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Fostering Self-Direction in Learning

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Abstract: This study sought to assess changes in the four characteristics measured by the Personal Responsibility Orientation – Self-Directed Learning Scale: initiative, control, self-efficacy, and motivation among mid-career Army officers attending the U.S. Army’s Command and General Staff Officer’s Course. Results were compared among subgroups based on gender, ethnicity, and level of education. This pre-test post-test quasi-experimental study explored the development of self-directed learning for mid-level Army officers.

The Army’s Learning Concept for 2015 called for an Army culture that promotes lifelong learning as an “ideal” (U.S. Army Training and Doctrine Command, 2011, p. 8) and listed lifelong learning as one of nine 21st century soldier competencies. Given the over one half million soldiers trained annually by the Army, the magnitude of this endeavor may make it one of the most significant ventures in the field of adult education. In order to achieve a goal of this magnitude the Army has begun making changes to curriculum, faculty development, and the acquisition of educational technology (U.S. Army Research Institute for the Behavioral and Social Sciences, 2010). Implementation across the Army has been comprehensive. The Army’s Training and Doctrine Command (TRADOC) has established learning policies, regulations, and systems for Army training and education (U.S. Department of the Army, 2011). Within the field of adult education, research regarding lifelong learning has as its basis self-directed learning (Dyanan, Cate, & Rhee, 2008). Research assessing the personal attribute of lifelong learning has used instruments intended to measure self-directed learning. This research, too, extends the connection between lifelong learning and self-direction in learning. In order to measure life long learning and assess change this researcher used an instrument designed to measure graduate student levels of self-directedness in learning, the Personal Responsibility Model - Self-Directed Learning Scale, PRO-SDLS.

Conceptual Framework

Knowles (1975) and Candy (1991) make the claim that self-directed learning is lifelong learning. Significant literature recommends instructional designs and faculty practices intended to foster self-directed learning (Brockett & Hiemstra, 1991; Candy, 1991; Grow, 1991; Kasworm, 1992; Knowles, 1975). Research abounds with measurements of self-directed learning and its relation to: satisfaction in on-line learning (Fogerson, 2005); epistemological beliefs (Boden, 2005); museum goers (Banz, 2008); however, a limited number of studies have examined whether instructional and faculty have led to an increase in self-directed learning.

Two theoretical perspectives on self-directed learning have driven research in fostering self-directed learning in all program delivery methods, face-to-face and distance learning (Kocaman, Dicle, & Ugur, 2009): personal characteristics and process. Grow (1991) believed that the development of SDL happened in four stages: (1) dependent learning; (2) interested in learning; (3) participative in learning; and (4) self-directed learning. Kasworm (1992) proposed that the process of self-directed learning grew over five stages: (1) passive learning; (2) authority-oriented learning; (3) active learning through inquiry; (4) critical appraisal of information; and (5) use of complex strategies for planning and conducting learning. Kocaman

et al., (2009) conducted a longitudinal study of a four-year nursing program to determine if a problem-based curriculum facilitated the development of self-directed learning.

This study employed the Personal Responsibility Orientation (PRO) model, which argued that self-direction in learning referred to two separate but related concepts. On the one hand it has been viewed as a personality characteristic, in which the learner preferred to take responsibility for their learning. On the other hand it has been viewed as an instructional process that allowed a learner to assume primary responsibility for his/her learning. (Brockett & Hiemstra, 1991). Using this model, self-direction in learning can be viewed as a personal characteristic that can be fostered by instructional design systems and teachers who support and nurture students taking control of their own learning.

Research (Kocaman et al. 2009) indicated that self-direction scores rose significantly over the first and fourth years of undergraduate instruction. It is noteworthy that students attributed a significant role in their development of self-directed learning to the faculty's ability to facilitate self-directed learning employing a problem based curriculum. Fostering the development of self-directed learning required ongoing faculty development that emphasized the role of faculty as facilitator and supporter of students in a problem based curriculum. Additionally in order to achieve noticeable increases in the development of self-directed learning, the faculty clearly stated one of the program goals was the development of self-directed learning among the students (Kocaman et al. 2009). The findings suggested that faculty concern with students mastering the subject matter directly related to the degree of SDL improvement. Curriculum adaptations also fostered increases in SDL. In addition to problem based learning, structured learning environments wherein students modeled learning skills led to a greater rise in individual SDL scores (Dyran, Cate, & Rhee, 2008). Writing assignments in a structured learning environment have also been shown to improve self-directed learning scores across majors (Dyran & Cate, 2005).

Research Design

This quasi-experimental, one-group pretest post test (Fraenkel & Wallen, 2008) study intended to analyze the development of self-directed learning among the soldiers attending CGSOC. CGSOC is divided into two parts. The first part of the course is Advanced Warfighting Operations and included a problem based military exercise. The second part of the course was comprised of two elective periods designed for students to take four electives during each period.

The PRO-SDLS provides results for four dependent variables, control, initiative, motivation, and self-efficacy. These four variables assess both the learner teacher transaction and the learner characteristic (Stockdale, 2003). A comparative approach was used on the attribute independent variables gender, ethnicity, and advanced degree. The purpose of this study assessed whether a change in level of self-direction in learning among Army Officers over the duration of a 10-month graduate level resident course occurred. Both the "instructional method processes (self-directed learning) and personality characteristics of the individual learner (learner self-direction)" (Brockett & Hiemstra, 1991, p.26) were assessed. This research took place at the midpoint of the Army officer's career-long professional military education, the United States Army Command and General Staff Officer's Course (CGSOC). The 10-month Command and General Staff Officer Course (CGSOC) was conducted twice per year in 2014. The February to December Command and General Staff Officer Course had 241 U.S. Army officers. Of the 241 officers who received the invitation in early March 2014, 35 completed the survey.

Of the students attending CGSOC only U.S. Army students were selected to participate in the research due to the scope of the study question. Because this research sought to assess the impact of the Army's focus on lifelong learning on its soldiers all 241 U.S. army officers attending the resident course were the purposive sample for this study. Of the Army officers attending CGSOC only those who took the pretest in March of 2014 were asked to take post test survey in December 2014. The average age for the active component students in the course was 37 years with ages ranging from 29 years to 51 years of age. Of the active component students 44 were female and 177 were male. Of the military students 82 possessed a master's degree. 49 arrived already enrolled in a master's degree program. Nine students had a professional degree. One student had a doctorate of philosophy and four students arrived already pursuing a doctoral degree (U.S. Army Command and General Staff College, 2014).

This study sought to answer the following questions.

1. Did the level of self-directedness in learning change from pretest to post test among the student population of the Army's Command and General Staff Officer's Course?
2. Did the change in level of self-directedness in learning correlate to the learner characteristics of gender, ethnicity and level of education?

Findings

Of 35 officers who completed the pretest survey, only 12 completed the post survey; however, one of those did not complete the survey in full resulting in 11 officers who completed both the pre and post surveys (n=11). The first question addressed the change in self-directedness in learning from pretest to post test. The results below show that there was a positive change over the 10-month course. The second question sought to determine if the change differed by gender, ethnicity, and education. Of these independent variables only the dependent variable education contained sufficient responses. All three means calculated for officers with an undergraduate degree were lower than the same means of the officers with graduate degrees. Also noteworthy is that the score differences between pre and post testing rose greater among those with a masters degree. While only 4 officers with a masters degree completed both the pretest and post test survey, the narrative answers provided by officers possessing only a bachelors degree are noteworthy. One officer wrote, "I see that there are majors who are much smarter and harder working than I. I must get on it!"

Another wrote regarding changes to their self-efficacy, "The classes, specifically Leadership and MOS/Career Field focused electives inspired me to further research topics related to the areas of study." Regarding changes in initiative this officer wrote, "Initiative to do well is a characteristic that I am proud of. I personally do not need school to inspire me to take initiative." Regarding changes in their motivation and control to learn, this officer provided the same response, "The opportunity to focus on school and family motivated me to learn. When (in) a(n) operational/KD assignment much time is spent focusing (on) the job at hand and life long learning often takes a back seat."

While the female participants were too few to make any comparisons the narrative questions answers provided by the female post test survey participant are worthy of note. Regarding the question, "Please describe the change in your self-efficacy to learn and to what you attribute that change." She responded, "Strongly Agree" writing, "I have not been in a formal school setting for some time. After attending this course, I am again reminded that learning is largely my responsibility."

Table 1
Descriptive Data for Pre-test Administration of PRO-SDLS

Description	N	Mean	Min	Max	Std. Dev.	Skewness	Kurtosis
Total Score	11	97.55	83	114	10.42	0.07	-1.58
Learner Initiative	11	22.55	17	27	8.05	-0.49	-1.00
Learner Control	11	24.18	20	29	3.04	0.09	-1.48
Learner Self-Efficacy	11	26.09	23	30	2.61	0.38	-1.58
Learner Motivation	11	24.73	20	30	2.89	0.11	-0.63

Table 2
Descriptive Data for Post-test Administration of PRO-SDLS

Description	N	Mean	Min	Max	Std. Dev.	Skewness	Kurtosis
Total Score	11	101.82	76	120	11.18	-0.71	1.53
Learner Initiative	11	23.27	17	30	3.47	-0.18	0.52
Learner Control	11	24.66	17	30	3.55	-0.36	0.62
Learner Self-Efficacy	11	27.09	21	30	2.54	-1.05	1.72
Learner Motivation	11	26.82	21	30	2.66	-0.99	1.53

The total scores between pre and post surveys rose by over 4 points, the spread of those points between the 4 characteristics measured by the PRO-SDLS reveals that the greatest increase occurred in motivation which rose over two points, accounting for half of the total change. See Tables 1 and 2. Skewness and Kurtosis were tested for the differences between pre and post test results. Measures of Skewness indicate that in the pretest results for total score and learner control were very close to normal distribution whereas scores for self-efficacy and motivation had a longer distribution tail to the right; however, initiative had a longer tail to the left. Measures of Skewness for post test results all had distributions with long tails to the left.

Measures of Kurtosis indicate that all pretest scores has a flatter than normal distribution, whereas post test scores has a greater peak than that of a normal distribution. The more evenly distributed scores were post test scores for initiative and control, the total post test score and the post test scores for self-efficacy and motivation had a Kurtosis of greater than -1.

Discussion

Because of the small number of officers who completed both the pre and post survey, several pretest survey means were calculated. The mean “n Pre-test” was determined only for those who also took the post test survey. A mean was also determined for the total pretest population (n=35). Finally, a pretest mean was determined for those who completed the pretest survey but declined to take the post test survey. For the purpose of this analysis the officer who began to take the survey but did not complete it, has not been included in any calculations as he does not fit into any of the aforementioned categories. While all pretest survey means appear consistent to the studies conducted by Stockdale, Fogerson, and Hall, it is interesting that the mean of those who completed both surveys exceeded the mean in all three previous studies. While the pretest scores rose above previous published testing, the post test survey mean exceeded previously published results by almost 5 points. See Table 3.

Table 3
Comparison of Descriptive Statistics for PRO-SDLS: Previous and Current Study

Description	N	Mean	Std. Dev.
PRO-SDLS Total (Stockdale's Study)	194	84.05	12.47
PRO-SDLS Total (Fogerson's Study)	217	96.91	11.82
PRO-SDLS Total (Hall Pre-test)	110	89.62	10.03
PRO-SDLS Total (Hall Post-test)	110	81.17	10.92
PRO-SDLS pre-test only respondent	24	89.43	10.34
PRO-SDLS Total Pre-test	35	92.06	11.04
PRO-SDLS n Pre-test	11	97.55	11.25
PRO-SDLS n Post-test	11	101.82	11.18

The results documented improved across all four dependent variables Learner Initiative, Learner Control, Learner Self-Efficacy, and Learner Motivation. Due to the narrow demographics of the students who elected to provide answers to both the pretest and post test survey, changes by the independent variables of gender and ethnicity could not be assessed. Regarding the independent variable Level of Education there was a positive change in both undergraduate and graduate results. While the scores differed in start and end points on the scale, there was a greater score change among the undergraduates. This difference was also attested to by the narrative answers provided. With the exception of a single respondent who claimed to have arrived at CGSOC already possessing self-direction in learning, the narrative answers attributed the change to attendance at CGSOC. It is interesting to note that the respondent who claimed to have arrived at CGSOC already possessing self-direction in learning had an increase in scores between the pre and post test.

A number of findings discovered in the conduct of this research are worthy of note. First, one of the survey questions regarding motivation appears to be ill-suited to an Army population. In the course of hand scoring the PRO-SDLS surveys this researcher noticed that surveys appearing to score high in motivation were answering this question as though they lacked motivation. The question had to do with students trying to earn a grade. The wording of this question included the phrase "expected of me." While pursuing grades is an indication of low intrinsic motivation to learn, in an Army population doing what is expected of a soldier aligns to the Army values of selfless service, loyalty, and honor. Further research would be required to validate this assumption.

Implications for Practice

The limited amount of longitudinal research on the ability of adult educators and or curriculum to foster development of self-direction in learning comes as a surprise to most, who assume the espoused practices have been well tested. This nation's largest educator of adults, the U. S. Army, has significantly modified its instructional design in order to incorporate the principles of adult education, specifically self-directed learning, with the ultimate goal of creating a culture of lifelong learning. This study provided a theoretical framework through which to examine self-directed learning in the United States Army. Adult educators interested in assessing changes to curriculum and faculty development should consider the PRO Model and the PRO-SDLS as an instrument from which quantitative assessment can be made. Continued publication of such research may validate what adult educators inherently believe to be true, that adult educators can foster self-direction in their adult learners.

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