Beyond the Classroom: A Whole-Person Measure of Adult Online Learning Self-Efficacy

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BACKGROUND: Traditional models of learning self-efficacy address learners' confidence in their ability to master content presented during class. But for working adults, management of demands outside the classroom may prove critical to achieving learning goals. Additionally, the criteria for 'successful' adult learning are posited to go beyond grades and academic performance to include transfer of learning to 'real-world' (often vocational) contexts. Using a sample of adults in an online Master's of Computer Science program, we developed a novel set of measures for adult learning self-efficacy and provided initial validation data.

METHODS

1. N=1200 (18.6% female, M = 33 years, SD = 8.9 years)
2. Measures
   1. Novel measures of SE: Adaptive, Learning, Transfer
   2. Biodata: semesters enrolled, years of CS work experience
   3. Psychosocial: Stress, Sense of Belonging, Support, Break Intentions, Extrinsic Reasons to Apply

RESULTS AND IMPLICATIONS

- Exploratory Factor Analysis produced a four-factor solution. As predicted, Adaptive Efficacy (i.e., learning in context) and Transfer Efficacy (i.e., transferring learning to the workplace or other contexts) loaded on 2 separate factors. Unexpectedly, Learning Efficacy items loaded on two factors, interpreted as 1) Focusing & Staying On-Task and 2) Memory & Problem Solving. Ultimately, our data is consistent with research from learning sciences and andragogy that learning occurs in context, especially for adults (e.g., Lee et al., 2019).
- Dwyer's Extension Analysis showed that biodata did not load meaningfully on SE factors, while psychosocial variables loaded on adaptive or transfer but not learning SE. See top right table. Greater loadings of a variable on a given factor (e.g., extrinsic reasons to apply on transfer) generally suggest that there are stronger relationships between the variable and this factor relative to other factors. Our data show stronger relationships between psychosocial efficacy correlates and adaptive/transfer efficacy than with learning efficacy.
- Correlation Matrix provided greater insight into patterns of relationships; consistent with patterns observed in extension analysis. See middle right table. Compared to K-16 learning, our data suggest that efficacy for learning itself may be less critical for adults. For example, stress and support are more strongly associated with adaptive than learning SE.
- t-tests showed evidence of small but consistent gender differences in expected directions. See bottom right table. Future research should further examine the nature of gender and other group differences.

Lee, K., Choi, H., & Cho, Y. H. (2019). Becoming a competent self: A developmental process of adult distance learning. *The Internet and Higher Education*, *41*, 25-33.

Learning self-efficacy for adults goes beyond confidence in problem-solving and study skills, to also encompass efficacy for **learning in context** and for **applying learning to work**.

Adaptive Efficacy
"I can make enough time in my schedule to complete OMSCS assignments."

Learning Efficacy (Focus)
"I can avoid distractions while studying."

I am confident that…

Transfer Efficacy
"I can use what I've learned to be a more effective employee."
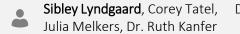
Learning Efficacy (Problem Solving)
"I can remember information presented in lecture."

Extension Variable	Adaptive	Transfer	Learning-Focus	Learning-Problem-Solving
CS Experience	-0.07	-0.06	0.18	0.04
Semesters Enrolled	-0.06	-0.08	0.04	0.03
Household Support	**0.49**	0.01	-0.04	-0.01
Homework Support	**0.31**	0.11	0.02	0.25
Perceived Stress	**-0.56**	0.09	-0.11	0.02
Sense of Belonging	0.27	**0.34**	0.13	-0.02
Break Intention	-0.24	0.00	0.01	-0.04
Extrinsic Reasons to Apply	-0.09	**0.45**	0.05	-0.16

	Adaptive SE	Learning SE Focus	Learning SE Problem-Solving	Transfer SE
Adaptive SE	1	-	-	-
Learning SE – Focus	0.29	1	-	-
Learning SE – Problem-Solving	0.42	0.43	1	-
Transfer SE	0.25	0.20	0.28	1
Age	-0.02	0.19	0.03	0.01
CS Exp.	-0.01	0.14	0.06	-0.03
Semesters Enrolled	-0.05	0.01	-0.01	-0.07
Household Support	0.45	0.10	0.17	0.12
Homework Support	0.43	0.21	0.40	0.24
Stress	-0.53	-0.24	-0.23	-0.06
Belonging	0.37	0.25	0.25	0.40
Break Intention	-0.25	-0.10	-0.13	-0.07
Extrinsic Reasons to Apply	-0.02	0.04	-0.02	0.38

	Male	Female	p-value	Cohen's d
Adaptive SE	3.22	3.04	0.002*	0.24
Learning SE – Focus	3.13	2.90	0.002*	0.26
Learning SE – Problem-Solving	3.64	3.47	0.002*	0.25
Transfer SE	3.59	3.51	0.16	0.11

Note. * Indicates significance at p < 0.05.

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