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Preface

We are pleased to announce that this journal, founded in 2004 to disseminate scholarly papers that document research, theory, or innovative or exemplary practice in self-directed learning, was recently re-evaluated and renewed on Cabell’s lists of commendable journals in a variety of fields. While acceptance of the value of lifelong, self-directed learning is now almost universal, questions remain about ways of defining SDL, ways of implementing approaches to fostering SDL in academic environments, and ways of preparing faculty to change long-established teaching practices in order to assist learners to develop the skills and attitudes needed to survive and thrive in the 21st century. This issue touches on all of those questions and also includes a citation analysis of the first years of the IJSDL.

In the opening article, Carré reiterates his conceptualization of self-directed learning as a marriage of self-determined motivation to learn and self-regulation of the learning. He then describes a course-based action research project designed around this double dimension of SDL. The outcomes of three iterations of this master’s degree level course are described both qualitatively and quantitatively, with limitations noted.

Kirk and others at the University of Tennessee SDL Research Group report on a detailed citation analysis of the first 15 issues of the International Journal of Self-Directed Learning, building on a UT research tradition of analyzing SDL in a variety of publications. Their article provides insights into the authors and writings that provide a base for further research in SDL.

Online learning is, without question, the most rapidly expanding learning arena today, one that both requires and supports not only skills with technology, but also attitudes and skills associated with self-directed learning. Holt and Singh explore the use of self-directed learning in Open Source Software (OSS) forums and propose a model based on their research.

In the final article in this issue, Mentz and Guglielmino report on an intensive faculty development project at North-West University in South Africa. The effort was designed to prepare faculty to more effectively promote SDL in their students. Although the primary focus was on faculty involved in teacher preparation, following their selection of promoting self-direction in learning as a strategic initiative, faculty from business, engineering, and nursing also asked to be involved, demonstrating the broadening awareness of the importance of preparing learners for lifelong, self-directed learning.

Lucy Madsen Guglielmino, Editor
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THE DOUBLE DIMENSION OF SELF-DIRECTED LEARNING: LEARNERS EXPERIMENT WITH FREEDOM

Philippe Carré

On the basis of previous research in adult education and learning psychology, the author has proposed a dual model of self-directed learning, which defines it as a dynamic combination of self-regulated learning strategies and self-determined motivation. This model was used to design an innovative 24-hr course for master’s students that was organized for three different groups over a three-year period. The present paper analyzes students’ end-of-course evaluation forms and proposes a research option for testing the model further on a larger empirical scale.

The Double Dimension of Self-Directed Learning

Even before the concept was widely disseminated, the idea that self-directed learning (SDL) was based on two articulated dimensions appeared in several authors’ work, starting with Tough’s (1971) renowned analysis of adults’ learning projects. Anticipated benefits, on the one hand, and self-planning skills, on the other, appeared as fundamentals of adult autonomous learning. Long’s (1991) seminal definition characterized SDL as “a personally directed purposive mental process usually accompanied and supported by behavioral activities involved in the identification and searching out of information” (p. 15). Carré (2003) identified a regular twofold partition of conative and metacognitive/strategic factors in several SDL scholars’ work from 1975 to 2000. He then noted the proximity of these factors with well-established theories in educational psychology: self-determination motivation theory and self-regulated learning theory.

A conceptual model of self-directed learning was then proposed, as grounded in the dynamic interaction of (a) self-determined motivation to learn and (b) abilities and strategies of self-regulation in learning. Later, following an extensive search of two of the largest international educational databases, Carré and Cosnefroy (2011) noted that precious little research effort has been devoted to fertilizing common scientific or pedagogical ground by the relevant scholarly communities (self-determination, self-regulation, self-direction), in spite of the
obvious semantic and pragmatic closeness of the three sets of concepts, which all relate to some form of autonomy in learning. In a recent synthesis, we proposed a fourfold classification of related concepts (Carré, Moissan, & Poisson, 2010), which is represented in Table 1.

Table 1. *Self-Direction and Related Concepts* (Carré et al., 2010)

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1.</td>
<td>Self-determination + external regulation of learning = delegated self-determined learning</td>
</tr>
<tr>
<td>2.</td>
<td>External determination + self-regulation of learning = constrained self-regulated learning</td>
</tr>
<tr>
<td>3.</td>
<td>External determination + external regulation of learning = externally directed learning</td>
</tr>
<tr>
<td>4.</td>
<td><strong>Self-determination + self-regulation of learning = self-directed learning</strong></td>
</tr>
</tbody>
</table>

After thus clarifying the notional status of various uses of the “self” component in learning, the present author wished to conduct an experiment using the twofold concept of self-directed learning as part of a course-based action-research project. This article presents the course itself and the research method, gives an account of the main results of the experiment, and draws some conclusions related to the facilitation of self-directed learning in a formal setting.

**Experimental Course Design and Research Method**

The feasibility of using a self-directed learning format in a formal setting was tested during a 24-hour course that has been proposed since 2009 to first-year students enrolled in the master’s degree program of Instructional Design at Paris Ouest University (France). It was designed based on Poisson’s three-dimensional theory for the facilitation of self-learning, which distinguishes self-direction, collaboration, and self-production (Carré et al., 2010). The self-direction dimension of the process includes both the student’s self-determination (i.e., freedom of choice) and his or her self-regulation (i.e., autonomous learning methods). Collaboration among students is promoted and facilitated by the practical organization of the course, with particular emphasis on group work. Learning is expected to take place through students’ self-production of knowledge related to the course, as no content is delivered, nor are any resources provided by the facilitator beforehand.

The course is focused on 20th-century “great psychologists”; it aims to provide students with the opportunity to generate knowledge on major currents of contemporary psychology, from behaviorism to social cognitive theory. Within this definition, choice is offered to students as to when, where, what (which psychologist) and how to study for six out of the eight weeks of the course. Overall teacher-talking time amounts to less than 10% of the global, official 24 hours of the course. The first half of the first session is devoted to introducing the course and providing students with guidelines as to the learning outcomes expected of them. Most years, groups are formed right after the first session break and students start
collaborative work immediately (i.e., after one and a half hours of class time). The learning contract states that, during the last two sessions of the course, groups have to produce (a) a 15-page document, (b) a PowerPoint presentation, and (c) an oral presentation on their chosen psychologist; and then (d) lead a general discussion on the psychologist. The only other demand is for them to work in groups of three or four students for the entire duration of the course. Final assessment is based on the group’s overall production (written document, presentation and discussion). In addition, a self-evaluation sheet is collected by a student delegate in strictly anonymous form at the end of the experiment. Students are also asked to estimate the number of hours spent on the project. Over the three-year period, 18 learning groups and 63 students have participated in the course.

As can be seen in Table 2, apart from the cases of three students who dropped out of the course during the first year, all students completed the course, obtained good marks, and 57 out of the remaining 60 filled in the self-evaluation form that served as the basis for the present investigation.

Table 2. Sample Characteristics

<table>
<thead>
<tr>
<th>Year</th>
<th>Students enrolled</th>
<th>Female</th>
<th>Male</th>
<th>Dropout</th>
<th>Final marks out of 20</th>
<th>Self-evaluation completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009-10</td>
<td>20</td>
<td>17</td>
<td>3</td>
<td>3</td>
<td>16-19</td>
<td>17</td>
</tr>
<tr>
<td>2010-11</td>
<td>22</td>
<td>16</td>
<td>6</td>
<td>-</td>
<td>13-18</td>
<td>19</td>
</tr>
<tr>
<td>2011-12</td>
<td>21</td>
<td>15</td>
<td>6</td>
<td>-</td>
<td>13-19</td>
<td>21</td>
</tr>
</tbody>
</table>

The research data were collected two weeks after the last session of the course. They consisted of (a) final marks; (b) an open-ended evaluation sheet asking the students to carry out a “free reflective analysis on the course” and (c) a simple declaration of the number of hours spent on the course by each learner. The last two items of data were sent by the participants to one volunteer student who forwarded them to the researcher in anonymous form. Thematic analyses were carried out on the 57 evaluation texts (b) using the following notional categories: satisfaction, self-direction, collaborative work, self-production of knowledge, course facilitation and limitations.

Main Results

Grades

The final marks obtained by the students in the first two years of the course were well above average (from 13 to 19 out of 20). The quality of the material gathered and presented by the students was sufficient to allow for diffusion among students and teaching staff after minor corrections and revisions had been made by the course facilitator.
Amount of Study Time

Students estimated the global number of hours spent on the project, including initial and last sessions in class, personal work and collaborative group work. For instance, the 2010-11 group’s average learning time was 75 hours per student (median = 60 hours), with a fairly large standard deviation (the global range goes from 24 to 180 hours) (Figure 1). One of the students gave a detailed account of the collective effort: “I received 153 e-mails, sent out 162, we produced 23 different versions of the final written document and spent around 200 hours on our psychologist between the four of us.”

![Bar chart showing hours spent on course](image)

Figure 1. Learning time declared by students in 2011-12.

Satisfaction

Over the three years and out of the 57 forms collected, only 3 evaluations showed elements of dissatisfaction with the course (due largely to internal disruptions in one of the groups’ work organization). Major advantages of the SDL format are underscored: feelings of freedom and personal responsibility in the choice of topic, meeting times and location, work rhythm and approach (self-determination); awareness of the need to manage collective and individual learning procedures (self-regulation); perception of learning as being deeper and more conceptual than in more traditional lecture or group formats; enjoyment of group collaboration; sense of completing a final task and producing a personal/group performance (self-production).
Self-direction

The complete freedom granted to the students in terms of practical organization was often described as both threatening and stimulating, as some comments indicate:

• “The hardest thing was making choices as to concepts as well as to the orientation we had to define together.”

• “This self-learning way of working was a little scary at first, but it turned out to be an impressive learning experience.”

• “The fact that the course was open and self-directed was a little unsettling at first.”

The discovery of this radical, alternative method within a formal setting was positive for 54 out of the 57 students, as the sample comments below illustrate.

• “I enjoyed the freedom of being able to organize the group’s work, without the obligation to meet at the University every Friday.”

• “I really felt the advantages of self-regulated learning.”

• “Being independent when faced with a topic and free in terms of procedures was very motivating.”

A sense of responsibility for one’s learning was developed: “I appreciated the freedom and self-determination of learning: we are the ones building our own knowledge”; “each one of us was responsible for the success or failure of the experience.” By combining an initial, radical emphasis on self-determination and following with the necessity to self-regulate collective and individual learning, the course, according to one participant, was even described as “a perfect example of self-directed learning!”

Collaborative Work

Out of the 57 self-evaluation forms, only 7 did not mention group work in their comments about the course. Among the 50 others, 49 spontaneously identified group collaboration as a source of satisfaction and/or fruitful learning, in spite of a few remarks concerning the demands of teamwork and organization. Only one student was openly critical of his/her group’s work, for reasons s/he considered to be “foreign to the course principles themselves.” Among the vast majority of students, collaborative learning was regarded as a highly positive component of the course. As one of the students explained,

Confrontation with the rhythm of other people is always an essential element in a group’s life. Students come from different horizons, have had
different life stories and experiences which are both a source of individual wealth and the possible nest of future exchange, interaction, negotiation, and compromise that are necessary to the production of a common task.

The themes of enrollment, self-commitment, getting to know others, sharing activities and collective organization, solving conflicts and reaching consensus are frequently mentioned both as conditions of efficiency and sources of metacognition and self-learning per se. The notion of sociocognitive conflict occasionally seems to underlie what students had to say. The following quotes illustrate that group interaction was viewed as a source of deep learning:

- “I am convinced that if I had not built and confronted my beliefs against those of others in the group, my knowledge of the psychologist would be far poorer than it is today.”

- “This collective research work turned out to be much more efficient..., because, in spite of some communication trouble, it allowed us to exchange ideas on the various concepts and theories... in a much deeper way.”

Collaborative work also appears to have been a way to defuse anxiety and reinforce the motivation to learn: “Group work adds spice to members’ motivation, reinforces solidarity and lowers feelings of stress toward the task at hand,” even though a few students underscore the “unavoidable conflicts in every group of people.” As summed up by one of the students, “group work is far from obvious.” As we shall see, despite the overall highly positive tone of the comments, there is presumably room for improvement here.

**Self-production of Knowledge**

Through reflective analysis, course participants become aware of the role reversal characteristic of self-directed learning approaches, providing them with the capability of producing knowledge by themselves. This role reversal implies taking a leadership role: “making such a presentation is a meaningful exercise. It makes the learner assume the group leader role”; it also means taking a producer’s stance, rather than a consumer’s: “I had to summarize the author’s main ideas for somebody; it was only from that moment that I could sit down and start writing.” For some students, the learning commitment became almost obsessive: “we lived with our psychologist for several weeks, to the extent that we saw him everywhere.” There was plenty of space for students (as adults) to draw upon their previous experience in order to feed the collective learning: “each one of us rallied his or her knowledge and skills and our personal or professional experience allowed us to illustrate in a concrete way the various notions, which facilitated our job.”
Course Facilitation
In spite of the autonomous nature of the task to be carried out, having a facilitator nearby was mentioned by most students as an asset of the course design:

- “The facilitator’s presence was important to me.”
- “He was a constant help, fairly available because our questions were frequent.”
- “We could use him as a resource person to proceed with our work.”
- “It was reassuring to know that we could count on his advice.”

Over the three-year period, the facilitator’s role as a provider of resources such as books or articles became gradually superfluous as the progressive diffusion of electronic devices among the students (portable PCs and smartphones) made access to all sorts of references readily available to the groups. The facilitator’s task was threefold: (a) giving clear guidelines as to the objectives and expected results, (b) encouraging and reassuring the groups as to their progress, and (c) validating ideas and making suggestions for improvement. External regulation was reduced to a minimum, with the exception of one group (out of 18) that required intervention when serious disagreements arose among the participants.

Limitations of the Format
It is important to note the weaker points of the SDL group format proposed here. In some ways it seems that the nature of the anticipated results had a perverse effect on student learning, and some students indicated having experienced difficulties with group work demands and the management of human relations.

First, the disproportion between actively carrying out one’s own group task (preparing a complete presentation) and that of listening, perhaps somewhat less actively, to the presentations of other groups, appeared to account for the fact that – whether in terms of time, motivation or emotional involvement – most of the learning, if not all, occurred in connection with the one chosen psychologist, and did so to the detriment of students’ learning about the four or five other psychologists studied in the course. A large majority of the students admit being quite at home with their own, chosen theory at the end of the course, but quite unfamiliar with the other groups’ work, even though it was presented to them during a 90-minute class session. As they testify:

- “It was harder to concentrate on the authors that had been studied by other groups before our own presentation, as I remained focused on preparing ours.”
- “It was difficult to be entirely available to listen to the other presentations.”
It appears that the chosen format puts students into a kind of “overdrive mode” regarding their own work, and a somewhat more conventional, passive attitude once their presentations are over, not to mention a high level of distracting stress before their own presentations take place. In the words of one student: “Looking back, I think we know the theory we presented quite well, but the others very vaguely.”

Second, some of the participants underlined the high demands of collaborative group work on individual members in order not to let conflicts and disagreements within the group develop into major disruptions of the process. This well-known dimension of group dynamics did not seriously hamper collective functioning (except in one case out of 18). As one student stated,

Sometimes it may be very complicated to work with strong personalities when it comes to making decisions or reaching a consensus. Nevertheless, it remains a positive thing because one has to learn how to compromise and work with anybody in spite of obstacles.

As a consequence, the need for collective self-regulation and the practice thereof is pointed out by a few students, with one of them suggesting that a training element be added to the course design:

I am sorry to say that I don’t know much more than I did before the course as to group work methodology. I fear that working in a group means that 90 percent of the time the group follows the pace of the slowest, or least motivated member . . . . It is like riding a four-horse carriage with one horse limping.

Although this perception of the course was far from dominant, the group work element remains an area of concern.

The Double Dimension of Self-directed Learning: Further Thoughts

According to the theoretical framework proposed here, on the basis of numerous contributions by reputable researchers and practitioners, self-directed learning implies a combination of an initial self-determined motivation to learn and subsequent implementation of self-regulation strategies. As demonstrated in the present experiment, fostering self-direction in a formal setting, whether it be a university course or an adult education program, implies taking the following steps:

* empowering students with a maximum amount of free choice as to what, where, when and how to learn;
* providing clear guidelines as to the expected outcomes and production of the course;
* evaluating results and providing feedback on the basis of self-production of knowledge;
• minimizing teaching and adopting a facilitating attitude based on reassurance, methodological guidance, and validation of content;
• promoting collaboration among students through group-based work;
• enabling a rich learning environment through maximal use of electronic resources;
• encouraging and developing the use of collective and individual self-regulation strategies.

Future research and innovation could improve theory and practice on how best to facilitate such collaborative, self-directed projects. On the research front, the present project could be replicated on a comparative basis, using a wider sample of students, different study areas, and quantitative as well as qualitative approaches to give the results better validity and scope. On the practical front, implications derived from the present study for teachers and trainers interested in facilitating self-direction are (a) to find effective ways to enroll all the students’ attention during their colleagues’ own presentations (possibly using activation techniques) and (b) to pay acute attention to group dynamics and collective self-regulation from the very beginning of the project.

There are nevertheless limitations inherent to the very idea of autonomous learning in formal learning environments. In the present study, the main learning objective of the course was only partially attained, as most students admitted having learned a vast amount about their own psychologist and far less about the other authors, due to their massive (and almost exclusive) investment into their own group’s work. The learning contract itself allowed this ambiguity: As self-directed learners, the students selected their learning outcome (self-determination) and managed their own learning activities (self-regulation); the professor’s official, global learning outcome for the course was partly forsaken in the process. If, as some contend, “all learning is self-directed” (Tobin, 2000), then one must accept that learning outcomes are, by necessity, first determined by the learners’ own will and skill; hence the facilitator’s twofold duty of perfectionism and humility.

References

(pp. 11-28). Norman, OK: Oklahoma Research Center for Continuing Professional and Higher Education, University of Oklahoma.


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Julia M. Kirk, Connie K. Shih, Becky C. Smeltzer, Lila L. Holt, and Ralph G. Brockett

This citation analysis examined the IJSDL to determine which publications and authors have influenced the thinking of contributors to this relatively new periodical. Data analysis and queries were based on previous studies but were expanded on the basis of identified trends found in the study. Findings include most frequently cited authors, publications, major works and their dates, and magnitude of citations. Implications of the findings are addressed and charts and tables to further illustrate the findings are also included. It is evident from the study that a few major works and authors dominate the field of self-directed learning and are frequently cited in self-directed learning publications.

Since 1987, the International Self-Directed Learning Symposium has provided a forum for disseminating the latest thinking about research, theory, and practice in self-directed learning. Papers presented at the Symposium were submitted to a peer review process, and those selected were published in an annual monograph. In 2003, the SDL Symposium Group voted to amend the publication process to a peer-reviewed, online journal that would be open to all contributors (Long & Guglielmino, 2004), not just those who had presented papers at the Symposium. The International Journal of Self-Directed Learning (IJSOL), published biannually, is “a refereed, electronic journal founded to disseminate scholarly papers that document research, theory, or innovative or exemplary practice in self-directed learning” (International Society for Self-Directed Learning website, 2011). In order to better understand citation patterns found in this relatively new publication, the researchers decided to conduct a citation analysis of the International Journal of Self-Directed Learning from its inception in 2004 to the present. The purpose of this study is to determine trends relative to the most frequently cited sources and authors in the IJSOL. It is hoped that the results of this study will add to the body of knowledge about the literature in the field of self-directed learning.
Literature Review

Several studies have explored the literature of adult learning and self-directed learning, but, to date, no studies have included the IJSDL in their analyses. Confessore and Confessore (1992) conducted a Delphi survey to determine “the most important published works that, in the panel’s judgment, should be read at the outset of one’s introduction to the field of adult self-directed learning” (p. 17). They found that the two highest ranked works were Tough’s The Adult’s Learning Projects (1971, 1979) and Houle’s The Inquiring Mind (1961). Knowles’ Self-Directed Learning (1975) ranked fifth while Tough’s (1978) article on the major learning efforts of adults ranked eighth.

Brockett et al. (2001) conducted a content analysis of literature on self-directed learning appearing in 18 periodicals between 1980 and 1999. Building on this study, Donaghy, Robinson, Wallace, Walker, and Brockett (2002) then conducted a citation analysis of the identified articles to determine which authors and publications were most frequently cited in this body of literature. In this citation analysis, Donaghy et al. found that Tough’s The Adult’s Learning Projects (1971; 1979) was the most frequently cited source on self-directed learning, while Knowles’ Self-Directed Learning (1975) and The Modern Practice of Adult Education (1970; 1980) were the 3rd and 4th most frequently cited sources, respectively. Houle’s The Inquiring Mind (1961) was tied for 10th on the same list. Subsequent analysis found that Tough and Knowles were the 3rd and 4th most frequently cited authors on self-direction, while Houle was eighth overall. Brockett and Donaghy (2005) interpret the findings of the Donaghy et al. (2002) study as providing “some evidence to support the impact that Houle, Knowles, and Tough had on subsequent scholarship in self-directed learning” (p. 5). However, Donaghy et al. acknowledged possible flaws in their study due to inconsistencies among the researchers with data entry and analysis. Thus, the results of this study must be interpreted with caution.

Several additional studies have provided further information about the contributors and the content of the self-directed learning literature. Stockdale, Fogerson, Robinson, and Walker (2003) conducted a content analysis of the proceedings of the International Self-Directed Learning Symposium. Canipe and Fogerson (2004) examined dissertation abstracts, and a follow-up study on ERIC documents was undertaken the following year (Canipe, Fogerson, & Duffley-Renow, 2005). Content and citation analyses have thus been useful in helping to understand trends in the literature of self-directed learning.

Citation analysis has proven to be a “meaningful research tool” (Peritz, 1992, p. 448), allowing the identification of publications and authors whose work has most influenced subsequent writing on a topic (Garfield, 1979a,b). Citation analysis “may be viewed as an institutional form of recognition and reward to others for their previous work”…. and “provides quantitative evidence about the
relative influence of publications” in a given field. (Conner, Carter, Dieffenderfer, & Brockett, 2009, p. 53).

Extending the earlier work of Brockett et al. (2001), and attempting to correct for errors in the Donaghy, et al. (2002) study, Conner and her colleagues reviewed 18 journals in the field of adult and continuing education through a citation analysis of 158 primary articles published between 1980 and 2008 (Conner et al., 2009). Their findings are reasonably consistent with previous studies. The most frequently cited source was Tough (1971). Two of Knowles’ books were in second (1975) and fourth (1970) place, respectively. Guglielmino’s (1978) dissertation on the development of the Self-Directed Learning Readiness Scale was identified as the third most frequently cited source. Conner et al. provide three rankings for authors: total number of times cited, times cited as author, and times cited, excluding self-citations. In their study, Conner and her colleagues note that none of the primary articles cited an article from the International Journal of Self-Directed Learning. “Possible reasons include the fact that the journal is so new, having begun publication in 2004, that it is not indexed in article databases, or because it only appears as a PDF document from the sdlglobal.com website, a condition that restricts search engines from easily locating articles online” (Conner et al., 2009, p. 67).

Each of the above studies has provided information regarding trends in the literature of self-directed learning. However, with the establishment of the International Journal of Self-Directed Learning, which is devoted specifically to the area of SDL, there is a clear need to look at citation patterns and trends of this flagship journal.

**Purpose of the Study**

Building on previous efforts to understand the state of the art of self-directed learning through explorations of its literature, the purpose of this study was to examine the first seven and one-half years of the *IJS&L* in order to uncover information about which publications and authors have influenced the thinking of contributors to this relatively new periodical. In the present study, the focus is on all articles appearing in the first 15 issues of a single journal. The following three questions guided this investigation:

1. What are the most frequently cited publications in the first 15 issues of the *IJS&L*?
2. Who are the most frequently cited authors in the first 15 issues of the *IJS&L*?
3. What do the patterns, frequency, and chronological distribution of citations in the first 15 issues of the *IJS&L* reveal about past influences and current trends in the study of self-directed learning?
Method

The design of this study was initially based on the Conner, et al. (2009) study. However, it quickly became clear that while the earlier study was a good foundation, we were able to incorporate some data coding techniques that would help us manage the project in a way that could help compensate for some of the technical issues in doing this kind of research. Before data entry began, a list of citation types, as well as protocol for data entry, was agreed upon. The following is a list of major protocol decisions:

• All data for the citation were recorded, including all listed authors of an article, year, volume, and issue number, in order to check the accuracy of the citation.

• The editor was entered when citing a chapter from a book. For example, if the chapter was cited, the author of the chapter, the title of the chapter, the editor of the book and the book title were listed. If the entire book was cited or the intro of the book was cited, the editor was listed as the author.

• No abbreviations were entered.

• Issues of the same work count only once and the original edition of a work was the version of the publication cited. For example, Tough’s book, originally published in 1971, also had a second 1979 edition. All references for either edition bear the 1971 copyright date because it is in essence the same publication.

Data Capture

Citations from the journals were entered into a relational database designed specifically for this project. The design included normalized tables that eliminated redundancy. All citations were entered exactly as in the citation. Any corrections necessary were identified in the verification process. Prior to keying citations, all authors from the articles and citations were entered to create a list for data entry. Author last name and initials were entered. This list of authors was verified before entry of the articles and citations began. The intent was to select author names to avoid keying errors. After articles and citations were entered, a three round verification process began. In the first round a second person verified the entry using the original documents. In the second round, articles and citations were sorted by title and author. In this round, titles were corrected based on the original article published to provide consistency. Publication dates were also verified. Along with manual review, database tools were implemented to sort and verify titles. In the third round, authors and editors were examined for consistency by title. Additionally, titles were examined by first author for verification. As a last verification, a list of unique titles and first authors was printed and verified.

Analysis Reports

Next, the final data analysis reports were constructed. Software engineering principles for testing and debugging were used. Data totals were used for verification of summary data as well as spot checks of data verified with manual
examination of recorded totals. Report totals were compared for consistency across all reports. A total of 82 journal articles were entered along with a total of 2,863 citations and 1,878 unique authors.

Findings

The scope of this study covered all 15 issues of the IJSDL published through early 2012. Within those issues, 82 articles were examined, which contained a total of 1,881 unique citations. Within these citations, there were a total of 1,878 authors and 227 editors. The number of citations per article ranged from a low of five citations to a high of 101 citations. The average number of citations per article was approximately 35. In addition to basic descriptive statistical information, the research questions were addressed to discover trends within the issues.

Most Frequently Cited Publications

The first research question for this study, what are the most frequently cited publications, was investigated and the data were sorted by number of times cited, then by citation title. The results of this question showed that 21 works were cited 10 times or greater. Six works were cited twenty or more times. Self-Directed Learning: A Guide for Learners and Teachers (Knowles, 1975) was the most frequently cited work with 36 citations. The Development of the Self-Directed Learning Readiness Scale (Guglielmino, 1978) was second with 31 citations followed closely by Self-Direction in Adult Learning: Perspectives on Theory, Research, and Practice (Brockett & Hiemstra, 1991) with 30 citations. The Adult’s Learning Projects: A Fresh Approach to Theory and Practice in Adult Learning (Tough, 1971) was an immediate fourth with 29 citations. The last two publications with more than 20 citations were Learning in Adulthood: A Comprehensive Guide (Merriam & Caffarella, 1991/1999 and with Baumgartner, 2007) with 24 citations in fifth and Self-Direction for Lifelong Learning: A Comprehensive Guide to Theory and Practice (Candy, 1991) in sixth with 22 citations. Table 1 shows the complete results.

Most Frequently Cited Authors

With regard to the second research question, who were the most frequently cited authors, 23 authors were cited more than 20 times. Of these 20 authors, two had more than 100 citations. These authors were Huey B. Long (144) and Lucy M. Guglielmino (140). Additionally, the following authors had more than 60 citations each: Roger Hiemstra (81), Ralph G. Brockett (72), Malcolm S. Knowles (71), Paul J. Guglielmino (63), and Gary J. Confessore (60). Table 2 shows the authors cited more than 20 times in the first 15 issues of the IJSDL.
Table 1. *Publications Cited 10 or More Times*

<table>
<thead>
<tr>
<th>Rank</th>
<th>Title</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Self-directed learning: A guide for learners and teachers (Knowles, 1975)</td>
<td>36</td>
</tr>
<tr>
<td>2</td>
<td>Development of the Self-Directed Learning Readiness Scale (LM Guglielmino, 1977)</td>
<td>31</td>
</tr>
<tr>
<td>3</td>
<td>Self-direction in adult learning: Perspectives on theory, research, and practice (Brockett &amp; Hiemstra, 1991)</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>The adult's learning projects: A fresh approach to theory and practice in adult learning (Tough, 1971)</td>
<td>29</td>
</tr>
<tr>
<td>6</td>
<td>Self-direction for lifelong learning: A comprehensive guide to theory and practice (Candy, 1991)</td>
<td>22</td>
</tr>
<tr>
<td>7</td>
<td>Teaching learners to be self-directed: A staged approach (Grow, 1991)</td>
<td>17</td>
</tr>
<tr>
<td>7</td>
<td>The modern practice of adult education (Knowles, 1970, 1980)</td>
<td>17</td>
</tr>
<tr>
<td>7</td>
<td>The inquiring mind: A study of the adult who continues to learn (Houle, 1961, 1993)</td>
<td>17</td>
</tr>
<tr>
<td>10</td>
<td>The measurement of resourcefulness intentions in the adult autonomous learner (Carr, 1999)</td>
<td>13</td>
</tr>
<tr>
<td>10</td>
<td>The organizing circumstance: Environmental determinants in self-directed learning (Spear &amp; Mocker, 1984)</td>
<td>13</td>
</tr>
<tr>
<td>10</td>
<td>Self-directed learning readiness as a characteristic of the entrepreneur (PJ Guglielmino, P. J. &amp; Klatt, 1994)</td>
<td>13</td>
</tr>
<tr>
<td>14</td>
<td>The measurement of an adult's intention to exhibit persistence in autonomous learning (Derrick, 2001)</td>
<td>12</td>
</tr>
<tr>
<td>14</td>
<td>The measurement of an adult's intention to exhibit personal initiative in autonomous learning (Ponton, 1999)</td>
<td>12</td>
</tr>
<tr>
<td>14</td>
<td>The measurement of intentional behavior as a prerequisite to autonomous learning (Meyer, 2001)</td>
<td>12</td>
</tr>
<tr>
<td>17</td>
<td>Self-directed learning: Toward a comprehensive model (Garrison, 1997)</td>
<td>11</td>
</tr>
<tr>
<td>17</td>
<td>Self-efficacy: The exercise of control (Bandura, 1997)</td>
<td>11</td>
</tr>
<tr>
<td>19</td>
<td>An investigation into the structure, validity, and reliability of Guglielmino's Self-Directed Learning Readiness Scale (Field, 1989)</td>
<td>10</td>
</tr>
<tr>
<td>19</td>
<td>The Learning Preference Assessment (Self-Directed Learning Readiness Scale) (Delahaye &amp; Choy, 2000)</td>
<td>10</td>
</tr>
<tr>
<td>19</td>
<td>A study of the use of the Self-Directed Learning Readiness Scale as related to selected organizational variables (Roberts, 1986)</td>
<td>10</td>
</tr>
</tbody>
</table>
Table 2. Twenty-Five Most Cited Authors

<table>
<thead>
<tr>
<th>Rank</th>
<th>Author</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Long, H. B.</td>
<td>144</td>
</tr>
<tr>
<td>2</td>
<td>Guglielmino, L. M.</td>
<td>140</td>
</tr>
<tr>
<td>3</td>
<td>Hiemstra, R.</td>
<td>81</td>
</tr>
<tr>
<td>4</td>
<td>Brockett, R. G.</td>
<td>72</td>
</tr>
<tr>
<td>5</td>
<td>Knowles, M. S.</td>
<td>71</td>
</tr>
<tr>
<td>6</td>
<td>Guglielmino, P. J.</td>
<td>63</td>
</tr>
<tr>
<td>7</td>
<td>Confessore, G. J.</td>
<td>60</td>
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<tr>
<td>8</td>
<td>Ponton, M. K.</td>
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</tr>
<tr>
<td>9</td>
<td>Tough, A. M.</td>
<td>51</td>
</tr>
<tr>
<td>10</td>
<td>Merriam, S. B.</td>
<td>43</td>
</tr>
<tr>
<td>11</td>
<td>Carr, P. B.</td>
<td>42</td>
</tr>
<tr>
<td>12</td>
<td>Bandura, A.</td>
<td>38</td>
</tr>
<tr>
<td>13</td>
<td>Brookfield, S. D.</td>
<td>37</td>
</tr>
<tr>
<td>14</td>
<td>Caffarella, R. S.</td>
<td>35</td>
</tr>
<tr>
<td>14</td>
<td>Derrick, M. G.</td>
<td>35</td>
</tr>
<tr>
<td>16</td>
<td>Candy, P. C.</td>
<td>27</td>
</tr>
<tr>
<td>17</td>
<td>Park, E. A.</td>
<td>26</td>
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<tr>
<td>18</td>
<td>Bulik, R. J.</td>
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<tr>
<td>19</td>
<td>Spear, G. E.</td>
<td>23</td>
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<tr>
<td>19</td>
<td>Houle, C. O.</td>
<td>23</td>
</tr>
<tr>
<td>21</td>
<td>Grow, G. O.</td>
<td>22</td>
</tr>
<tr>
<td>22</td>
<td>Garrison, D. R.</td>
<td>20</td>
</tr>
<tr>
<td>22</td>
<td>McCune, S. K.</td>
<td>20</td>
</tr>
</tbody>
</table>

Table 3. Ten Most Frequently Cited Editors

<table>
<thead>
<tr>
<th>Rank</th>
<th>Editor</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Long &amp; Associates</td>
<td>288</td>
</tr>
<tr>
<td>2</td>
<td>Straka, G. A.</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>Brockett, R. G.</td>
<td>17</td>
</tr>
<tr>
<td>4</td>
<td>Merriam, S. B.</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>Hiemstra, R.</td>
<td>12</td>
</tr>
<tr>
<td>6</td>
<td>Brookfield, S. D.</td>
<td>11</td>
</tr>
<tr>
<td>6</td>
<td>Schunk, D. H.</td>
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</tr>
<tr>
<td>6</td>
<td>Zimmerman, B. J.</td>
<td>11</td>
</tr>
<tr>
<td>9</td>
<td>Maltby, J.</td>
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</tr>
<tr>
<td>9</td>
<td>Hill, A.</td>
<td>10</td>
</tr>
</tbody>
</table>

The second component of the second research question involved an examination of all citations to edited publications. From the results of this question, it was clear that Huey B. Long and Associates was by far the most frequently cited editorial group in the journal. This included all of the annual publications containing papers from the International Self-Directed Learning Symposia. Huey B. Long and Associates was cited 288 times in the first 15 issues of the journal. No other editor even came close to this number of citations, with the second most cited editor, Gerald A. Straka, only having 20 citations. Table 3 shows the top 10 most frequently cited editors in the IJSDL.

Based on the results from the citation analysis, the most frequently cited publications in the first 15 issues of the IJSDL included Self-Directed Learning: A Guide for Learners and Teachers (Knowles, 1971), the Development of the Self-Directed Learning Readiness Scale (Guglielmino, 1977), Self-Direction in Adult Learning: Perspectives on Theory, Research, and Practice (Brockett & Hiemstra, 1991), and The Adult’s Learning Projects: A Fresh Approach to Theory and
Practice in Adult Learning (Tough, 1971). The most frequently cited authors were Huey B. Long, Lucy M. Guglielmino, Roger Hiemstra, Ralph G. Brockett, Malcolm S. Knowles, and Paul J. Guglielmino. The most frequently cited editorial group was Huey B. Long and Associates.

Patterns, Frequency, and Chronological Distribution

The third research question examined patterns, frequency, and chronological distribution in the data among the 15 issues of the *IJSDL*, and what they reveal about past influences and current trends in the study of self-directed learning. One trend to note related to the distribution of citations is the average number of citations by journal. Volume 4, Number 2, 2007, contained the most citations per article with 51.80 as the average number of citations per article. From that point forward, the citations per article on average remained stable at a greater number than the articles prior to Volume 4, Number 2, 2007. Figure 1 depicts this trend and shows that after Volume 4, Number 2, 2007, articles contained significantly more citations than those prior to the Volume 4, Number 2, 2007 article.

![Average Citation Count for Articles by Journal](image)

*Figure 1. Average citation count for articles by journal.*

An additional trend found was related to the chronological distribution of top citations. Of the top 20 publications, there were nine works that appeared consistently in every year of the *IJSDL* as shown in Table 4. These works included *Self-Directed Learning: A Guide for Learners and Teachers* (Knowles, 1975) with 36 citations, *Development of the Self-Directed Learning Readiness Scale* (Guglielmino, 1978) with 31 citations, *Self-Direction in Adult Learning: Perspectives on Theory, Research, and Practice* (Brockett and Hiemstra, 1991) with 30 citations, *The Adult’s Learning Projects: A Fresh Approach to Theory and Practice in Adult Learning* (Tough, 1971) with 29 citations, *Learning in...*

Table 4. Top Publications Across All Years of Issues of IJSDL

<table>
<thead>
<tr>
<th>Citation</th>
<th>Cites</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
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<tr>
<td>Self-directed learning: A guide for learners and teachers</td>
<td>36</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>7</td>
<td>3</td>
<td>5</td>
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<tr>
<td>(Knowles, 1975)</td>
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<tr>
<td>Development of the Self-Directed Learning Readiness Scale</td>
<td>31</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td></td>
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<tr>
<td>(L. M. Guglielmino, 1977)</td>
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<tr>
<td>Self-direction in adult learning:</td>
<td>30</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>4</td>
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<tr>
<td>Perspectives on theory, research, and practice</td>
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<tr>
<td>(Brockett &amp; Hiemstra, 1991)</td>
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<td>The adult's learning projects: A</td>
<td>29</td>
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<td>5</td>
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<tr>
<td>(Tough, 1971)</td>
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<tr>
<td>Learning in adulthood: A comprehensive guide</td>
<td>24</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
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<td>(Merriam &amp; Caffarella, 1991)</td>
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<td>Self-direction for lifelong learning:</td>
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<td>3</td>
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<td>A comprehensive guide to theory and practice</td>
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<td>(Candy, 1991)</td>
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<td>The modern practice of adult education</td>
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<td>The inquiring mind: A study of the adult who continues to</td>
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<tr>
<td>Teaching learners to be self-directed: A staged approach</td>
<td>17</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>2</td>
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</tbody>
</table>

An additional notable trend discovered during data analysis was the existence of large numbers of self-citations. After the data were analyzed for research questions 1 and 2, those same data were reanalyzed with self-citations removed. Interestingly, significant changes occurred in several of the publications...
and authors in their rankings when self-citations were removed. For example, Table 5 shows those publications that were cited 15 or more times. This is the same information that was contained in Table 1, with self-citations removed. The researchers in this study noted that perhaps having a pivotal work, like the Development of the Self-Directed Learning Readiness Scale (Guglielmino, 1978) or Self-Direction in Adult Learning (Brockett & Hiemstra, 1991) might make self-citations unavoidable because authors are by necessity going to cite their own publications in order to build upon this work. In addition, only three authors of the publications cited 15 or more times have published articles in the IJSDL. Thus, we recommend that self-citation data be interpreted with some degree of caution. Publications by authors who have not published in the IJSDL are included in this list to illustrate the ranking changes.

Table 5: Publications Cited 15 or More Times, With and Without Self-Citations

<table>
<thead>
<tr>
<th>Rank(Previous)</th>
<th>Title</th>
<th>w/Self</th>
<th>w/o Self</th>
</tr>
</thead>
<tbody>
<tr>
<td>1(1)</td>
<td>Self-directed learning: A guide for learners and teachers (Knowles, 1975)</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>2(4)</td>
<td>The adult's learning projects: A fresh approach to theory and practice in adult learning (Tough, 1971)</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>3(3)</td>
<td>Self-direction in adult learning: Perspectives on theory, research, and practice (Brockett &amp; Hiemstra, 1991)</td>
<td>30</td>
<td>27</td>
</tr>
<tr>
<td>4(2)</td>
<td>Development of the Self-Directed Learning Readiness Scale (L. M. Guglielmino, 1977)</td>
<td>31</td>
<td>24</td>
</tr>
<tr>
<td>6(6)</td>
<td>Self-direction for lifelong learning: A comprehensive guide to theory and practice (Candy, 1991)</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>7(7)</td>
<td>Teaching learners to be self-directed: A staged approach (Grow, 1991)</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>7(7)</td>
<td>The modern practice of adult education (Knowles, 1970)</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>7(7)</td>
<td>The inquiring mind: A study of the adult who continues to learn (Houle, 1961)</td>
<td>17</td>
<td>17</td>
</tr>
</tbody>
</table>

Self-citations were also removed from the authors list for comparison. Table 6 lists the most cited authors with and without self-citations. In this list, all authors who had published in the IJSDL had fewer citations when self-citations were removed, and for the two top authors, Long, H. B. and Guglielmino, L. M., the order was reversed. The researchers felt a review of citations with self-citations removed was important as the precedent for self-citation removal was noted in
previous citation analysis studies. Various reasons might exist for large amounts of self-citations, so it is simply worth noting that this is a trend found in the study, and we recommend that self-citation data be interpreted with some degree of caution. Again, authors who have not published in the *IJSDL* are included in this list to illustrate the ranking changes.

Table 6. *Most-Cited Authors in the IJSDL With and Without Self-Citations*

<table>
<thead>
<tr>
<th>Rank (previous)</th>
<th>Author</th>
<th>w/Self</th>
<th>w/oSelf</th>
</tr>
</thead>
<tbody>
<tr>
<td>1(2)</td>
<td>Guglielmino, L. M.</td>
<td>140</td>
<td>91</td>
</tr>
<tr>
<td>2(1)</td>
<td>Long, H. B.</td>
<td>144</td>
<td>84</td>
</tr>
<tr>
<td>3(5)</td>
<td>Knowles, M. S.</td>
<td>71</td>
<td>71</td>
</tr>
<tr>
<td>4(3)</td>
<td>Hiemstra, R.</td>
<td>81</td>
<td>69</td>
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Finally, in examining the trend related to the dates of publications, an analysis of the number of citations by date of publication was also completed. As indicated in Figure 2, while the publications in later years decline as would be expected due to the recentness of the publication, the trend seen below indicates the

![Number of Citations by Publication Date](image)

*Figure 2. Number of citations by publication date.*

To further explore the dates of publications within the literature of self-direction an analysis of the average publication date by journal was calculated. Figure 3 demonstrates a relatively stable to possibly even stagnant trend with the literature related to dates of publications cited in the journal.

![Average Date of Citation Dates](image)

*Figure 3. Average date of citation dates.*

In an effort to further examine the date trend in the field, a number of important works were noted in the mid 70’s and early 1990’s, as indicated above. Additionally, the average publication date was calculated to be 1993. Therefore to further examine the newer works and to account for the skewness of these seminal works an analysis of the dates of articles cited after 1993 was performed. As
shown in Figure 4, without the older seminal works in the field included, newer works in the field are being utilized as supporting literature in the field.

**Figure 4.** Average of citation dates of works after 1993.

**Conclusion**

This current study has built upon the previous works of Brockett et al. (2001), Donaghy et al. (2002), and Conner et al. (2009), by examining the first seven and one-half years of the *International Journal of Self-Directed Learning*, a relatively recent addition to the literature of self-directed learning. A citation analysis was conducted to reveal the most frequently cited publications and authors. In addition, frequency and chronological patterns were identified to further add to the existing body of knowledge. Consistent with the findings of the previous studies, the current study found that preeminent works by Tough, Knowles, Guglielmino, Long, Brockett and Hiemstra, and Merriam and Caffarella (and Baumgartner) continue to resonate in the scholarly works on self-directed learning. Furthermore, in taking into account the removal of self-citations, while the number of citations dropped in most cases, the top publications and authors including Guglielmino, Long, Knowles, Brockett and Hiemstra, and Tough remained relatively intact. In addition, these same publications and authors are among these most consistently cited works across all years of the *IJS DL*.

We believe that this study adds to the body of knowledge of efforts to systematically study the literature of self-directed learning. Because the *IJS DL* took the place of conference proceedings of the International Self-Directed Learning Symposium, this study picks up where the earlier investigation by Stockdale, et al. (2003) left off. In addition, because this study focuses on one periodical devoted exclusively to the topic of self-directed learning, the findings should be of particular value because they identify sources cited most frequently by scholars working specifically in the area of SDL.
In closing, this study was intended to fill a gap in the knowledge base by looking at citation patterns within the recently-established, major North American periodical devoted specifically to the study of self-directed learning. In this way, the findings of this study add to the map of understanding the larger literature of self-directed learning. Future research could build on this study by attempting to determine if trends can be identified relative to emerging scholars who have made contributions to this literature in recent years.

References


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SELF-DIRECTED LEARNING AND OPEN SOURCE SOFTWARE FORUM PARTICIPANTS: CHARACTERISTICS AND RELATIONSHIPS

Lila Holt and Vandana Singh

Today more than ever, the workplace and education ecosystems strive to keep pace with the vast amount of information and knowledge available in a global community. Within these environments, self-directed learning has been identified as a needed skill in the 21st century to underpin constant change. In an effort to further expand pedagogies for both the workplace and higher education, tools such as online forums are now used within educational environments. This paper examines characteristics and relationships of self-directed learning within forum participation. Due to the successful outcomes of the use of forums within open source software (OSS), the OSS forums became the theater for this examination. Analysis of data derived from open-ended questionnaires and follow-up interviews provides further insights into self-directed learning and forum participation.

The workplace is increasingly challenged to keep pace with the vast amount of information and knowledge available in a global community (Marquardt & Kearsley, 1999). Much of this information is a result of the advances in technology and the advent of the World Wide Web. Education ecosystems strive to adapt to the dynamics created from abundant information and rapid technological changes. To press forward, scholars study the different tools and methods used to share and create knowledge and explore ways to further pedagogies based on those findings (Marsick, Watkins, & O’Connor, 2010; Meiszner, Glott, & Sowe, 2009; Scardamalia & Bereiter, 2006).

One area that has been the focus of scrutiny is open source software (OSS) communities and the volunteers that collaborate to create the resulting software (Meiszner, et al., 2009). Open source software is software for which the source code is distributed and accessible via the Internet without charge or limitations on modifications and future distribution by third parties (definition by the Open Source Initiative 1997). OSS communities collaborate to advance software and

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support the users of the software. One method of collaboration is through online forums. By working together, these online communities create software that is openly accessible to all. Scholars have studied forums in terms of collaboration and motivation for participation (Lanier, 2011). The motivations for this creation have been shown to be both altruism (Baytiyeh & Pfaffman, 2010) and the desire for social change by offering a product that is free, thus creating economic impact and challenging software conglomerates (Bonaccorsi & Rossi, 2003).

Another area that has come into focus for adapting to the dynamic, global market is self-directed learning. Self-direction in learning has been identified as a skill that will be required in the 21st-century workplace. In other words, unless workers take the responsibility to learn and grow, the information and knowledge base will become stale and start to lag (Partnership for 21st Century Skills, 2006). Within the OSS communities this is also true. The forum participants must continue to grow personally as they collaborate and advance OSS. However, research is lacking examining the self-directed learning of OSS forum participants. This study contributes to the knowledge base of information and knowledge exchange by examining the self-direction in learning of forum participants and the contribution self-directed learning makes to forum learning and collaboration. Additionally, how the forums help promote self-direction in learning in individuals will be explored.

Review of the Literature

To understand the role self-directed learning plays in forum learning, it is first necessary to examine self-direction in learning to identify factors that may be common throughout the forums. In one of the early works of self-direction, Knowles (1975) defined self-directed learning as a “process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes” (p. 18). It is important to emphasize that self-directed learning does not indicate learning in isolation, but rather the learner’s taking responsibility for and control of the subject matter and/or method to be learned (Brockett & Hiemstra, 1991). More recently, self-directed learning (SDL) has been categorized as having one of three goals depending on a person’s philosophical view: (a) personal responsibility, (b) transformational learning, and (c) social impact (Merriam, 2001). The goal of personal responsibility is for learners to take control by being personally accountable for their own learning (Brockett & Hiemstra, 1991; Garrison, 1997). The goal of transformational learning posits reflection and self-knowledge as necessary for the autonomy that is an integral part of self-direction in learning (Mezirow, 1985). Other goals of self-directed learning are social impact and emancipatory learning. For example, learners can use the Internet to mobilize, publicize a cause, and create social change (Meikle, 2002; Shirky, 2008).
Personal Responsibility

One widely recognized model of self-direction in learning—the Personal Responsibility Orientation (PRO) model—depicts SDL as encompassing both personal or learner characteristics (LC) as well as a learning process called the teaching/learning (TL) transaction (Brockett & Hiemstra, 1991). In the PRO model, it is the learner’s assumption of personal responsibility that stimulates the learning process. In an effort to validate ways of empirically examining self-direction in learning, a recent scale was developed based on the PRO model of self-direction in learning (Brockett & Hiemstra, 1991) titled the Personal Responsibility Orientation–Self-Directed Learning Scale (PRO-SDLS) (Stockdale, 2003; Stockdale & Brockett, 2010). The PRO model of self-direction, as captured in the PRO-SDLS, includes the following four factors:

1. Control: According to Brockett & Hiemstra (1991), “[I]t is the ability and/or willingness of individuals to take control of their own learning that determines their potential for self-direction” (p. 26). Control is a factor of the TL transaction of self-direction.

2. Initiative: Based on the PRO model of self-directed learning, the learner is proactive by taking steps toward decisions and/or actions. Previous definitions have used the term initiative in a similar manner (Knowles, 1975). Again, initiative is a factor of the TL transaction.

3. Motivation: Included in the learner characteristics of the PRO model, motivation is the desire to take action steps. This desire can be internal or external. Adult education scholars propose a theoretical relationship between self-directed learning and intrinsic motivation (Bitterman, 1989; Delahaye & Smith, 1995).

4. Self-efficacy: Like motivation, self-efficacy has been derived from Social Learning Theory and refers to the belief in one’s own capabilities required to produce a given outcome (Bandura, 1977, 1986, 1997). The self-efficacy factor is based on writings regarding the learner’s self-confidence (Brockett & Hiemstra, 1991). Again, self-efficacy is part of the learner characteristics of SDL.

Further characteristics of SDL have been defined through the construction of a widely used scale to measure readiness for self-direction. The Self-Directed Learning Readiness Scale (SDLRS) (Guglielmino, 1978) has been translated into at least 20 languages and has a wide acceptance among many scholars in the field of adult education (Caffarella & Caffarella, 1986). To date, the SDLRS has been used by over 300,000 individuals and 500 organizations (Guglielmino, 2010). Developed through a three-round Delphi study of 14 SDL experts, the 58-item scale includes eight factors identified through factor analysis (Guglielmino, 1978). Those factors include:

1. Love of learning
2. Self-concept as an independent learner
3. Tolerance of risk in learning
4. Creativity
5. A view that learning is lifelong
6. Initiative  
7. Self-understanding  
8. Acceptance of responsibility for one’s own learning  

While no quantitative assessments are used in this study, the characteristics that have been identified in the construction of scales to measure self-direction in learning and/or readiness supply a needed lens through which to examine the self-direction in learning of forum participants.

Transformational Learning  

A second identified goal of SDL is transformational learning, which encompasses the changing of one’s assumptions and values through the learning process (Mezirow, 1981). According to Mezirow (1981), “Enhancing the learner’s ability for self-direction in learning as a foundation for a distinctive philosophy of adult education has breadth and power. It represents the mode of learning characteristic of adulthood” (p. 21). Mezirow (1981) goes on to offer guidelines to enhance self-direction in learning. Included in those guidelines that may lead to transformative learning are the following:

- Encourage a progressive reduction of the learner’s dependence on the educator.
- Enable the learner to use learning resources – especially how to engage in learning relationships.
- Assist the learner in defining needs and assuming responsibility for those needs.
- Organize learning around current levels of understanding.
- Foster the use of learner decision-making and evaluating learning via criteria.
- Foster a self-reflexive corrective approach.
- Facilitate problem posing and solving.
- Reinforce learner self-concept.

As an extension to transformative learning, Mezirow (1981) further suggests that such transformation may result in emancipatory or social action and thus create the power for adults to further change and learn.

Other guidelines that promote self-directed leaning as well as transformational learning were suggested by Taylor (2008) through a review of the literature (p. 27):

- Promote student autonomy/agency.
- Create a safe, open environment for learners.
- Encourage critical reflection.
- Acknowledge affective aspects of learning (the role of feelings and emotions).
- Value learning for action.
- Facilitate learning that involves the examination of issues, values, and concerns.
- Value and include students’ experience.
- Accentuate importance of feedback and assessment.
• Develop awareness of social contextual influences in learning.
• Encourage and support collaborative and group learning.

In addition to the above guidelines and relationships, Brockett and Hiemstra (1991) note three strategies for helping a learner enhance self-direction in learning: to promote critical reflection and rational thinking, and to facilitate or use helping skills to enhance learner self-direction. While the authors also suggest specific tools and methodologies to implement these three strategies, the implementation in this study will be examined through the use of OSS forums because they have had such successful outcomes.

Social Action

In examining “adult self-teachers,” Tough (1979) found that adults engage in continued learning by undertaking an average of eight learning projects a year. Within the scope of these projects, there may be political acts for power and control. Self-directedness in learning “can be interpreted as part of a cultural tradition that emphasizes standing against the individual’s repressive interests” (Brookfield, 1993, p. 227). Additionally, Brockett and Hiemstra (1991) surround personal responsibility with social context. They argue that “The political dimension of self-direction continues to be largely overlooked by adult educators” (p. 220). Thus, self-directed learning may become conducive to creating social and political change.

In summary, self-direction in learning has had the three areas of personal responsibility, transformational learning, and social action identified as goals. Not only are there various factors that have been identified that may underlie self-direction in learning, but self-directed learning itself can be learned. Various facilitation methods have been identified to enhance learner self-directed learning.

Statement of the Problem

Although self-direction in learning and lifelong learning have been identified as necessary tools for the 21st century, and the use of online forums has been identified as a tool for current and future education, information about the impact of self-direction in learning in OSS forums is lacking. This study advances the knowledge base by investigating the characteristics of self-directed learning demonstrated in OSS communities and the impact on learning in the OSS forums. Specifically, this study addresses the following research questions:

1. What goals of self-directed learning can be identified in OSS participants, including:
   a. Personal responsibility
   b. Transformative learning
   c. Social action
2. How do forums encourage self-directed learning characteristics?
3. How do self-directed learning characteristics support forum learning?
4. What relationships among the characteristics of self-directed learning may be indicated from the results?

Method

This study included a qualitative design consisting of observations of tools used in the OSS forums, an open-ended questionnaire, and in-depth interviews with OSS forum participants, thus creating triangulation (Creswell & Miller, 2000). The themes identified became the foundation for this analysis. While some quantitative data were gathered, the use of the data was not for proving statistical significance but rather for creating a clearer lens through which to examine the results. The questionnaire encompassed four goals. The first goal was to identify characteristics of the respondents. Second, by using a questionnaire a greater number of responses could be obtained than solely through interviews. Third, the results from the questionnaire were used to help focus the interview questions. Finally, the questionnaire helped to identify participants who would be willing to be interviewed.

Requests for completion of the questionnaire were sent to OSS forum owners as well as users of OSS email lists. Approximately 60 requests to forums/lists were made. The lists solicited were from open source users and/or developers from at least 58 different groups. Examples of the lists include Firefox, Linux, Debian, Koha, Thunderbird, Ubuntu, Edubuntu, Seamonkey, Open-source CAD, Java, Fedora, and OpenOffice, all from both user and developer forums. As an incentive for filling out the questionnaire, the participants were entered into a drawing for a gift certificate equal in value to a tablet computer.

Respondents to the questionnaire (n = 223) could then volunteer to complete a more in-depth interview. From the 152 volunteer respondents, 21 individuals were randomly chosen (via random number generator matching line numbers of participants) and interviewed. These personal interviews allowed for the collection of rich data from which to examine the tools. The interviews were performed over a month, which provided time in between the interviews for the analysis and readjusting of the interview questions as recommended (Corbin & Strauss, 1990). As respondents indicated that learning was important to them, they were asked to expand and share more about how forum participation helped with learning.

Upon the completion of the interviews, codes and themes were developed. These codes and themes were then coded by a second coder to ascertain the consistency in coding data. The inter-rater reliability was .95. Research has shown that for qualitative studies where the questions change and evolve, such as in grounded theory, trying to maintain inter-rater reliability may result in a more superficial data analysis (Morse, 1997). Thus, as the in-depth interviews and evaluation continued, more detailed coding and analysis were conducted, and no further inter-rater reliability was assessed.

The lens through which this study’s results are evaluated is a combination of pragmatism and constructivism, as pragmatism allows for the view that one
epistemology does not apply in all cases (Creswell, 2007), and constructivism allows for participants to interact in the co-construction of knowledge (Hatch, 2002).

Results and Discussion

Examining the responses to the questions allows an understanding of the forum participants and their motivations and provides a frame of reference through which to view self-direction in learning. Results were gathered from participants from a variety of OSS forums; the total number of respondents to the questionnaire was 223. Of these respondents, 94.2% were male and 5.8% were female. The age range was from 18 to 79, with the average age being 41. Overwhelmingly, the ethnicity was Caucasian (76%). Additionally, 68.6% of the respondents were college graduates. Thus, the average respondent was an educated, white male in his mid-forties. This provided the perspective for the following research questions. The quotes from these participants are taken directly with no correction for grammar and/or punctuation.

Question 1: What Goals of Self-Directed Learning Can Be Identified in OSS Participants?

Using the three goals of SDL previously presented, this section examines them in light of forum participation. Personal responsibility, transformational learning, and social action and their characteristics are identified and discussed.

Personal responsibility. A main focus for forum participants was the opportunity to learn. Again, while there is no claim to significance, over 70% of the respondents to the survey indicated that at least part of the reason they joined the forums is to learn. For example, a forum participant responded,

Some people that post describe and explain more than others as they write solutions, so there are opportunities to learn out there though. Much of the learning is more a hands-on, self-led format - learning by doing and seeking an understanding of what it is you are doing on your own, either after or while you are doing it.

In “seeking an understanding,” a forum participant is taking the initiative to learn, which is in alignment with the TL transaction of the PRO model of self-direction in learning where the learner takes responsibility (Brockett & Hiemstra, 1991; Stockdale & Brockett, 2010) and is also defined in the SDLRS (Guglielmino, 1978). Additionally, the “hands on, self-led format” indicates another aspect of personal responsibility: control, which is another TL transaction in the PRO model (Stockdale & Brockett, 2010). The “self-led format” additionally reflects the self-concept as an independent learner as in the SDLRS (Guglielmino, 1978).

A further example of a respondent’s taking the initiative to solve a problem is the following: “So I try my best to figure out the answer myself and one way to do that is to search the forums. When learning, open source forums are
outstanding.” Thus, participants seek out answers and information on their own. Without initiative, a participant’s problems may not be solved. One respondent observed, “Unfortunately, [there are] people that can’t be helped when they are asking poorly most of the time. They have to take the initiative to write good question[s].” Thus, background searches and the initiative to write clearly are requirements within the forum.

Still another respondent wrote, “If one learn through forum [sic], it is his/her responsibility to do further research on the topic.” This comment demonstrates the need for forum participants to assume control and responsibility for learning. There should be no expectation that other members will “teach.” Although forum members are willing to help, each member is responsible for his or her own learning.

Motivation has also been defined as a factor in self-directedness in learning. In the OSS forums, the motivation to participate may be either intrinsic or extrinsic. Intrinsic motivation comes from the simple desire to learn, as demonstrated above. Extrinsic motivation comes from the need to solve problems. For example, some common responses were the following: “To read and find solutions to issues and problems” or “I’m always looking to solve a problem. That’s it. I go there, I don’t have enough spare time to go there for interesting information, it’s always when I encounter a problem.” The motivation involves the problem, and once a problem with OSS is identified, the learner takes control of the learning and has the initiative to visit the forums.

Self-efficacy and belief in one’s ability to ask questions and solve problems also are demonstrated in forum use. Those without self-efficacy or the belief they can ask a question or answer may “lurk”, that is, simply read others’ comments without any further participation in the forum, until such a time that they obtain the confidence or self-efficacy to actually post. For example, one respondent noted, “I have not interacted or posted; I consider myself too much of a newbie, and I don’t feel like I have enough to contribute.” Without the background and belief that one can contribute, participation is likely to be hindered.

**Transformatrve learning.** This section uses the guidelines that may lead to transformational learning (Mezirow, 1981) as the basis for analysis. While not every example may have led to transformational learning, the characteristics identified in the guidelines outlined can be identified. Mezirow (1981) found that a progressive reduction of the learner’s dependence on the educator may promote transformational learning. Within the forums, new participants are encouraged to find a mentor. This mentor, possibly the forum moderator, guides the participant at first in using the forum. For example, a respondent wrote, “Also, find a mentor, someone who will work with you . . . teach you the ropes.” Another respondent indicated, “often helping new comers to support forums is made up in large part by helping them learn to use search effectively, which might include learning the local subject nomenclature for common functions or sections.” As a participant interacts continually with the forum, the mentor’s role decreases, and the participant becomes self-reliant.
Additionally, the forums help participants to use the resources they discuss. One moderator indicated, “I have a library of 200 screenshots that I use to choose to illustrate points I’m trying to make” when talking about helping the newcomers. The forums promote learning within the relationships. One respondent commented, “I think forums … have helped me learn how to communicate online more effectively. The language you use when talking to people face to face will not always translate to the web.”

Learning in forums may also encompass facilitating problem posing and solving, as indicated by this respondent:

Ask intelligent questions…. The quality of the reply is often directly related to the quality of the question. A lot of us "experts" are old-timers and we expect a certain amount of detail. I don't have time, generally, to research someone's problem too deeply, so the more detail and useful information/description they can provide, the better.

Forum members support the requirement of asking quality questions by not responding to the asker of poorly framed questions or worse: flaming – that is, criticizing or ridiculing – the asker.

Forum participation may also enable one to foster a self-reflexive corrective approach. When forum members pose a question, they must then follow through; that is, think about and check out the responses given. This follow-through is considered a requirement by other forum members. One forum member responded,

Yes, always check and verify the information given on the forum. It does not necessary what written on the forum should work in your situation [sic]. If one learn through forum [sic], it is his/her responsibility to do further research on the topic.

Social action. As demonstrated by previous research, part of the motivation for joining forums is altruistic (Baytiyeh & Pfaffman, 2010). As to self-direction in learning within forums, the participants seek to contribute and help others learn. As noted by one interviewee, “I started learning open source from various sources including what are you doing right now and i think it is great to contribute back.” Helping others learn and giving back were noted over 50 times by respondents in the surveys. Another survey respondent wrote, “To help out fellow people struggling with concepts,” thus indicating that helping others is a reason for participating.

Question 2: How Do Forums Encourage Self-Directed Learning Characteristics?

As the newcomers participate in the forums, they quickly learn that posting a previously asked question is not good practice. Forum participants should always check Frequently Asked Questions (FAQs) and search the forum for answers before posting a question. As noted by a respondent, “On OSS forums, people are
generally expected to search for their own answers BEFORE turning to others.” Another respondent indicated,

…The other thing is …reading, reading some technical you know manuals or actual – before they ask the question because it helps to ask a better question maybe not to find the right answer but . . . it’ll definitely to help them ask the right question.

Thus, the reduction of duplicated information requirement teaches members to be self-directed and find answers for themselves if at all possible.

In addition to being required to search before posting, a clear or “good” question includes evidence of self-directed learning in the forum. As indicated previously by one respondent, “I don't have time, generally, to research someone's problem too deeply, so the more detail and useful information/description they can provide, the better.” The responses by fellow forum members facilitate the self-direction in learning of an individual forum member via their feedback. Posts that are not detailed or poorly written may be ignored or flamed.

**Question 3: How Do the Self-Directed Learning Characteristics Support Forum Learning?**

The member’s taking the role of teaching is part of the teaching/learning transaction. The actions of a participating member help further the knowledge base via the following:

- taking the initiative to search before posting to reduce duplicate posts – this furthers knowledge;
- taking control in responding to problems others have posted to facilitate their learning; and
- taking control and posting reflection and feedback to solutions and posts made to their own problems.

Additionally, self-directed learning forum members enable forum learning by taking the initiative to check out answers before posting and thus reducing the misinformation on the forums, as the quote below illustrates:

Absolutely, I find actually not only do I research it but I actually test it to see if it works, you know? And I, if I find something that’s really slick… there have been times when I try to solve a problem and somebody published you know 10 steps on how to do it and after a little research I find that all you had to do was this one step. You know, so I’ll go back through and say ‘Hey guys, you know, this is a good post, but there’s another way of doing this and it’s a lot simpler and it doesn’t take nearly the amount of time or the configuration. And so here’s where I found this information.’

The addition of tried and tested information on the forums contributes to the overall knowledge base.
Question 4: What relationships among the characteristics of self-directed learning may be indicated from the results?

Consideration of this question has led to a proposed model for a self-directed learning progression within an OSS forum. From the initial entry into the forum through a collaboration process the forum members may contribute to both individual and forum knowledge. Incorporating the analysis of the data and drawing from Brockett and Hiemstra’s (1991) PRO-Model and guidelines of both Taylor (2008) and Mezirow (1981), a consistent pattern and relationships were noted in this dataset. Examples from the questionnaire and interviews are presented in Table 1, while Figure 1 presents proposed relationships found.

The examples in row 1 of Table 1 indicate that part of the motivation for participation may stem from social action to promote OSS and to help others. Another motivation for participation is the need to solve a problem. Self-efficacy also plays a role, as indicated in row 2 of Table 1. Thus, in Figure 1, the learner characteristics contribute to members’ participating in the forum.

Once a member has begun participating in the forum, he or she takes both control (row 3 of Table 1) of what he or she posts and the initiative (row 4 of Table 1) to post. Control and initiative are part of the teaching/learning transaction. The cycle of posts and responses create collaboration (row 5 of Table 1), which is represented in Figure 1 as the process of creating knowledge.

The outcomes from the progression in rows 1-5 may lead to transformative learning for the forum member in how information is organized and processed. Self-efficacy is demonstrated as well learning how to pose better questions within the forum leading to the outcome of an increase in the personal knowledge of the OSS material. Additionally through collaboration in Row 5, the forum member grows and changes or transforms. Participants also learn how to better interact collaboratively online (row 6 of Table 1). Another outcome from the collaboration and individual growth and knowledge is that of forum knowledge. The problem solving contributes to the collective forum knowledge created therein (row 7 of Table 1).

Figure 1 demonstrates a possible relationship found in the forums using the existing PRO-MODEL of the PRO-SDLS (Stockdale, 2003) combined with transformative learning. The arrow pointing in demonstrates those characteristics of motivation and self-efficacy the participant enters the forum with. The circle in the middle is the teaching/learning through collaboration that takes place in the forum. The exiting arrow demonstrates the possible resulting transformational learning along with individual and forum knowledge. Although not all participants will progress through the entire model (for example “lurkers” who never collaborate) a full progression may follow as a participant enters a forum based on motivation and self-efficacy (LC). Using initiative and control the participant progresses in forum participation through collaboration (TL). Through the collaboration the participant’s problem solving skill and interactions may change (or transform) as the participant finds answers and helps other members find answers.
Table 1. *Self-Direction in Learning and Outcomes in OSS Forums*

<table>
<thead>
<tr>
<th>Characteristic/Outcome</th>
<th>Example from Responses</th>
<th>Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Motivation (LC)</td>
<td>“To keep up on issues, to build a reference database of answers, to find answers to questions, to answer other people’s questions” “Love to learn by helping people. Share my knowledge. Help open source community.”</td>
<td>These motivations for participation express why people joined the forums.</td>
</tr>
<tr>
<td>2. Self-Efficacy (LC)</td>
<td>“because i'll always be able to help with the issue you're having”</td>
<td>This demonstration of confidence that the participant will be able to use the forum successfully also came from a reason to join the forum.</td>
</tr>
<tr>
<td>3. Initiative (TL)</td>
<td>“I would first, first I would read the stuff all that is in there- manuals, the literature, you know, reference manuals and all those guides. I would read those first. It’s often, you can find the problem and the solution in the manual, so I would read that first.” “You familiarize yourself with the software being used, as best you can, but mostly if you haven't used that software yourself, then you won't be able to answer the question adequately, so ultimately you answer from a position of experience”</td>
<td>The participant is using the forum and is taking the initiative to try to find an answer from others’ previous collaborations and posts. It is part of the give-and-take of being a forum participant.</td>
</tr>
<tr>
<td>4. Control (TL)</td>
<td>“You know, I will, I’ll post every once in a while”</td>
<td>The participants control when and if they post/contribute.</td>
</tr>
<tr>
<td>5. Collaboration</td>
<td>“Also, you ask the original poster for more info if needed.” “And a lot of times, a lot of times what will happen is somebody will post something, a blog or a thread or something. Somebody else will post and correct them, and somebody will post something back and yeah, the correction is what actually fixed my problem, not the original post” “- before they ask the question because it helps to ask a better question maybe not to find the right answer but. . . it’ll definitely to help them ask the right question.”</td>
<td>The posting of questions and answers, along with requesting more information, creates the collaborative effort in problem-solving. Additionally, participants learn to ask better questions.</td>
</tr>
<tr>
<td>6. Individual Knowledge</td>
<td>“I’ve got in my email all the things I’ve ever fixed” “like I said the technique around jumping to the bottom of the page, and then copying the content and pasting into an email and emailing it to myself from myself”</td>
<td>The participants track and keep things they have fixed as well as questions they have asked.</td>
</tr>
</tbody>
</table>
The give-and-take of information and problem solving leaves a legacy of forum knowledge for future users.

Figure 1. SDL and OSS Forums.

Conclusion

Self-directed learning is a critical component in the future of the knowledge age. The OSS forums have long been used and studied regarding the motivations and contributions they make in promoting learning. This paper furthers that knowledge base by identifying characteristics of self-direction in learning in OSS forum members, how they are related with joining forums, collaboration, and the transformative learning that may follow. Using the underlying characteristics of SDL scales, this paper additionally provides a more in-depth examination compared to simple numbers. Through the use of qualitative research methods for this dataset, results indicate that learner characteristics influence the reasons for forum participation; that the process of teaching and learning involves the initiative and control of self-direction in learning as participants collaborate; and that the result is learning that increases both an overall forum knowledge base as well as
individual knowledge and may be transformative. Understanding these relationships in more depth may prove useful in adapting and scaffolding forum usage in online learning environments in the future.

The model proposed in Figure 1 is limited in that it is based on only one qualitative dataset. Further study is required to validate and examine the impact and implementation of this model within the education ecosystem. Recommendations for further study are two-fold. First, the blending of the quantitative scales of characteristics drawn from a controlled environment in an effort to substantiate the proposed model would (or would not) provide statistical confirmation of these findings. That is, using a scale such as the PRO-SDL (Stockdale, 2003) as well as a scale to help identify transformational learning blended within a study may shed further light on relationships and progression of SDL. Additionally, experimental studies that examine the various characteristics of self-direction in learning in the use of classroom forums may help to confirm/reject the proposed model.

References


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FACULTY DEVELOPMENT TO PROMOTE SELF-DIRECTED LEARNING: THE NORTH-WEST UNIVERSITY APPROACH

Gerda Reitsma, Lucy Guglielmino, and Elsa Mentz

This paper shares an approach to the process of implementing self-directed learning across the curriculum in a university Faculty of Education. How is it initiated? What preparation is needed for faculty? What are the logical steps and probable barriers? The process used by the Faculty of Education, North-West University (NWU), South Africa, is described.

All education springs from some image of the future. If the image of the future held by a society is grossly inaccurate, its education system will betray its youth. Alvin Toffler (1974)

Changes in the educational environment require changes in teaching and learning approaches (Brown, 2006). Brown (2006) summarised the most prominent paradigm shifts that were experienced in education during the 20th century. The ideal role of the teacher first shifted from teaching specified content to facilitation of learning, but Brown asserts that the latest shift, prompted by the vast amount of information now available via the internet, creates a new role for the learning facilitator. Now, the learning facilitator needs to become a primary resource for assisting learners to locate, evaluate, and select among a virtually endless amount of available information and knowledge. Clearly, self-directed learning is central to both of these shifts (Francom, 2010).

It is now common knowledge that traditional classroom training programmes often produce limited results in terms of learning that lasts (Turner, 2006). Real and lasting changes must begin in teacher education; however, changing traditional educational practices presents a major challenge for teacher educators and researchers (Korthagen, Loughran, & Russell, 2006). Substantive change requires a long-term process of faculty development for teacher educators as well as new approaches that will help future teachers to translate changing views and theories into actual teaching practices in schools (Lunenberg, Korthagen & Swenne, 2007). Unfortunately, there remains a gap between the changing theory and the current practice of teacher education.
The decision to move an entire college or faculty toward an approach to instruction that is more supportive of self-directed learning is a major one, and attaining the goal is a complex process. The experiences and approaches of others who have walked this road can provide valuable insights. As an example, Bulik and Frye (2004) shared a faculty development workshop used in a medical university to encourage incorporation of SDL approaches. This article documents the process of preparing faculty for incorporating greater emphasis on self-directed learning across the curriculum in the Faculty of Education, North-West University (NWU), South Africa. The NWU is a multi-campus university: the Mafikeng and Potchefstroom Campuses are situated in the North-West Province and the Vaal Triangle Campus is in Gauteng. The Faculty of Education Sciences at the Potchefstroom Campus has had a proud history of teacher training since 1919. The context in which teacher training takes place reflects the continuous interaction between the wider and local contextual influences. One of the mission statements of the Faculty focuses on the development and presentation of quality pre- and inservice training opportunities for teachers.

To maintain currency and effectiveness, NWU has an ongoing Teaching and Learning Committee, which consists of three representatives of each school, the Director of the School of Education, and a representative from Administration (Potchefstroom Campus). Committee members serve for three years and report directly to the Executive Committee of the Faculty. The function of the committee is to promote innovation in teaching and learning in the faculty by organising internal staff development opportunities, investigating problem areas, and making recommendations regarding the improvement or advancement of teaching and learning.

Although the Faculty has a reputation for innovation and for graduating high-quality teachers, the Teaching Committee determined that change was needed in approaches to teaching and learning in the teacher training programmes. In line with the Faculty’s stated mission to present quality pre- and in-service training opportunities for teachers and taking note of literature on the changing world and what will be expected from students once they enter the world of work, in 2008 the Faculty identified the implementation of self-directed learning as a strategic priority. Two major thrusts to address this priority were chosen: faculty development in SDL and SDL as a research focus. This paper focuses on the faculty development in SDL.

Faculty Development In SDL

When major change is sought, change theorists assert that involvement of those affected by the change is imperative if the effort is to be successful (Kotter, 1996, 2012). In the case of the NWU Faculty of Education Science, the implementation of SDL was chosen as a strategic priority by the Faculty, and continuous attention has been given to faculty involvement in all activities organized to move toward this goal.
Faculty Colloquia

The Teaching-Learning Committee of the Faculty compiled an action plan to execute the strategic priority of implementing SDL throughout the curriculum. One of the first action steps was to organize faculty colloquia where the concepts of self-directed learning, self-regulated learning, adult learning, and assessment were discussed.

- A November, 2009, colloquium focused primarily on discussion of definitions, conceptualizations, and benefits. Three NWU faculty members led the discussion.
- At a second colloquium in May, 2010, four other NWU faculty members presented examples from practice. The grassroots advocacy and examples from within the Faculty did much to develop a positive attitude towards change throughout the Faculty of Education. In addition, the representative from the administration was favorably impressed.

Even as the second faculty colloquium was being offered, planning was underway to bring in an outside consultant to offer further information and consultation for interested Faculty in a more in-depth, two-day workshop on self-directed learning, followed with an opportunity to schedule appointments for individual consultation on the third day. Dr. Lucy Guglielmino was invited to visit the campus in August to conduct the workshops and individual consultations and to present an evening address to the Faculty as well.

Initially, the central concern for the workshop was revision of the preservice teacher education program to prepare teachers who are more highly self-directed learners. Because of inquiries from other colleges, individuals from the Faculty of Engineering and the Faculty of Business also were invited, and several participated in the workshops and attended the evening address. At ensuing sessions, faculty from the College of Nursing also participated. Attendance to these colloquia and the workshop was not compulsory, but they were well-attended.

The level of institutional support and interest was high; Dr. Guglielmino was also invited to meetings with the director of the Faculty of Education, the director of research, and the top administration team, including the rector (president) and the provost of the Potchefstroom campus.

Faculty Self-Assessment

The lecturers* who attended the two-day workshop on SDL completed Guglielmino’s (2010) Self-Directed Learning Readiness Scale (Learning Preference Assessment) on-line beforehand. The results from the tests indicated that the lecturers had a high level of readiness for self-directed learning, with a mean of $243.64 \pm 23.01$ out of a maximum of 290. This mean relates favorably to some of the highest mean scores on the SDLRS, understandable since the Faculty has an expressed interest in and focus on SDL.

*(As in Europe, lecturer is the term used to refer to faculty members, as Faculty refers to the whole body of faculty, i.e. the Faculty of Education Science)
The SDL Faculty Workshop

Reflection. The workshop began with lecturers reflecting on their own self-directed learning readiness and past self-directed learning projects. Lecturers wrote a reflection on what they expected from the workshop, as well as aspects of concern regarding SDL implementation in their curricula. In summary, most of the lecturers were positive about SDL, but unsure how to go about implementing it. They were also concerned about the students’ responses, because the students were coming from very structured, teacher-directed lower schools.

Building an information base on SDL. Further information on the process of SDL (Brockett & Hiemstra, 1991; Candy, 1991; Knowles, 1975; Long, 1989, 1990), characteristics of highly self-directed learners (Guglielmino, 1978; Oliveira & Simões, 2006; Posner, 1991), and research-based benefits of SDL (Guglielmino, 2008; Guglielmino et al., 2009) were discussed and questions were addressed. Since the strategic priority of implementing SDL throughout the curriculum was based on the concept of SDL as a developable capacity (Guglielmino, 1978, 2008), research results demonstrating the accuracy of that concept were emphasized (Gabrielle, 2003; Kasworm, 1983; Litzinger, Wise, & Lee, 2005; Posner, 1991, 2009; Slaughter, 2009).

Studies linking integration of SDL strategies and improved academic achievement, such as the research of Dynan, Cate, & Rhee (2008), Gabrielle (2003), Nowocien (2005), Reio (2004), and Wayne State School of Pharmacy (Slaughter, 2009) were presented. Mention was made of correlations of SDL readiness with high workplace performance (Connolly, 2004; Durr, 1992; Liddell, 2008; Guglielmino & Guglielmino, 2008; Guglielmino & Guglielmino, 2006), areas of strategic importance for country development.

Exploring approaches to facilitating student development of SDL readiness. Strategies and teaching approaches supportive of developing self-directed learners, such as problem-based learning, project-based learning, peer teaching, communities of learning, use of technology, and SDL-promoting assessment were briefly introduced. Participants, some of whom were already experimenting with some of these approaches, then selected one of the suggested approaches or another of their choosing and divided themselves into groups with the task of investigating their chosen topic and preparing to share it with their colleagues. Because of the time constraints of the workshop, groups were provided with packets including some core materials on their topics, such as articles, websites, or book chapters, but had to seek out additional resources. Time was provided for group work and division of responsibilities. The next day, after some additional group time, representatives from each group delivered interactive sessions to familiarize the group with the approach they had chosen, including a power point presentation supported by activities to involve the learners and allow them to share their own experiences.
Planning for Implementation

During the last session of the workshop, the lecturers were once again divided into different groups and were invited to do a situation analysis of implementing SDL in the Faculty. The outcomes of this session indicated that lecturers were positive about the implementation of SDL across the curriculum, but that they perceived very definitive obstacles that need to be addressed to make the process possible. These obstacles include institutional policies and procedures, infrastructure and administration, Faculty development, and SDL readiness of the students. During the Faculty strategic planning, the Teaching-Learning Committee presented action plans for the further implementation of SDL across the curriculum. Action plans include implementing SDL in a course-by-course approach, ending with the majority of curricula implementing SDL (Major & Palmer, 2006), by

- redesigning courses, study guides, contact sessions,
- implementing new teaching methods with appropriate assessment (Costa & Kallick, 2004; Dynan, Cate & Rhee, 2008),
- increasing reflection by both lecturer and students (Major & Palmer, 2002), and
- providing more opportunities for collegial discussions on the process of implementing SDL (Major & Palmer, 2006), thus resulting in collegial support.

Continuing Faculty Development Efforts

Change in program structures and practices require a corresponding change in thinking about teacher education, with enormous consequences for the daily work of teacher educators. These consequences go well beyond the level of program organization and teaching or supervisory behaviour: most of all, an attitudinal shift is involved.

The initial faculty development efforts were followed up with faculty experimentation, individual consultations on research and practice, and additional workshops and colloquia both on SDL general knowledge and on some of the specific approaches being used to develop students’ SDL readiness. These additional opportunities were targeted to those with different levels of knowledge about and experience with SDL, and they involved both outside consultants and groups of NWU faculty who were working to implement SDL in their classrooms.

The Teaching Learning Committee is well aware that change requires a long-term process of staff development, as stated by Korthagen et al. (2006). The faculty development efforts will be ongoing, shaped by a core group of committed faculty and informed by input from across the entire Faculty of Education as well as by current literature and research results. Future reports will document an action research structure designed to support the incorporation of SDL, adjusting approaches as indicated by outcomes. Individual reports on a variety of interventions will also be shared in this ongoing effort.
References


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