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# Exploring e-portfolios and Independent Open Learner Models: Toward Army Learning Concept 2015

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# Presentation Outline

- ▶ **Motivation: ALC 2015**
- ▶ **What are independent open learner models?**
  - ▶ **Why do we need them?**
- ▶ **A closer look at learner models**
  - ▶ **Data sources**
- ▶ **Implications for adaptive training**
  - ▶ **Learning environment**
  - ▶ **Performance**
  - ▶ **Ethics, privacy, and accessibility**
- ▶ **Next steps**
- ▶ **Conclusion**

# Toward ALC 2015

“...although the Army was an early adopter of distributed learning nearly 20 years ago, the program did not fully realize its intended goal of anytime, anywhere training.”

*Army Learning Concept 2015, p. 3*

# Learner Models

- **Open learner models**
  - **Student models that are accessible to the learner being modeled or possibly to teachers, peers, or others who may be able to enhance the model (Bull & Kay, 2007).**
- **Negotiated models**
  - **Open model that allows both system and learners to collaboratively agree on the contents of the model (Bull, 2004).**

# Learner Models, Continued

- **Independent open learner models**
  - Open learner model that is used independently of or external to a system (Bull, 2010).
- **Lifelong learner models**
  - Distributed technical framework that provides comprehensive management of personal learning data (Kay & Kummerfeld, in press).
- **E-portfolios**
  - Learner-driven collection of digital artifacts articulating experiences, achievements, and evidence of learning (Commonwealth of Australia, 2009).

# A closer look at learner models

Components	Description
<b>Profile</b>	Basic information of the user (e.g., user identification, favorite subjects, hobbies, aspirations, goals)
<b>Education &amp; Training</b>	Education and training history, grades, and feedback
<b>Career</b>	User's activities that demonstrate capabilities
<b>Qualification</b>	Official evidence data (e.g., academic transcripts, professional/vocational qualifications, certificates, licenses, and letters of recommendation)
<b>Experience</b>	Extra-curricular activities (e.g., clubs, internships, volunteer activities)
<b>Outcome</b>	Digital and non-digital artifacts that resulted from learning experience (e.g., documents, photos, animations, videos, audio files, images)
<b>Feedback</b>	Feedback from instructors, peers, and others from the learning process
<b>Reflection</b>	Personal descriptions (e.g., comments, explanations, etc.) about learning or teaching activities including perceived strengths and weaknesses

# E-portfolio populated with Game Study Data

Components	Description
<b>Profile</b>	Learner identification, gender, age, ethnicity, language communities
<b>Education &amp; Training</b>	Quiz results
<b>Career</b>	Job title
<b>Qualification</b>	TAIS (Test of Attentional and Individual Style)
<b>Experience</b>	Military experience, Video game experience
<b>Outcome</b>	Game performance, videos of facial expressions while conducting peer evaluation, pre-test and post-tests
<b>Feedback</b>	In-game feedback from peer Reflective Observer/Evaluators, Performance ranking by expert, performance ranking via Latent Semantic Analysis (LSA) and statistical analysis, visualizations
<b>Reflection</b>	AAR self-debriefing, AAR debriefing from Reflective Observer/Evaluator

# Implications for adaptive training: Learning

- Data mining and statistical analyses
- Set initial challenge level
- Automatically populate student models
- Track learners' progress
- Provide better forms of adaptation



# Implications for adaptive training: Performance

- **Track and measure**
  - Related prior knowledge
  - Prior performance
  - Current state of cognition and physiology
  - Propensity for self-directed learner
- **External Data sources**
  - Social media (LinkedIn, FaceBook, etc.)
  - Health monitoring (Withings, etc.)
  - Career, education, and training history
  - Peer evaluations
  - Other sensors (email, LMS, etc.)



# Implications for adaptive training: Privacy

- **DoD 5400.11-R**
  - Need DoD privacy impact assessment (PIA) for e-portfolios and independent open learner models
- **Australian PIA for e-portfolios:**
  - Ensure that learners are aware of potential privacy risks and are properly educated and supported to manage those privacy risks
  - Scaffold the right educative framework around the generation of e-portfolio content
  - Manage access to e-portfolio content, including fine grained access controls
  - Keep e-portfolio personal information secure

# Implications for adaptive training: Ethics and accessibility

- **Data Ownership**
  - Individual vs. organization
  - Data management, storage, and retention
  - Legal limitations
  - Quality control
- **Data Access**
  - Roles and content access



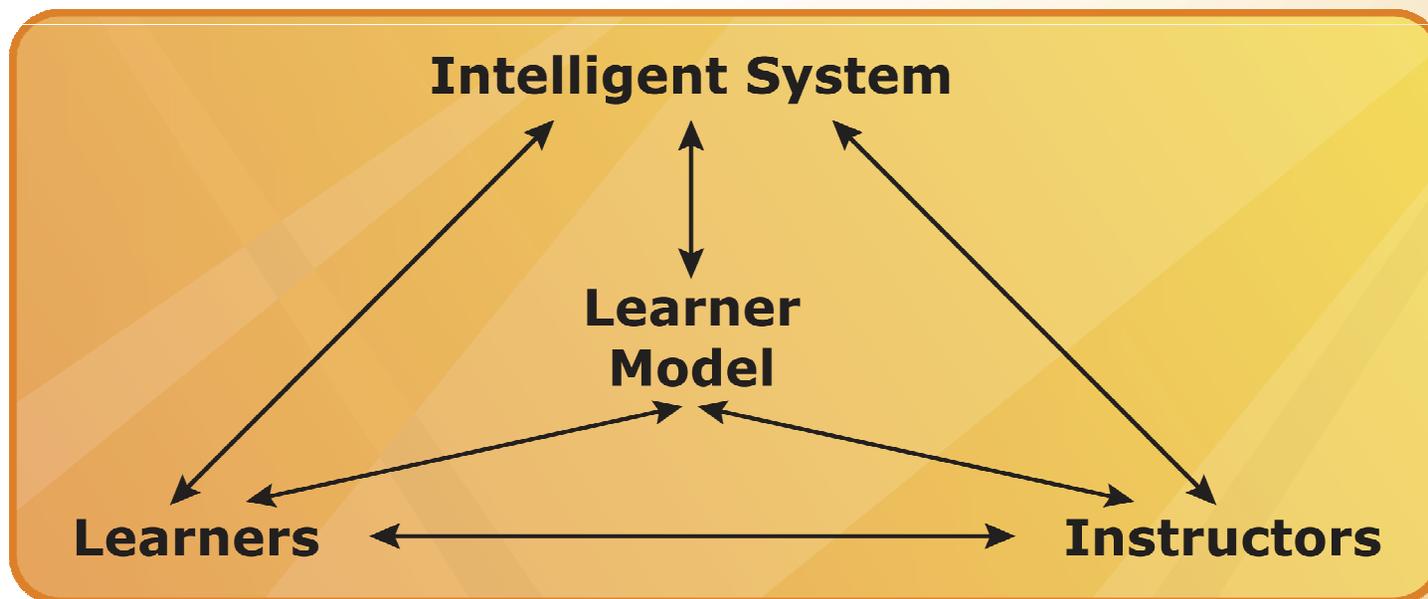
# Next steps

- **Models that are**
  - Independent
  - Open
  - Responsibly unlimited
- **Natural representations of cognition**
- **Next Generation SCORM**
- **OSD/ADL Initiative Personal Learning Assistant BAA**



# Conclusion

“The future learning model must offer opportunities for Soldiers to provide input into the learning system throughout their career” as well as account for Soldiers’ prior knowledge and experiences. *Army Learning Concept 2015, p. 6*



**Questions?**

**Thank you!**

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