Enhancing Competency-based Training through a Sociocultural Approach

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Background

Personnel from Civil Aviation Authorities attend training in other State aviation academies for:

- States to learn best practices of each other
- Building friendships

Competency-based Training (CBT) adopted by ICAO to standardise and achieve baseline training standards in an industry where training standards of State aviation academies vary greatly.
Literature Review of CBT

**Strengths**
- Emphasises practice to promote fluency
- Decreases cognitive load placed on information processing (Pellegrino, 2004)

**Weaknesses**
- Failure to address actual situated behaviour (Norris, 1991)
- Lack of social content and context (Norris, 1991)
- Simplifying skills set (Franks, Hay & Mavin, 2014)
- Pedagogical critiques (Smith, 2010)
The Problem

Lack of training approach that can cater to:

- Varied culture of trainees
- Diverse learning styles and abilities
- Vast social economic differences
- Political strain in each others’ countries
Lack of training methodology that addresses diverse cultural backgrounds and learning needs has negative impact on civil aviation industry.

1. Lack of effective training methodology to address social-cultural differences
2. Ineffective knowledge transfer
3. Disengagement of trainees
4. Feeling of incompetence, boredom, behavioural problems, fail to achieve learning outcomes
5. Compromise security and safety issues in aviation industry
6. Serious negative downstream impact where safety and security are very important

(John-Steiner & Mahn, 1996)
Critical Analysis of the Problem

Re-balancing conceptions of CBT

CBT lends well to the development of skills that have clear and specific content such as operational and technical skills.

CBT fares worse off in the development of skills that emphasise relationships and processes such as social skills and knowledge-creation.

(Mulcahy, 2000)
<table>
<thead>
<tr>
<th>Curriculum Orientation</th>
<th>Description</th>
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<tr>
<td><strong>1</strong> Technical</td>
<td>Curriculum based on scientific models of rational thinking about curriculum dominated by scientific and technological rationality. Behavioural and functional sociology inform this orientation.</td>
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<td><strong>2</strong> Hermeneutics</td>
<td>Curriculum with values associated with relations between individuals and social and cultural situations. Emphasises relationships among time, culture and knowing. Negotiated approaches to learning and experimental learning are consistent with this view.</td>
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<td><strong>3</strong> Critical</td>
<td>Curriculum where cognitive interest or values are predominant, and the focus is on the development of critical skills.</td>
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Table 1: Curriculum Orientations. Adapted from Smith & Lovat (2003).
Incorporation of learning theory that complements objectivity of CBT. Strength of Vygotsky’s sociocultural theory lies in the interdependence between individuals and socially shared activities in the joint-construction of knowledge (John-Steiner & Mahn, 1996).

- Social sources of development
- Semiotic (signs and symbols) mediation in human development
- Internalisation
- Zone of Proximal Development (ZPD)
Applications of Sociocultural Theory

1. Role Play
   - Builds on social development and ZPD. The play context allows learners to act in roles beyond current abilities. Useful for areas in air traffic control, airport management, cabin crew, etc.

2. Cooperative Learning
   - Builds on social development and semiotic mediation. Learners work in pairs or groups to interact, share information and solve problems cooperatively. Useful for theory-based lessons.

3. Guided Participation
   - Builds on social development, ZPD and semiotic mediation. Tasks broken into manageable parts with repeating instructions. Useful for security inspection, aircraft maintenance, etc.

(Duchesne, McMaugh, Bochner & Krause, 2013)
Case Study: Personnel Licensing (PEL) System ICAO Training Package (ITP)

Course Goal
Set up and manage an effective PEL system in accordance with Annex 1 to the Chicago Convention and ICAO Manual of Procedures for Establishment and Management of a State’s Personnel Licensing System.
2-day e-Learning

Personnel Licensing (PEL) System ICAO Training Package (ITP)

Examination functions
- Written examinations (generated by PEL office or other approved source) to support directly issued licence types
- Flight or practical tests conducted by CAA examiners or designated examiners
- Medical assessments performed by designated medical examiners

Licensing functions

Training functions

Administrative and computer support functions

Laws and regulations required

Main duties of staff

Click each function to learn more.
Cooperative Learning through Games

List any 2 of the 5 major functions of a PEL Office.
Cooperative Learning through Games

List any 2 of the 5 major functions of a PEL Office.

Answer:

a) Examination
b) Licensing
c) Training
d) Administrative and computer support
e) Laws and regulations
Guided Participation through Case Studies

**Case Study: Personnel Licensing (PEL) System ICAO Training Package (ITP)**

**Mod 2 Case Study - Licensing of Non-Flight Crew**

You are the PEL Manager of HappyLand. You oversee a small scale PEL Office with one OPS and one AIR PEL Inspector reporting to you. There is only an AOC operator, Happy Airline, operating 2 B787 in HappyLand. There is also an approved maintenance organisation “EveryReady Maintenance” in HappyLand servicing Happy Airline and other foreign airlines.

To expand its business model, “EveryReady Maintenance” needs to service other foreign airlines where the aircraft type is not an aircraft type registered in HappyLand e.g. B777. The foreign airlines would only contract EveryReady to maintain their aircraft provided EveryReady engineers’ maintenance licence includes a type rating on the B777 aircraft.

Your DG asks you if the CAA can accede to EveryReady’s request.

**Tasks:**
- (a) List the potential problem(s), if any, which may arise if the CAA accedes to EveryReady’s request.
- (b) Describe the course of action(s), and the reasons, you would take with respect to this request.

**Mod 4 Case Study - Medical Assessment**

You are the PEL Manager of HappyLand. You oversee a small scale PEL Office with one OPS and one AIR PEL Inspector reporting to you. There is only an AOC operator, Happy Airline, operating 2 B787 in HappyLand. There is also an approved maintenance organisation “EveryReady Maintenance” in HappyLand servicing Happy Airline and other foreign airlines.

As HappyLand is a small scale operation, it does not have the necessary medical facilities and resources to conduct medical examinations on its pilots and aviation medical officers. You have earlier approached the aviation medical centre to provide services to HappyLand. None of them are interested.

This is because many of them have their own aviation medical centres, which they use primarily for their own employees and operate on a non-profit basis. This issue also exists with other foreign airlines which are serviced by HappyLand and also do not have aviation medical centres.

In light of this, what will you do?
Case Study: Personnel Licensing (PEL) System ICAO Training Package (ITP)

Awarded the “Highest number of RTCE ITPs delivered” during the 2017 ICAO TRAINAIR Plus Global Symposium

**High Level of Engagement**

“Finished my e-learning sometime before the course. The e-learning was interactive and allowed us to learn at our own pace. The game at the start of the class was good … was a fun way to recap the material, so that all of us were on the same page, using the same lingo as we go through the course. Made a potentially dry topic fun.”

Oi Tze Liang
Singapore
Thank you


References


