Self-Directed Learning and Higher Education Practices: 
Implications for Student Performance and Engagement

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Abstract

Self-directed learning (SDL) is associated with a number of characteristics which are emphasized within the higher education curriculum. There is some question, however, regarding the degree to which higher education is compatible with SDL. We consider that question based on data from 188 college students who completed the Oddi Continuing Learning Inventory (OCLI), the Academic Motivations Inventory (AMI), and items evaluating perceptions of instructional techniques. The results suggest SDL is not directly related to academic performance or preferences for instructional techniques. Patterns of academic motivation suggest increasing levels of SDL may be associated with disengagement from formal higher educational structures.
Continuous technological development contributes to a unique, continuously evolving culture which requires skills and abilities unique to the 21st century – including those of self-directed learning (SDL) (Bedard, 1997; Teo et al., 2010). It is not surprising, then, that interest in SDL is spreading beyond its initial focus within adult education (Hiemstra, 2004). Self-directed learning has been the topic of hundreds of articles, books, and dissertations since it emerged as a focus of scholarship in the late 1960’s (Long, Redding, & Eisenman, 1994). Within that literature, SDL is characterized by a proactive approach to learning where individuals take responsibility for identifying necessary learning resources and implementing strategies appropriate for their goals (Knowles, 1975; Pilling-Cormick & Garrison, 2007).

More than 30 years ago, Knowles (1975) asserted that this proactive approach to learning would become a necessary survival skill. Indeed, SDL is associated with critical thinking as well as improved understanding and decision making (Candy, 1991) – characteristics which are frequently emphasized within the higher education curriculum (e.g. Hambur, Rowe, & Tu Luc, 2002; The Association of American Colleges and Universities, 2011). There is some question, however, regarding the degree to which higher education is compatible with SDL. From one perspective, the structures necessary for consistency within formal education systems prevent optimal alignment between students’ varying levels of SDL and the methods of instruction (Brockett & Hiemstra, 1991; Grow, 1991b). This perspective is consistent with assertions that instructor controlled structures which characterize the elementary and secondary school systems obstruct children’s natural tendency toward SDL (e.g. Eisenman, 1990; Kasworm, 1992; Piskurich, 1992).

That lack of alignment between SDL and traditional instructional methods may explain, in part, the relative ambiguity of findings related to SDL and academic performance. Self-directed learning is positively correlated with academic achievement in traditional higher education classroom settings for some samples (Long, 1991; Pao-Nan & Wei-Fan, 2008), though the relationship with subject matter learning is less definitive (Candy, 1991). Levels of SDL are associated with technology use in online courses (Shinkareva & Benson, 2007), but the relationship between SDL and achievement in those courses is not consistent (Pao-Nan & Wei-Fan, 2008). Collectively, theoretical discussion and these
empirical findings suggest that SDL should be considered in the context of both instructional techniques and individual differences (Brockett & Hiemstra, 1991; Long, 1990). The current study is consistent with that suggestion, drawing upon perspectives from SDL and academic motivation to consider students’ perceptions of the higher education learning environment and contribute to our understanding of factors which influence academic performance.

**Perspectives on Self-Directed Learning**

Long (1989) emphasizes the role of learner characteristics within the SDL process, asserting those characteristics are the most significant indicator of whether the individual will engage with learning structures. Theoretically, individual difference variables of particular relevance include knowledge, attitudes, values, motivations, cognitions, and affective characteristics (Kasworm, 1992; Oddi, 1987). Empirical findings suggest that psychological variables directly influence the degree to which college students demonstrate self-directedness while social and demographic considerations have indirect effects (Oliveira & Simoes, 2006). Among the psychological variables of interest, personality characteristics of emotional stability, independence, super ego strength, sensitivity, and conscientiousness are each positively correlated with SDL (de Bruin, 2007; Lounsbury, Levy, Park, Gibson, & Smith, 2009).

Consistent with reports that a match between student characteristics and instructional style facilitates learning (e.g. Brockett & Hiemstra, 1991; Sternberg, Grigorenko, & Zhang, 2008), discussions of SDL also consider the way the topic or environment interacts with those characteristics to influence learner emotions (Rager, 2009). From this perspective, an understanding of the behaviors of self-directed learners also requires considering instructional techniques (Long, 1992).

Grow’s “Staged Self-Directed Learning Model” (1991a) offers one framework for considering the interaction between students and their environment. Grow emphasizes the alignment between students’ levels of SDL abilities and the methods of instruction. The conceptualization underlying the model is consistent with perspectives which place instructional methods along a continuum with complete instructor control at one end and complete learner control at the other (Candy, 1991). One implication is that decreased instructor control is accompanied by increased learner responsibility (Candy, 1990). Grow’s emphasis on alignment between student characteristics and instructional techniques highlights
variations in the degree to which students are prepared for the increasing responsibility which accompanies decreasing instructor control (Brockett & Hiemstra, 1991).

The Staged Self-Directed Learning Model (Grow, 1991a) emphasizes the impact of misalignment between pedagogical decisions and student characteristics. At the most fundamental level, alignment between SDL levels and course structures is related to the outcomes associated with those structures (Dynan, Cate, & Rhee, 2008; Shinkareva & Benson, 2007; Winne & Nesbit, 2010). In a more complex interaction, a student’s level of academic preparedness and understanding of course material also affects the degree to which they will benefit from processes characterized by low levels of instructor control (Bhat, Rajashekar, & Kamath, 2007). In addition, and suggesting broader implications, theoretical discussions of misalignment between instructional structures and learner characteristics discuss these results in the context of learners’ affective responses, including frustration, dissatisfaction, anger, resentment, anxiety, and loss of confidence (Brockett & Hiemstra, 1991; Candy, 1991; Grow, 1991b; Long, 1989).

**Self-Directed Learning and Academic Motivation**

The affective responses associated with a structure-learner mismatch suggest the relationship between SDL and academic performance may be influenced by other variables. Relationships between self-regulated learning and academic goal orientation (Abar & Loken, 2010) highlight one potential mediating variable: academic motivation. The potential mediating effect is also consistent with the reported relationship between motivation and engagement (Loving, 1992; Pilling-Cormick & Garrison, 2007; Winne & Nesbit, 2010).

Theory and research suggest academic motivation is the product of an interaction between the structure of the learning environment and learner characteristics. The characteristics of the setting, including the level of instructor control, will influence the learner’s perceptions of the learning endeavor and engagement with that endeavor (Candy, 1991; Kember, Hong, & Ho, 2008). Research suggests that variations in teaching techniques are associated with variations in academic motivation (Komarraju & Karau, 2008). Individual differences between learners, however, make the relationship between learning environment and academic motivation more complex (Dowson, McInerney, & Nelson, 2006; Kasworm,
That complexity is reflected in Ricard’s (2007) model of SDL which places the learner at the center of a learning process which also includes the influences of the learning setting, facilitator, and resources. Interactions between academic motivation, learner characteristics, and instructional setting highlight one mechanism by which a mismatch between instructional setting and learner characteristics may affect performance (Long, 1992). Given that, the purpose of the present study is to investigate the relationships between SDL, academic motivation, and academic performance. Discussions of SDL indicate that the alignment between a learner’s SDL characteristics and the structure of the learning environment has a number of implications. Similarly, the structure of the learning environment has been associated with variations in academic motivation. Based on these threads, we seek to answer three questions:

1. Is there a relationship between levels of SDL and preferences for specific learning activities characterized by high levels of instructor control?
2. Are levels of SDL related to academic motivation in settings characterized by high levels of instructor control?
3. Do variations in academic motivation mediate the relationship between SDL and academic performance?

Theoretical Model

Variables and relationships in red represent previous theoretical and empirical work. Elements in black are represented by the questions investigated in the current work.
Method

The current study extends work related to SDL, learning preferences, and academic motivation in college students using a survey-based methodology. Participants completed the Oddi Continuing Learning Inventory (OCLI) and the Academic Motivations Inventory (AMI) as well as items designed to evaluate perceptions of specific instructional techniques.

Participants

A convenience sample of 188 participants completed at least a portion the research instruments. The majority (n = 139, 74%) were General Psychology students at a moderately-selective 4 year university in the United States who received course credit for research participation. The remaining participants were recruited via social networking contacts of the research assistants. Participants initially reviewed an informed consent statement noting that the project had been approved by the Institutional Review Board. That statement also emphasized that participation was voluntary and their responses would remain anonymous. In order to reduce perceptions of coercion, all students who proceeded to the survey via a link in the subject-pool management system received credit for participation. In addition, all participants received the same link to the survey in order to safeguard against potential identification of individual participants.

Participants ranged from 18 to 36 years of age (M = 19.4, SD = 1.87). The majority were classified as freshman (n = 105, 55.6% of the sample), with 15.3% of participants reporting they had sophomore standing, 13.8% reporting junior standing, and 15.3% reporting senior standing. Females represented 62.8% of the sample (n = 118). The sample was also primarily Caucasian (87.8%, n = 165), with 5.3% (n = 10) reporting they were African American. Participants represented a wide range of academic majors.

Procedure

The OCLI, AMI, learning preferences questions, and demographic questions were administered as part of a survey study of students’ approaches to learning activities. Participants completed the instruments via a commercially available internet-based survey site, for which they received the link via a subject pool management program or via a social networking site.
**Oddi Continuing Learning Inventory.** One of two widely used SDL measures, the OCLI is a 24-item instrument designed to measure the degree to which individuals demonstrate motivational, affective, and cognitive characteristics associated with being a self-directed learner (Oddi, 1986; Oddi, Ellis, & Altman Roberrson, 1990; West & Bentley, 1991). The 7-point response scale ranged from “strongly agree” to “strongly disagree.” Accompanying instructions indicated the items were designed to collect information about how participants approached learning and provided a brief explanation for each level of the scale (e.g. strongly agree = you would agree most of the time). For the purpose of this research, the items were considered as one general factor (West & Bentley, 1991). A SDL score was computed based on the sum of responses to all items, creating a potential score range of 24 to 168.

**Academic Motivation Inventory.** The AMI is designed to measure the factors which influence the degree to which students engaged with curricular activities (Moen & Doyle, 1977). Participants completed the 90-item version of the AMI consisting of sixteen sub-scales (R.E. Moen, personal communication, February 23, 2009). In responding, participants were asked to indicate the degree to which the items described their feelings about school. Given the educational environments represented in our sample, the responses can also be interpreted as representing feelings about higher education practices characterized by high levels of instructor control. Responses were based on a 5-point scale ranging from “not true at all” to “extremely true.” Scale scores were completed based on the sum of responses to items within the scale, with potential scores varying depending upon the number of items in the scale.

**Questions about Learning Preferences.** To measure preferences for learning activities characterized by varying levels of instructor control, four items were adapted from Messineo, Gaither, Bott, and Ritchey’s (2007) measure of preferences for active learning in large classes. Items were adapted to remove references to “large classes” and responses were based upon a 7-point scale ranging from “strongly agree” to “strongly disagree.” Two items were intended to represent activities high in instructor control:

- In class I simply want to be told what I need to know take the exams and that is it.
- I prefer lecture as the format of class instruction.
Two items were intended to represent activities high in learner control:

- I consider class discussion in small groups with other students to be a valuable way to learn the course material.
- I think doing group work in class is a valuable way to learn material.

**Academic Performance.** Self-reported Grade Point Average (GPA) was utilized to measure Academic Performance.

**Results**

Preliminary reliability analysis indicated the OCLI was sufficiently reliable to warrant further analysis ($\alpha = .77$). Eleven of the sixteen AMI scales were retained for analysis with Cronbach's Alpha levels of 0.68 or higher. Table 1 includes specific Alpha levels for each scale as well as means and standard deviations for scales retained for analysis.

In order to evaluate the relationship between levels of SDL and preferences for learning activities characterized by high levels of instructor control, a series of bivariate correlations tested the relationship between OCLI score and responses on the four preference items. Responses to the item “In class I simply want to be told what I need to know, take the exams, and that is it,” are significantly correlated, though the coefficient is weak in strength ($r = -.17$, $p < .05$). Preference for lecture-based instruction was not significantly correlated ($r = -.11$, $p > .05$). Preference for small group discussion was significantly and positively correlated ($r = .27$, $p < .001$) as was preference for small group activities ($r = .15$, $p < .05$). The significance levels and strengths of the correlation indicate there is not a clear relationship between levels of SDL and preferences for learning activities.

**Table 1**

<table>
<thead>
<tr>
<th>Scale</th>
<th>Items</th>
<th>Cronbach's Alpha</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oddi Continuing Learning Inventory</td>
<td>24</td>
<td>.76</td>
<td>77.80</td>
<td>13.81</td>
</tr>
<tr>
<td>Achieving Motives</td>
<td>5</td>
<td>.84</td>
<td>17.80</td>
<td>4.37</td>
</tr>
<tr>
<td>Affiliating Motives</td>
<td>4</td>
<td>.51</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Approval Motives</td>
<td>9</td>
<td>.79</td>
<td>25.83</td>
<td>7.05</td>
</tr>
<tr>
<td>Competing Motives</td>
<td>3</td>
<td>.71</td>
<td>8.36</td>
<td>2.93</td>
</tr>
<tr>
<td>Debilitating Anxiety</td>
<td>5</td>
<td>.61</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Demanding</td>
<td>5</td>
<td>.43</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Desire for Self-Improvement</td>
<td>6</td>
<td>.69</td>
<td>17.55</td>
<td>4.41</td>
</tr>
<tr>
<td>Discouraged about School</td>
<td>7</td>
<td>.74</td>
<td>17.57</td>
<td>5.15</td>
</tr>
<tr>
<td>Dislike School</td>
<td>4</td>
<td>.68</td>
<td>10.41</td>
<td>3.33</td>
</tr>
<tr>
<td>Economic Orientation</td>
<td>4</td>
<td>.57</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Facilitating Anxiety</td>
<td>3</td>
<td>.64</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>
A series of bivariate correlations were also employed to address the second research question, considering the relationship between levels of SDL and academic motivation. Six of the AMI scales retained for analysis were significantly correlated with SDL: thinking motives ($r = -0.45, p <.001$), withdrawing motives ($r = 0.32, p < .001$), discouraged about school ($r = 0.29, p < .001$), dislike school ($r = 0.27, p < .001$), achieving motives ($r = -0.26, p < .001$), and persisting motives ($r = -0.25, p < .05$). Table 2 includes correlation coefficients for each of the scales retained for analysis.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Correlation with OCLI score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oddi Continuing Learning Inventory</td>
<td>--</td>
</tr>
<tr>
<td>Achieving Motives</td>
<td>170 -0.26*</td>
</tr>
<tr>
<td>Approval Motives</td>
<td>169 -0.04</td>
</tr>
<tr>
<td>Competing Motives</td>
<td>168 -0.11</td>
</tr>
<tr>
<td>Desire for Self-Improvement</td>
<td>170 -0.13</td>
</tr>
<tr>
<td>Discouraged about School</td>
<td>168 0.29**</td>
</tr>
<tr>
<td>Dislike School</td>
<td>170 0.27**</td>
</tr>
<tr>
<td>Grades Orientation</td>
<td>170 -0.06</td>
</tr>
<tr>
<td>Persisting Motives</td>
<td>169 -0.04**</td>
</tr>
<tr>
<td>Thinking Motives</td>
<td>169 -0.45**</td>
</tr>
<tr>
<td>Withdrawing Motives</td>
<td>169 0.32**</td>
</tr>
<tr>
<td>Cumulative GPA</td>
<td>158 -0.1</td>
</tr>
</tbody>
</table>

*p < .01 ** p < .001

To evaluate the question of whether variations in academic motivation mediate the relationship between SDL and academic performance, preliminary analysis tested the relationship between OCLI scores and cumulative GPA (per the procedure discussed in Baron & Kenny, 1986). The lack of a significant relationship ($r = -0.10, p > .05$) precludes further analysis. Given that the data was collected during the fall semester, there is some question of whether the self-reported GPA data for freshmen accurately represents their collegiate performance. As a result, the analysis was repeated excluding participants who reported a freshman standing. The results were similar, however, with no significant relationship between OCLI scores and cumulative GPA ($n = 77, r = 0.03, p > .05$).
In light of the patterns that emerged in investigating the three research questions, we also considered the degree to which OCLI scores differed depending on a students’ class rank. Table 3 includes the means and standard deviations for each class rank. Average scores for freshman scores were the highest, with the averages decreasing for each class. A one-way analysis of variance (ANOVA) indicated, however, that the differences are not significant $F(3, 179) = 1.76, p > .05$.

<table>
<thead>
<tr>
<th>Rank</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>freshman</td>
<td>79.82</td>
<td>13.92</td>
</tr>
<tr>
<td>sophomore</td>
<td>76.21</td>
<td>13.24</td>
</tr>
<tr>
<td>junior</td>
<td>75.16</td>
<td>16.09</td>
</tr>
<tr>
<td>senior</td>
<td>74.36</td>
<td>10.91</td>
</tr>
</tbody>
</table>

**Discussion**

The current study considered the relationship between SDL and three facets of the learning experience: learning activities, academic motivation, and academic performance. The results were mixed. The relationship between levels of SDL and preferences for learning activities associated with high levels of instructor control suggest the two are not directly related. Similarly, SDL was not directly related to academic performance for the current sample. Six academic motivation subscales were, however, significantly correlated with characteristics of self-directed learners as measured by the OCLI.

Each of the academic motivation scales considers feelings and behaviors in the context of a student’s course work, a context which participants may associate with high levels of instructor control. The results suggest increasing levels of SDL characteristics are associated with less interest in achieving and persisting within those contexts. In addition, increased SDL is associated with feelings of discouragement and dislike as well as disengagement with learning activities in those contexts, in terms of both participation in class sessions and intellectual engagement with the material.

**Limitations and Future Research**

The use of self-reported cumulative GPA may have affected the findings related to academic performance. As noted in the results section, the large proportion of freshmen in the sample may have reduced the validity of the measure – though analysis excluding that group did not change the results. Beyond that consideration, there is evidence that GPA reports are less accurate for lower performing...
students (Kuncel, Credé, & Thomas, 2005). Inaccuracy in reporting may have limited our ability to detect an effect. As a result, our findings related to academic performance could be confirmed with higher levels of confidence by drawing upon institutional data related to academic performance.

Future research may also seek to address limitations due to the relatively homogeneous sample which primarily included members from a particular area of the United States. Cultural variations and academic background may affect the interactions between learning structures, SDL, preferences, and motivation. Cross-sectional data would also illuminate whether the patterns are representative of college students in general or if they are simply representative of the current cohort of traditional college students. Similarly, a longitudinal design would extend the present findings related to academic motivation by allowing for insights into persistence in academic settings.

**Self-Directed Learning, Academic Motivation, and Student Learning**

Collectively, the academic motivation findings have a number of implications for learning. At the most extreme, the patterns lend support to Long’s (1991) assertion that SDL skills are not correlated with years of education because students high in SDL skills withdraw from the formal educational system – an assertion which also explains the patterns of SDL scores for the current sample. From a less dramatic perspective, students high in SDL characteristics may continue in the formal education system but engage with that system in a manner which circumvents the established learning objectives (Kasworm, 1992). Both interpretations may also explain the lack of relationship between SDL and GPA: students high in SDL may literally or cognitively withdraw from the assessment procedures upon which GPA is based.

In discussing the proactive use of resources, Knowles (1975) indicates self-directed learners do not simply identify the necessary resources, they identify the specific portion that is relevant. The process of determining relevancy is of particular concern in considering the degree to which self-directed learners will achieve key learning outcomes. Students high in SDL characteristics may establish a learning agenda which emphasizes information which is interesting to them – but not necessarily key to understanding the topic at hand (Senko & Miles, 2008). This can result in incomplete or disorganized knowledge, as well as misconceptions about the subject matter (Kirschner, Sweller, & Clark, 2006; Mayer, 2004). At the same time, they may overestimate their preparedness for formal learning assessments and sabotage their
academic performance (Vancouver & Kendall, 2006). These dynamics may also be reflected in the findings related to GPA.

**Self-Directed Learning and Instructional Decisions**

The lack of a clear relationship between SDL and learning activity preferences may reflect the patterns Kasworm (1992) identified in discussing students as “master planners” (p. 242). Kasworm noted that each individual will experience unique thoughts and feelings about institutional learning structures, adopting one of four orientations toward those structures. Each orientation represents a unique perspective relative to instructor control in the learning setting. For example, students demonstrating a “withdrawal pattern” view the learning process as an act of compliance necessary to achieve a desired outcome. Courses high in instructor control may be viewed as a more efficient and definitive means to achieve that outcome.

This conceptualization is consistent with the view that learners are active, self-initiating agents within the educational process (Winne & Nesbit, 2010). At the same, a balance between instructor- and learner-control provides for the instructional guidance necessary for many learners (Kirschner, et al., 2006). Candy (1991) emphasizes this point in asserting “to force learners into a self-directed or learner controlled mode for which they may feel unprepared seems to me every bit as unethical as denying freedom when it is demanded,” (62). The present findings suggest, however, that the pedagogical decision making related to instructor control may not be as simple as selecting discussion over lecture. Similarly, the lack of a significant difference between OCLI scores of freshmen and seniors suggest that the level of the course does not necessarily provide insight into a student's level of SDL.

**Bridging the Gap: Balancing Curricular Objectives and Self-Directed Learning**

Synthesizing the literature and the present findings suggests a number of options for addressing curricular objectives while utilizing methods which allow for alignment with varying levels of SDL. By allowing students to influence specific topics of study, instructors can engage students as active agents in the learning process and acknowledge their need for relevancy in order to counteract the dynamics noted above. For example, allowing students to select from a small number of options for papers and projects represents a relatively high level of instructor control while still allowing students some discretion in their focus. Similarly, when the topics that can be included in a course exceed the time available to cover them, allowing students to provide input about course content can allow them to express their interests.
with minimal impact on day-to-day teaching techniques. In some cases, course objectives can be met while allowing students to select their own topic for projects or other activities (without instructor provided options). Macario (2011) provides an example of one such activity where students utilized established guidelines for analysis, but selected articles of interest in order to practice applying the guidelines.

Problem-based learning structures can also be utilized to emphasize learner choice and responsibility, allowing them to influence learning process while still providing a context which allows students to achieve course objectives. Specific focal problems can be selected such that they are consistent with the objectives of the course and highlight issues relevant to students’ current and future experiences (Lee & Lim, 2011). Students can then be provided varying levels of discretion in the methods they utilize in identifying solutions, with specific structures depending upon the competence and interests of the learner. For example, an instructor may initially specify appropriate sources of information and criteria for evaluating solutions. Learner responsibility can be progressively increased by providing fewer limitations until students have complete autonomy in identifying resources and determining the criteria for evaluating their solution.

Conclusion

Collectively, the present findings and related theoretical discussions underscore the importance of considering student characteristics in pedagogical decision making. In order to address the dynamics related to SDL and student engagement, instructors must consider allowing students to influence the topics of study, the process of learning, or both topics and processes. When considered in conjunction with Grow’s (1991a) “Staged Self-Directed Learning Model,” however, the current findings suggest pedagogical decisions related to SDL are complex. In order to scaffold engaging learning experiences with appropriate levels of learner responsibility instructors must mindfully consider the unique student populations within each class.

Notes

1 For the purposes of this research, a royalty-free copyright license for the use of the OCLI was granted by Lorys F. Oddi.
References


