

SELF-DIRECTED LEARNING: A META-ANALYTIC REVIEW OF ADULT LEARNING CONSTRUCTS

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ABSTRACT

This study is a meta-analytic study examining the relationship between self-directed learning and constructs that have received research attention in the education domain including academic performance, future aspiration, creativity, curiosity, and life satisfaction. Meta-analytic results show that self-directed learning is significantly and positively related to academic performance, future aspiration, creativity, curiosity, and life satisfaction. These results show that self-directed learning is an important construct and should be implemented into business education.

Keywords: Self-directed learning, academic performance, creativity, life satisfaction, curiosity

INTRODUCTION

Helping students get more out of their learning experience is a number one goal of teaching and training institutions. Therefore, this study seeks to uncover constructs that may improve student learning in marketing education, by examining research on learning effectiveness in the education domain related to adult learning. A prominent construct that emerged out of the adult education literature in the 1960s is self-directed learning. Self-directed learning (SDL) has been a central tenet in the adult education literature since then (Brockett & Hiemstra, 1991; Mezirow, 1985). In fact, it is the most common form of adult learning (Merriam & Caffarella, 1999). However, the concept of self-directed learning in the marketing education literature has been extremely limited.

Self-directed learning has been defined as a process in which learners take the initiative in planning, implementing, and evaluating their own learning needs and outcomes, with or without the help of others (Knowles, 1975). One of the key characteristics of self-directed learning is that learners must take some responsibility for their own learning over and above responding to instruction (Boud, 1981). Self-directed learning, as a supplement to the traditional learning approach, provides learners with a greater opportunity to reach their own potential (Boyer, Edmondson, & Artis, 2011). Therefore by adding self-directed learning to traditional learning approaches (i.e. lecture), educators will be better able to keep students engaged.

The purpose of this study is to introduce self-directed learning to the marketing education literature through the completion of a meta-analysis on the existing self-directed learning

literature, from multiple disciplines. By understanding what is already known about self-directed learning, marketing educators will have a better understanding of how to enhance marketing courses, professional education and student learning by utilizing self-directed learning approaches in adult student development.

BACKGROUND OF THIS STUDY

This study investigates the relationships between self-directed learning and five constructs that have received research attention in the education domain. These constructs include: 1) academic performance; 2) future aspiration; 3) creativity; 4) curiosity; and 5) life satisfaction.

Predicting a student's academic performance has been something of interest to educators (Kolluri, Singamsetti, & Wahab, 2010). When reviewing the self-directed learning literature, prior research found that self-directed learning is a useful predictor of academic success in adult learning (Long & Morris, 1996), yet this tool has not been explored to a great extent in marketing and business education. In addition, research has shown that academic achievement is significantly higher for students who participate in self-directed learning (Sobral, 1997). Because of this, it is expected that there will be a positive relationship between academic performance and self-directed learning. When examining academic performance, a variety of measures have been investigated, including grade point average, final course grade, exam grade, project grade, and standardized test scores. For the purposes of this study, the academic performance metric under consideration is grade point average (GPA), yielding the following hypothesis.

Hypothesis 1: Self-directed Learning is positively and significantly related to GPA.

Future aspirations are generally manifested based on an individual's "patterns of behavior that portray the degree to which achievement levels and academic activities of individuals are consistent with their perception of their potentialities in terms of scholastic aptitude or of past and current attainments" (Adkins, 1996, pg. 62). Students who are higher in levels of stress and anxiety have difficulty in accurately forming future aspirations and set them either too high or too low. Setting aspirations inaccurately will hinder students in reaching goals, preparing for their futures and achieving appropriate levels of satisfaction (Michael & Smith, 1976). Future aspirations also relate to the degree to which a student knows the career field that he or she plans to pursue. Understanding which avenues to explore will help students direct their own learning, stay motivated and get more out of the learning experience, especially related to the career field of choice. Therefore, students who have clear future aspirations will have more motivation to direct their learning, thus the following hypothesis is created:

Hypothesis 2: Self-directed Learning is positively and significantly related to Aspiration.

Creativity is a measurement of original thinking. Thinking in a unique way to solve a problem requires learners to abandon their conventional learning and thinking habits, thus enabling them to think independently and on their own. Creative experiences and achievements are associated with student readiness for using self-directed learning (Torrance & Mourad, 1978). Creativity helps learners develop intuition in problem solving, which is an integral facet of learner capacity to engage in self-directed learning (Kreber, 1998). Therefore, learners who

are more creative may more effectively use self-directed learning. Thus the following hypothesis is created:

Hypothesis 3: Self-directed Learning is positively and significantly related to Creativity.

Curiosity is the desire for information and knowledge (Berlyne, 1960). Curiosity has been shown to stimulate exploratory behaviors (Reio, 2004). When a learner lacks information, his curiosity will lead him to be motivated to explore his environment in order to fill these information gaps (Loewenstein, 1994). One strategy used by a learner to answer these curiosity-induced information gaps is self-directed learning. Because of this, it is hypothesized that there will be a positive relationship between curiosity and self-directed learning.

Hypothesis 4: Self-directed Learning is positively and significantly related to Curiosity.

Life satisfaction has been defined as “a global assessment of a person’s quality of life according to his chosen criteria” (Shin and Johnson, 1978, p. 478) . In other words, it is “the degree to which one is presently content or pleased with his general life satisfaction” (Lemon, Bengston & Peterson, 1972, p. 513). Prior evidence suggests that psychosocial well-being might be linked to one’s participation in continuing education (e.g. Mizer, 1975, Sternberg, 1976), which includes self-directed learning activities. Research has also found a significant positive relationship between life satisfaction and self-directed learning (e.g. Brockett, 1985). Because of this, it is expected that people who perceive they are highly satisfied with their lives will also demonstrate higher self-directed learning, yielding the following hypothesis:

Hypothesis 5: Self-directed Learning is positively and significantly related to Life Satisfaction.

RESEARCH METHODOLOGY

Sample and Data Collection

To be eligible for inclusion, a study must have reported a Pearson’s correlation coefficient (r) between self-directed learning and at least one of the variables being investigated (e.g. academic performance, future aspiration, creativity, curiosity, and life satisfaction). Studies containing other statistics that can be converted to r (F value, t value, P value, and chi-square, χ^2) were also eligible for inclusion. The time frame of eligible studies included all studies available prior to May 2007.

A multi-sampling approach was undertaken to ensure that the final database of studies was as representative and complete as possible. First, a computer search of ABI/Inform; PsycINFO; Wilson Web; Emerald; Science Direct; Ingenta; ERIC; OVID; Wiley Interscience; OCLC First Search; Web of Science and Dissertation Abstracts was completed in order to identify relevant published and unpublished studies. These databases contain published articles, conference proceedings, and unpublished doctoral dissertations and master's theses. Any study containing the term self-directed learning, SDLRS, SDL, and self directed learning in its title, abstract, and/or full text was considered. Second, the reference section of each article or dissertation identified from the above searches was reviewed. Third, manual searches of all issues of the International Journal of Self-Directed Learning Symposium were completed. Finally, we contacted leading researchers and knowledge centers on SDL to obtain information

and lists on SDL research. We then verified that we obtained each and every article from these lists. The search process yielded over 1400 articles and over 600 dissertations, with 273 studies possessing correlations or the appropriate statistics that can be converted to correlations.

In addition to the above search parameters, only studies using Guglielmino's 1977 scale for self-directed learning were considered for inclusion. Besides Guglielmino's 1977 SDL scale, the remaining constructs being investigated were measured using the following scales: Future Aspiration (Michael & Smith, 1976); Creativity (Torrance & Mourad, 1978); Curiosity (Michael & Smith (1976); and Life Satisfaction (Neugarten, Havighurst, & Tobin, 1961). Only 36 of the 273 possible studies included the constructs being focused on in this study.

The authors coded each study on eight variables: sample size, industry, job type, average age, average educational level, reliability of both the SDL scale and the other variable scale, and the effect size (correlation). In order to check for coding quality, two researchers coded each study independently. All minor differences were resolved through discussion.

Procedures

After coding each of the 36 applicable studies, each of the effect sizes were then adjusted to control for attenuation bias. This correction is needed in order to make sure that the true relationship would not be underestimated. It was accomplished by dividing the correlation coefficient by the product of the square root of the reliabilities of self-directed learning and the outcome variable (Hunter & Schmidt, 2004). If a study did not include one or both of the required reliabilities, the weighted mean reliability for that particular construct across all studies was used instead (Geyskens, Steenkamp, & Kumar, 1998). If a study had multiple scales examining the same construct, the correlations were averaged in order to prevent the violation of the independent sampling assumption. All the reliability-corrected correlations were then transformed into Fisher's z-coefficients using the Lipsey and Wilson (2001) and Hedges and Olkin's (1985) recommended r-to-z transformation procedure. To allocate greater weight to those estimates that were more precise, the z-coefficients were averaged and weighted by an estimate of the inverse of their variance then converted back into correlation coefficients.

As part of the meta-analysis, homogeneity analyses were also completed and examined. This analysis is "based on the Q-statistic, which is distributed as a chi-square with $k-1$ degrees of freedom where k is the number of effect sizes" (Lipsey & Wilson, 2001, p. 115). The Q-statistic is calculated using the following formula: $Q = \sum w_i(ES_i - ES)^2$, where ES_i is the individual effect size for $i = 1$ to k , ES is the weighted mean effect size over the k effect sizes, and w_i is the individual weight for ES_i (Cochran, 1954; Lipsey & Wilson, 2001). A homogeneous or fixed-effects model implies that there are no other moderators that explain the relationship between SDL and the construct of interest. Because of this, a fixed effect model allows one to generalize the meta-analytic results to a population of studies with similar characteristics to those represented in the meta-analysis. A heterogeneous or random-effects model, on the other hand, implies that at least one moderator exists which allows one to generalize the findings to a wider population of studies (Field, 2001; Lipsey & Wilson, 2001; Hedges & Vevea, 1998). The Q-statistics for the relationships being investigated ranged from 0.61 to 90.2 (See Table 1 for the individual results). Of the five constructs included in this meta-analysis, three constructs had a Q-statistic that was highly significant. This indicates a lack of homogeneity; therefore, a random-effects model was employed when analyzing these relationships. The remaining two constructs had a non-significant Q-statistic so a fixed-effects model was employed.

FINDINGS OF THIS STUDY

Sample Description

The 36 studies included in the meta-analysis rendered 41 correlations. The average study sample size across all constructs is 200. The average age and educational level, weighted by sample size, for the respondents in the meta-analysis were 33.4 and 13.3 years, respectively. A majority of the samples were students from a wide variety of disciplines (i.e. community college students, nursing students, college students, etc.).

Meta-analytic results

Meta-analyses were conducted for each of the 5 constructs. Table 1 displays the results of the meta-analyses, including the number of independent studies (k), number of respondents in the sample (N), average weighted correlation corrected for attenuation (r), the standard error, the range of correlations, the Q -statistic, and the estimated fail-safe N statistic (also known as availability bias) for each construct. The fail-safe N 's ranged from 38 to 245, with an average fail-safe of 130.8; therefore, all of the constructs passed the $5k + 10$ criterion set forth by Rosenthal (1979). The high numbers for fail-safe N 's indicate that studies not included in the meta-analysis do not represent serious threats to the validity of the findings.

Table 1
Summary of Meta-Analytic Results

Construct	H	k^1	N^2	r^3	SE ₄	Range of r	Q Statistic ⁵	Failsafe N
Academic Performance	H1 (+)	12	1903	.15 ^{***}	.02	.02 - .27	12.9	108
Future Aspiration	H2 (+)	5	1196	.13 ^{***}	.03	.11 - .17	.6	38
Creativity	H3 (+)	7	2250	.25 ^{***}	.06	.12 - .52	34.9 ^{***}	109
Curiosity	H4 (+)	6	999	.40 ^{**}	.14	.01 - .79	90.2 ^{***}	154
Life Satisfaction	H5 (+)	11	2036	.35 ^{***}	.05	.18 - .62	44.5 ^{***}	245

¹Number of Studies; ²Sample size; ³Correlation corrected for attenuation bias and weighted by the inverse of the variance; ⁴Standard error of the corrected average correlation r ; ⁵ Q statistic for corrected average correlation r
* $p < .05$; ** $p < .01$; *** $p < .001$

All of the SDL-variable relationships had correlations significantly different from zero. Using Cohen's (1977) rule of thumb for interpreting effect size magnitude, a weak *small* effect size is a corrected correlation that is less than or equal to 0.10; a moderate *medium* effect size is a corrected correlation that is greater than 0.10 but less than 0.40; and a strong *large* effect size is a corrected correlation that is greater than or equal to 0.40 (Lipsey & Wilson, 2001). Overall, a majority of the constructs exhibited moderate positive relationships with SDL. There was a moderate positive relationship between SDL and Academic Performance ($r = .15$, $p < .001$), SDL and Future Aspiration ($r = .13$, $p < .001$), SDL and Creativity ($r = .25$, $p < .001$), and SDL and Life Satisfaction ($r = .35$, $p < .001$). The results also reveal a strong positive relationship between SDL and Curiosity ($r = .40$, $p < .01$).

IMPLICATIONS

Overall, this research has found that self-directed learning is an important construct for marketing educators, as higher levels of self-directed learning are associated with higher levels of academic performance, future aspiration, creativity, curiosity, and life satisfaction for students. The relationships between self-directed learning and all constructs had a moderate to strong effect size; therefore, self-directed learning appears to be an important topic to investigate further.

Students who effectively engage in self-directed learning are more creative and curious. These students also exhibit greater performance in the classroom. In addition, students who use self-directed learning are more satisfied in their life and also have a more accurate direction regarding their future aspirations. For students, just by having an idea of what they want to do after graduation may help them get more out of their educational experience. They may be more committed to learning and more motivated to learn topics that they feel are relevant to their future professions.

RECOMMENDATIONS FOR FUTURE RESEARCH

More research is needed to understand how to help students reach their potential. This research found that curiosity and creativity were positively related to self-directed learning; however, more research is needed on how instructors can encourage students to be more creative and curious in classroom situations. In addition, this research found a positive relationship between life satisfaction and self-directed learning, as well as academic performance and self-directed learning. Yet additional research is needed on the educational impact that life satisfaction has on students and their success, both in and out of the classroom.

The current self-directed learning literature is primarily qualitative and conceptual in nature. This was evident when finding that less than 15% of all articles on self-directed learning contained correlations. Because of this, more quantitative research is necessary in order to understand the directional impact self-directed learning has on important marketing education constructs like performance. Finally, cases studies and experimental research are needed in order to understand how to most effectively implement self-directed learning in marketing and business education courses.

CONCLUDING REMARKS

This study contributes to the literature by providing results of a meta-analytic review between Self-Directed Learning and five key education-related constructs, including Academic Performance, Future Aspiration, Creativity, Life Satisfaction, and Curiosity. The results show that SDL is positively and significantly related to each of these five constructs, confirming that SDL is an important construct for marketing educators. The findings also show that providing SDL projects in marketing and business education is beneficial not only to the student while in school (i.e. academic performance) but also to the student's future as well (i.e. life satisfaction).

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