



Learner Models in the Generalized Intelligent Framework for Tutoring: Current Work and Future Directions

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A Framework for Learner Modeling



	Learner Measure Category	Trait-Like (Outer Loop Adaptation)	State-Like (Inner Loop Adaptation)
Content Dependent	Cognitive	Content-Dependent Adaptation (hints, remediation, etc)	
	Psychomotor		
	Affective		
Content Independent	Cognitive	Content-Independent Adaptation (pacing, difficulty, etc)	
	Psychomotor		
	Affective		

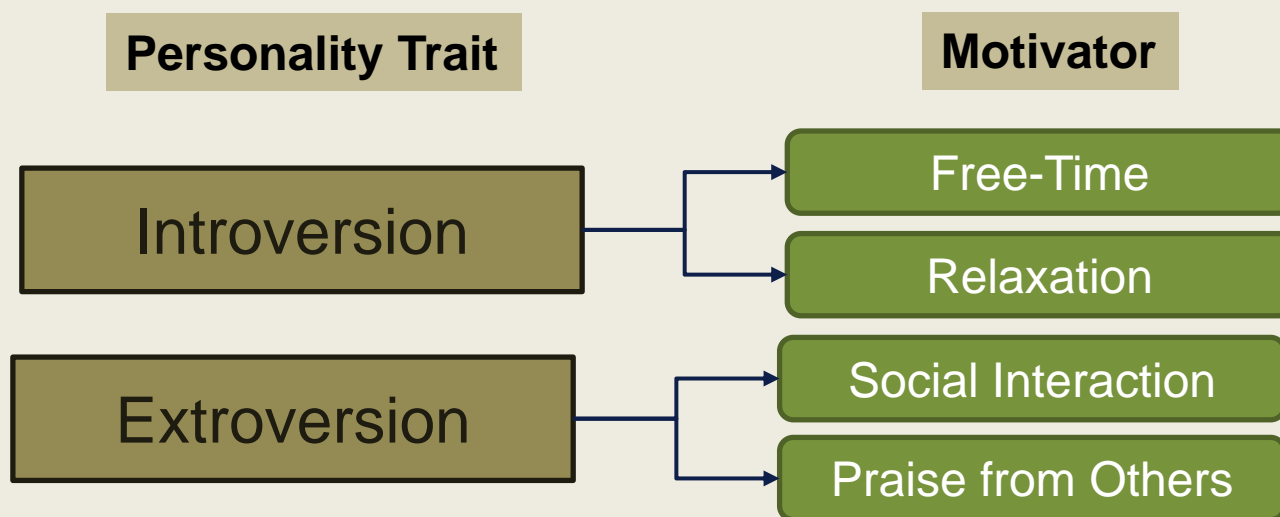
Personality: A Key to Motivating our Learners

Biddle, Lameier, Reinerman-Jones, Matthews, and Boyce

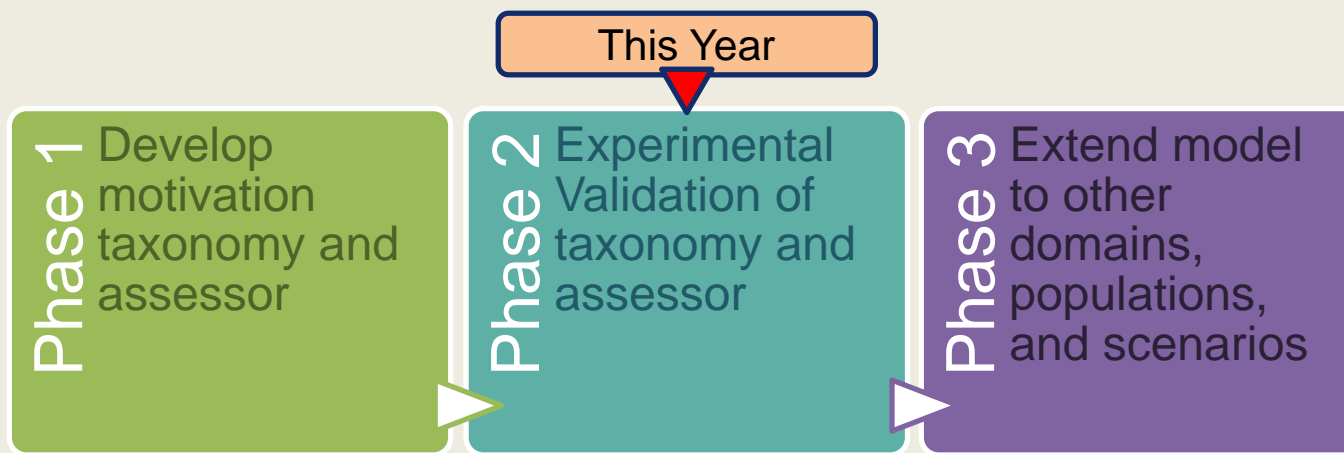


Content Independent Adaptation Long-Term Learner Model

- How might personality affect the way training is delivered?
- One possibility being explored by these authors is that different personality types are motivated differently.
- For example:



- The focus of this research is the identification of relationships between personality and motivators.
- Last year the authors developed items for the motivational assessment tool (MAT)
- This year they present their findings on how personality and motivation are related in a large sample they collected.





Perceptual-Cognitive Training Improves Cross-cultural Communication in a Cadet Population

Folsom-Kovarik, Boyce, and Thomson



Content-Dependent and -Independent Adaptation Near-Term Learner Model

- The authors explored ways to more efficiently use misconceptions found across a wide range of cross cultural communication scenarios to more efficiently build remediation into their GIFT tutor.
- The authors also saw that learners exhibited different response patterns which impacted the effectiveness of the training.
- The authors discuss ways that adaptations in GIFT could be made more efficiently by providing remediation for common misconceptions and different response patterns.

Predicting Students' Unproductive Failure

Park and Matsuda



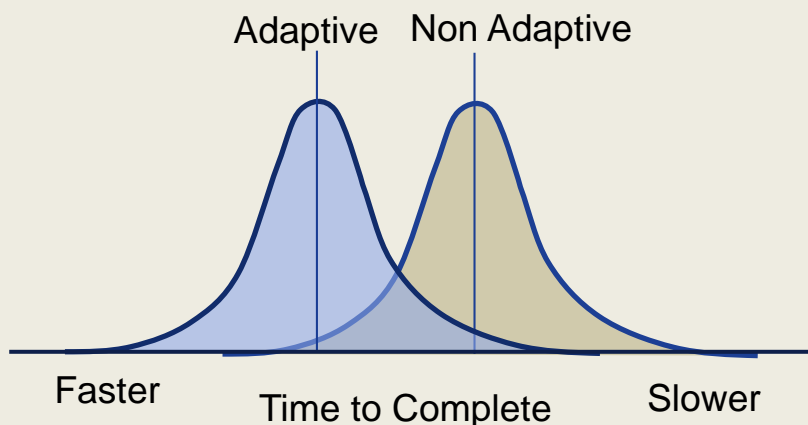
Content-Dependent Adaptation Near-Term Learner Model

- Unproductive failure occurs when learners repeatedly fail to solve a problem.
- Over time this leads to frustration.
- Predicting who is going to get caught in this cycle of failure has value for GIFT because frustrated learners eventually just give up.
- The authors use archival data to test and evaluate a model to reliably predict this pattern of behavior.

Modeling the Determinants of Training Time in GIFT

Goodwin and Niehaus

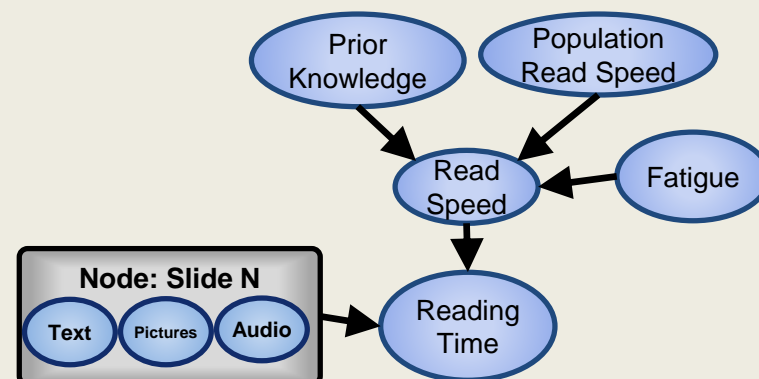
Content-Dependent and -Independent Adaptation Long- and Near-Term Learner Models



One advantage of adaptive training is greater training efficiency (reduced time to train to criterion)

The investigators examine ways to predict training time based on learner characteristics and characteristics of the training content.

In this second year of work, the authors describe how the predictive model is being developed and interfaced with GIFT in preparation for data collection for validation of the model.



- Research on Learner Modeling is progressing in all quadrants of our framework.
- Learner modeling is a complex task and much remains to be done
- GIFT's native learner model is still relatively simplistic (i.e., novice, journeyman, expert), but research on learner modelling is identifying promising ways in which it can evolve.