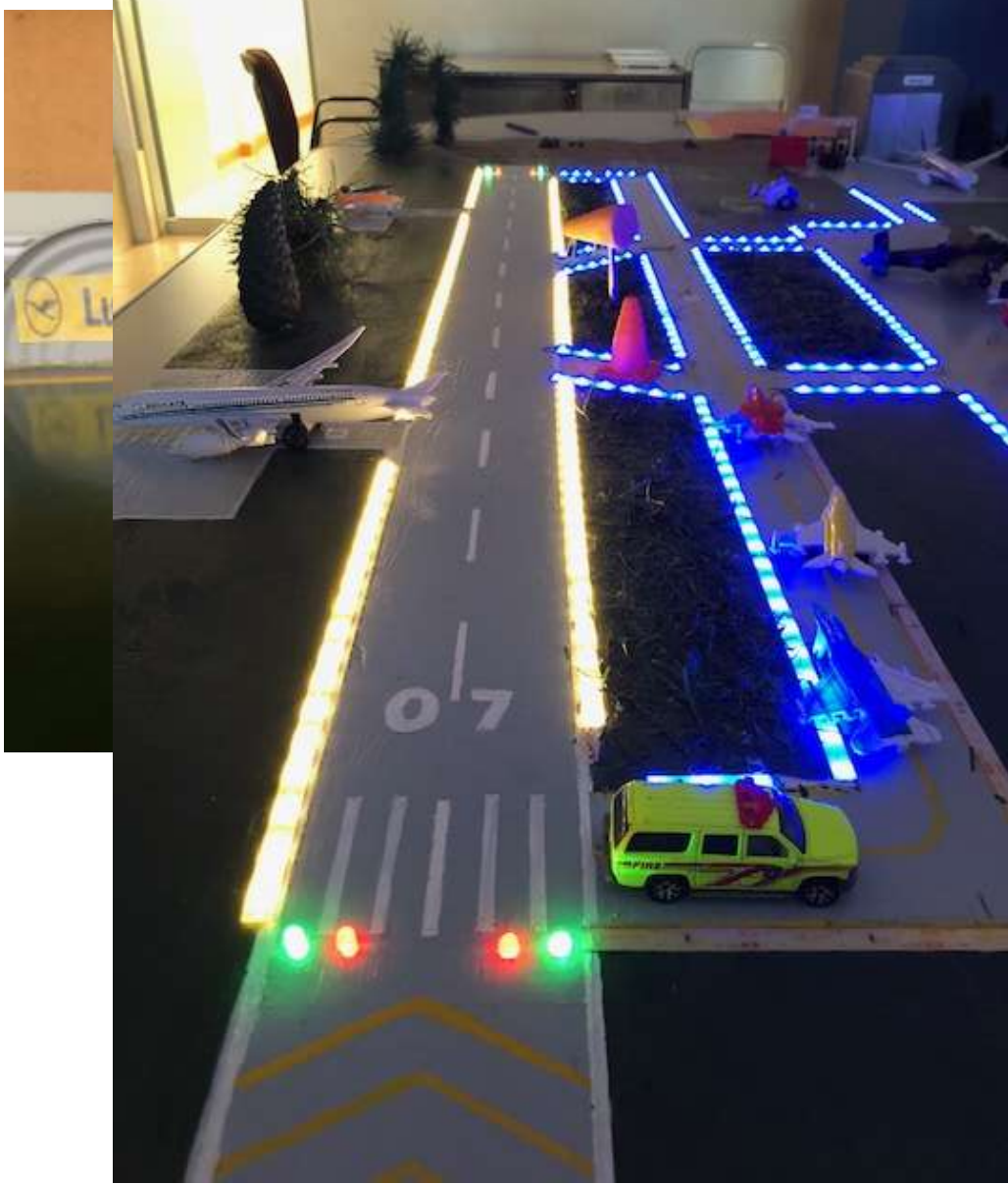
SAY AGAIN SLOWLY

SAY AGAIN WITH OTHER WORDS

STAND BY







AREA SIMULATION



MEANINGFUL LEARNING



David Ausubel

- The learner is fully engaged
- The brain organizes the information based on what it relates to.
- It takes longer than rote memorization.
- Hands-on tasks.



Air traffic controllers' curriculum

STANDARDISED
PHRASEOLOGY

AVIATION REGULATIONS

HUMAN FACTORS

ESP – ENGLISH LANGUAGE
WITH SPECIFIC AVIATION
TERMINOLOGY

METEOROLOGY

AIR TRAFFIC
CONTROL

COMMUNICATIONS



AIS

SEARCH AND RESCUE



Symbology - Clearances

| | | | | |
|-------|------|--------------------------------------------------------------------------------------------------|-------|-------|
| LVBPL | 0045 | <div> <div>A° SAAR/SACO VRP F ↑ 320 / CBA</div> <div>>T/OFF DCT X ISRAT FL 150 ^</div> </div> | | |
| LJ45 | | | ISRAT | |
| SACO | 20 | | IFR | 135,5 |

LVBPL Cleared from Rosario to Córdoba Via Flight Planned Route, flight level 3-2-0 until Cordoba VOR, after take off direct to ISRAT, cross/pass over ISRAT at or above flight level 1-5-0

| | | | | |
|--------|------|---------------------------------------------------------------------------------------------------------|--|-------|
| CMP453 | 0350 | <div> <div>A° SAEZ/MPTO VFPR ↑ 340 / SINUT</div> <div>SID BIVAM2A ↑ FI340 10 NM < UGALA</div> </div> | | |
| B738 | | | | |
| MPTO | 11 | | | 125,9 |

COPA 4-5-3 Cleared to Tocumen, Via Flight Planned Route, flight level 3-4-0 until SINUT position, Standard Instrument Departure BIVAM 2 Alpha, RESTRICTION : reach flight level 3-4-0 1-0 miles before UGALA.



METEOROLOGY

METAR SAEZ

1100

130/08 8000 HZ SCT060 23/18 Q1020

Ezeiza reports wind of one-three-zero degrees, zero eight knots, Visibility 8 kilometers HAZE. Scattered clouds at 6 thousand feet, Temperature two three, dewpoint one eight. QNH one zero two zero.



Cone of learning (Edgard Dale)



How to plan a simulation

Air traffic control simulation

ATSU: Tower

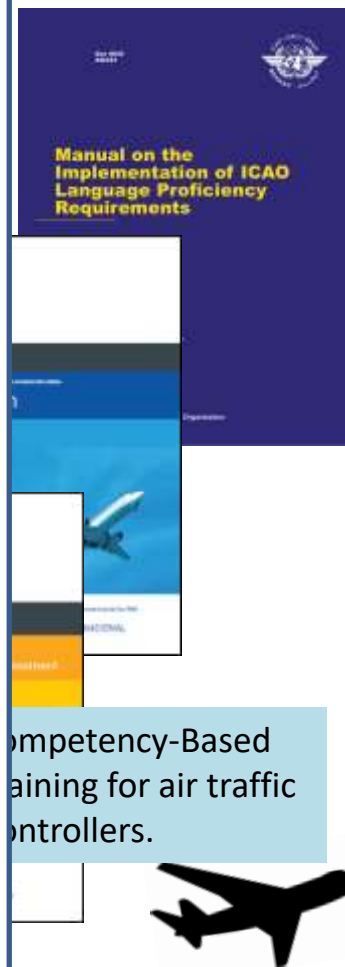
Objective: The student will be able to use Standardised Phraseology in routine situations whenever applicable, and plain English in non-routine situations, in a simulated scenario, in the manoeuvring and movement area as it is established in Doc. 4444 ATM and Doc. 9432 Manual of Radiotelephony, Annex 10, Doc. 10056. Doc. 9835.

The student is expected to use at least these functions:

Give an order/amended order/alternative orders
Cancel an order
Give advice/information/instruction on how to do
Announce a change.

Competencies assessed

Speaks clearly, accurately and concisely.
Uses appropriate vocabulary and expressions to convey clear messages.
Uses standard radiotelephony phraseology, when prescribed.
Adjusts speech techniques to suit the situation.
Demonstrates active listening by asking relevant questions and providing feedback.
Verifies accuracy of readbacks and corrects as necessary.
Uses plain language when standardized phraseology does not exist or the situation warrants it.



Air traffic control simulation

ATSU: Tower

Air Traffic Service Unit

Objective: The student will be able to use Standardised Phraseology in routine situations whenever applicable, and plain English in non-routine situations, in a simulated scenario, in the manouvering and movement area as it is established in Doc. 4444 ATM and Doc. 9432 Manual of Radiotelephony, Annex 10, Doc. 10056. Doc. 9835.

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Doc. 9835

Domain :

Competencies assessed

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Doc. 10056



- Speaks clearly, accurately and
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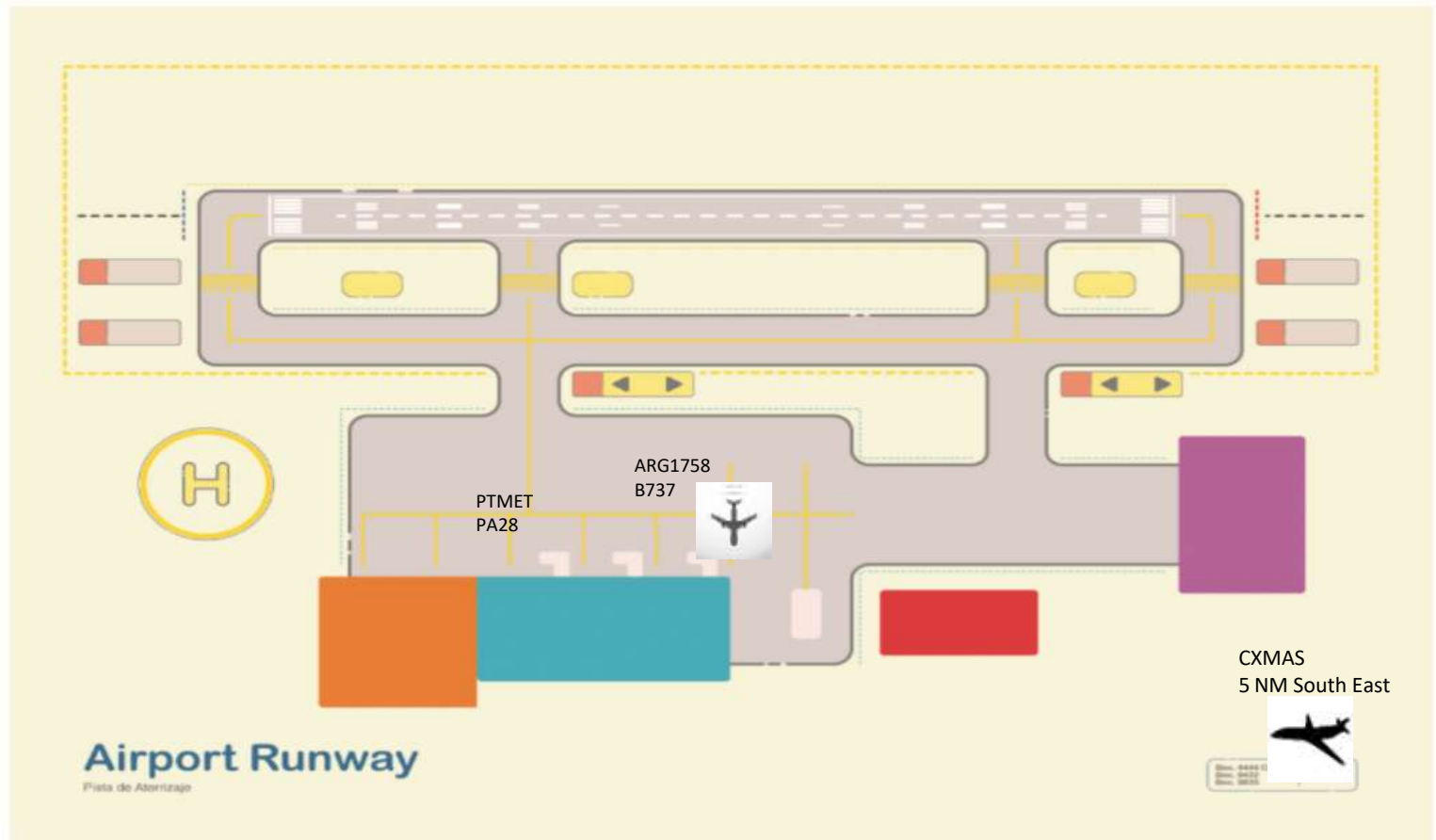
CXMAS Calls 5 miles southeast of the airport for landing. Meteorological information should be provided, and landing instructions, including traffic circuit vocabulary and departing traffic information. Simulation goes on until both aircraft have departed and CXMAS has landed.



Additional information:

Runway 11/29

METAR 140/10 6000 BR BKN025 15/13 Q1001



The assessment form

Date:/...../.....

Name: Surname:

Sector: TWR / APP / AREA (EN ROUTE) / AREA (TMA) Stage : 1 / 2 / 3

| | <i>Observable behaviour</i> | S | NS |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------|---|----|
| PC4.1 | Selects communication mode that takes into account the requirements of the situation, including speed, accuracy and level of detail of the comm. | | |
| PC4.2 | Speaks clearly, accurately and concisely | | |
| PC4.3 | Uses appropriate vocabulary and expressions to convey clear messages. | | |
| PC4.4 | Uses standard radiotelephony phraseology, when prescribed. | | |
| PC4.5 | Adjusts speech techniques to suit the situation. | | |
| PC4.6 | Demonstrates active listening by asking relevant questions and providing feedback. | | |
| PC4.7 | Verifies accuracy of readbacks and corrects as necessary. | | |

PC means Performance Criteria



Now, let's put our hands on tasks!

1. Divide into two groups (each one has to have an Air Traffic Controller or Pilot).
2. Choose who is going to be the ATCO. (1)
3. Decide who are going to be pilots (3)
4. Other attendants will assess ATCO's performance through the Assessment Form.
5. Then, after simulation is over share your experience.



Summarizing

- ✓ **Simulation is a powerful tool that allows students to put “hands-on-tasks”.**
- ✓ Meaningful learning may take longer than rote memorization, but the knowledge acquired remains longer too.
- ✓ **Simulation and OJT helps ab initio air traffic controllers to understand where each piece of the puzzle goes.**
- ✓ According to Edgar Dale’s pyramid, doing things is one of the best ways to achieve long term knowledge (learn by doing)
- ✓ **Assessment becomes easier and more effective when we focus on Competencies (Observable behaviours)**





Questions?

Thank you!

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Survey

