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

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)
## Curriculum Orientations

<table>
<thead>
<tr>
<th>Curriculum Orientation</th>
<th>Description</th>
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<tbody>
<tr>
<td>1 <strong>Technical</strong></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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<tr>
<td>2 <strong>Hermeneutics</strong></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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<tr>
<td>3 <strong>Critical</strong></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)
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.
Case Study: Personnel Licensing (PEL) System ICAO Training Package (ITP)

2-day e-Learning
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
Case Study: Personnel Licensing (PEL) System ICAO Training Package (ITP)

Guided Participation through Case Studies

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.
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


