



SINGAPORE AVIATION ACADEMY

Enhancing Competency-based Training through a Sociocultural Approach

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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.



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



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Lack of training approach that can cater to:



Varied culture of trainees



Diverse learning styles and abilities



Vast social economic differences



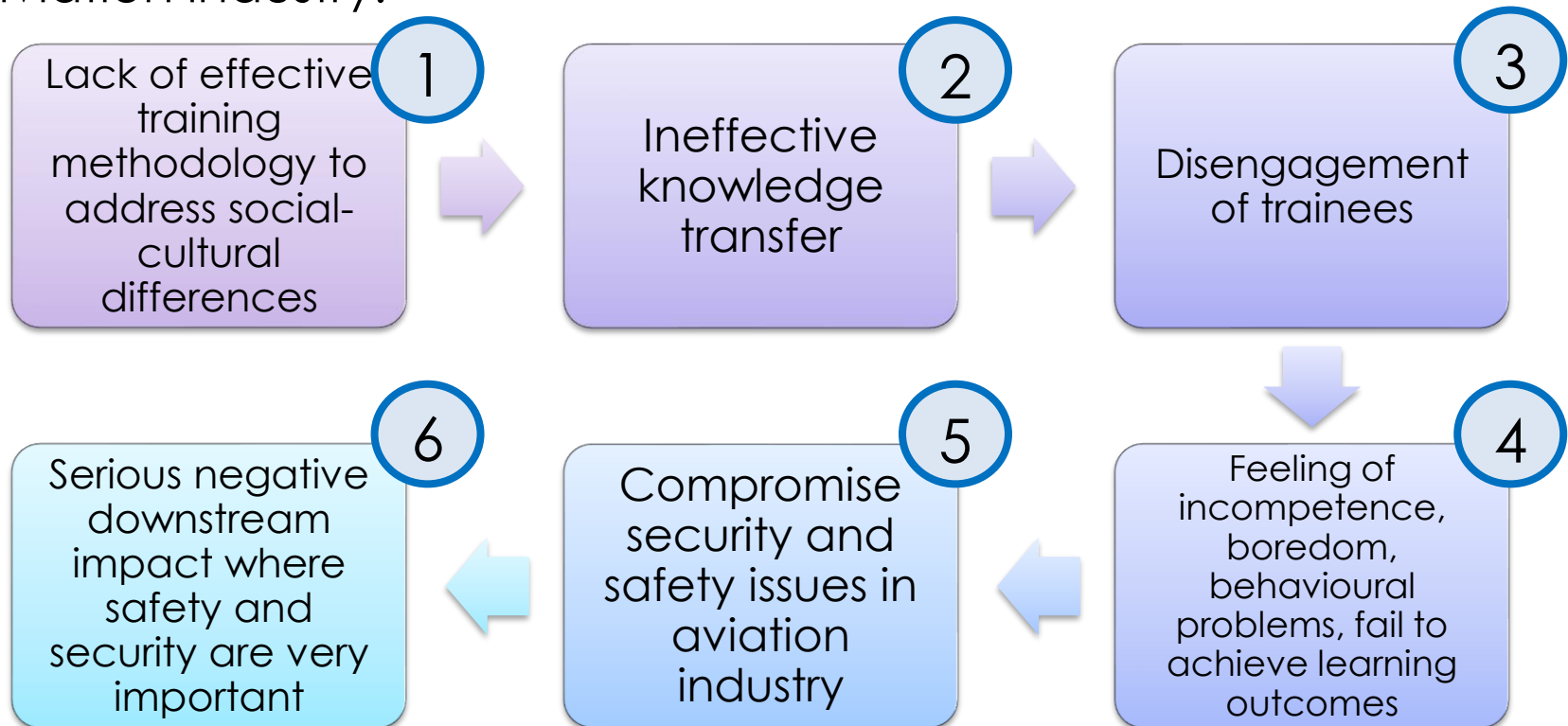
Political strain in each others' countries

The Problem



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Lack of training methodology that addresses diverse cultural backgrounds and learning needs has negative impact on civil aviation industry.



(John-Steiner & Mahn, 1996)

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)



	Curriculum Orientation	Description
1	Technical	Curriculum based on scientific models of rational thinking about curriculum dominated by scientific and technological rationality. Behavioural and functional sociology inform this orientation.
2	Hermeneutics	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.
3	Critical	Curriculum where cognitive interest or values are predominant, and the focus is on the development of critical skills.

Table 1: Curriculum Orientations. Adapted from Smith & Lovat (2003).



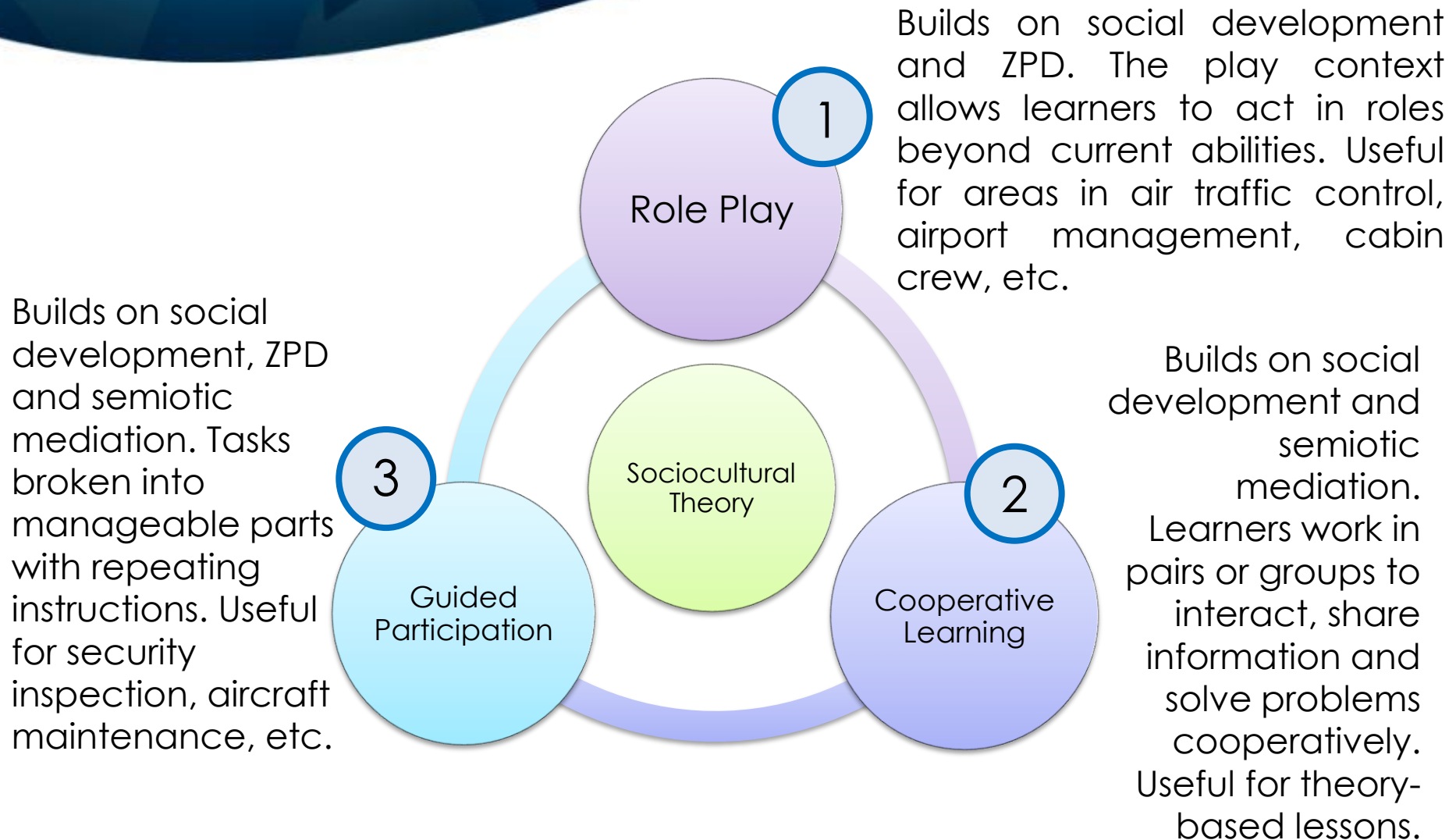
Incorporation of learning theory that complements objectivity of CBT. Strength of Vygotsky's sociocultural theory lies in the interdependence between individuals and socially shared activities in the joint-construction of knowledge (John-Steiner & Mahn, 1996).

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

Applications of Sociocultural Theory



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(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.



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



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2-day e-Learning



Personnel Licensing (PEL) System Part One

Establishment of a Personnel Licensing Office > 3 Organizational Structures of a PEL Office

55 of 100

Menu Help Resources Exit

ICAO - OACI - HEAD
BUREAU - LEAD

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Examination functions

Licensing functions

Training functions

Administrative and computer support functions

Laws and regulations required

Main duties of staff

- 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

Click each function to learn more.

Transcript << >>

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



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Cooperative Learning through Games

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

15

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



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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)



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Guided Participation through Case Studies

Mod 4 Case Study – Medical Assessment

You are the PEL Manager of
one AIR PEL

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:

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

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



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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*



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Thank you

Duchesne, S., McMaugh, A., Bochner, S., & Krause, K. (2013). *Educational Psychology for Learning and Teaching*. (4th ed.). South Melbourne, Australia: Cengage Learning.

Franks, P., Hay, S., & Mavin, T. (2014). Can competency-based training fly? An overview of key issues for *ab initio* pilot training. *International Journal of Training Research*, 12(2), 132-147. doi: 10.1080/14480220.2014.11082036

John-Steiner, V., & Mahn, H. (1996). Sociocultural Approaches to Learning and Development: A Vygotskian Framework. *Educational Psychologist*, 31(3), 191-206. doi: 10.1080/00461520.1996.9653266

John-Steiner, V., & Panofsky, C. P. (1992). Narrative competence: Cross-cultural comparisons. *Journal of Narrative and Life History*, 2, 219-233.

Mulcahy, D. (2000). Turning the contradictions of competence: competency-based training and beyond. *Journal of Vocational Education & Training*, 52(2), 259-280. doi: 10.1080/13636820000200120



Norris, N. (1991). The Trouble with Competence. *Cambridge Journal of Education*, 21(3), 331-341. doi: 10.1080/0305764910210307

Pellegrino, J. W. (2004). Complex learning environments: Connecting learning theory, instructional design, and technology. In N. M. Seel & S. Dijkstra (Eds.), *Curriculum, plans, and processes in instructional design*. Mahwah, NJ: Lawrence Erlbaum.

Smith, E. (2010). A review of twenty years of competency-based training in the Australian vocational education and training system. *International Journal of Training and Development*, 14(1), 54-64. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1111/j.1468-2419.2009.00340.x/epdf>

Smith, D., & Lovat, T. (2003). *Curriculum: Action on reflection*. Wentworth Falls, NSW: Social Science Press.