Procrastination and Motivation of Undergraduates with Learning Disabilities: A Mixed-Methods Inquiry

Robert M. Klassen, Lindsey L. Krawchuk, Shane L. Lynch, and Sukaina Rajani
University of Alberta

The purpose of this mixed-methods article was to report two studies exploring the relationships between academic procrastination and motivation in 208 undergraduates with (n = 101) and without (n = 107) learning disabilities (LD). In Study 1, the results from self-report surveys found that individuals with LD reported significantly higher levels of procrastination, coupled with lower levels of metacognitive self-regulation and self-efficacy for self-regulation than those without LD. Procrastination was most strongly (inversely) related to self-efficacy for self-regulation for both groups, and the set of motivation variables reliably predicted group membership with regard to LD status. In Study 2, individual interviews with 12 students with LD resulted in five themes: LD-related problems, self-beliefs and procrastination, outcomes of procrastination, antecedents of procrastination, and support systems. The article concludes with an integration of quantitative and qualitative results, with attention paid to implications for service providers working with undergraduates with LD.

St. Expeditus, Patron Saint against procrastination: A ragged Expeditus is hurrying down a path... rabbits are scurrying in front of him. He is chasing away a crow, while another is in a tree. One cries cras (tomorrow), the other hodie (today) (Banker, n.d.).

Although some people may invoke St. Expeditus to help combat task avoidance and delay, for most people, procrastination is a motivational problem with no easy solution. Procrastination is experienced by almost everyone and in some cases can be associated with serious negative academic outcomes and psychological dysfunction (Ferrari, 2001; Ferrari, O’Callaghan, & Newbegin, 2005). If motivation is effort, persistence, and drive directed toward a particular goal (Pintrich & Schunk, 2002), procrastination might be considered a type of anti-motivation, that is, avoidance or delay of the application of effort and persistence directed toward a task. Is procrastination the result of a lack of confidence to pursue a particular task? Self-efficacy researchers propose that individuals with high self-efficacy are more likely to display higher levels of task motivation, that is, to show greater effort, persistence, and resilience. Does procrastination occur when individuals are deficient in self-regulation? Researchers who study self-regulation suggest that learners who set goals, enlist cognitive and metacognitive strategies, and manage their learning environments are more likely to display higher task motivation and to experience academic success than those who do not.

In contrast to well-studied functional motivation variables like self-efficacy and self-regulation, procrastination suggests the absence of a motivated, planful approach to learning. A number of recent studies have elaborated on the links between procrastination, self-efficacy, and self-regulation (e.g., Ferrari, 2001; Haycock, McCarthy, & Skay, 1998; Howell, Watson, Powell, & Buro, 2006; Senécal, Koestner, & Vallerand, 1995; Steel, 2007; Wolters, 2003), with results showing procrastination inversely related to the strength of individuals’ beliefs in their capabilities to carry out a desired task (i.e., self-efficacy) and to the levels of cognitive and metacognitive skills shown by motivated and self-regulated learners. However, all of these studies have included only individuals with assumed typical learning profiles and have not addressed how individuals with diverse learning needs, such as learning disabilities (LD), experience procrastination in relation to other motivation variables.

A review of the procrastination literature found that no studies have explored the procrastination of individuals with LD and very few studies have explored procrastination using qualitative or mixed-methods approaches. Previous research has found that motivation variables might operate in different ways for individuals with LD (e.g., Borkowski, 1992; Butler, 1998; Klassen, 2002; Klassen & Lynch, 2007). Students with LD have been found to display lower levels of self-concept and self-esteem, higher levels of anxiety, and greater misclassifications of self-efficacy than students without LD (Chapman, 1988; Gans, Kenny, & Ghaney, 2003; Grolnick & Ryan, 1990; Klassen, 2007). Procrastination, too, may operate differently for individuals with LD. For individuals without LD, procrastination negatively affects academic performance (Ferrari, 2001; Fritzschke, Young, & Hickson, 2003) and has been found to be associated with low self-esteem and anxiety (Ferrari, Doroszko, & Joseph, 2005; Senécal et al., 1995), but no motivation research has explored procrastination behaviors in populations with LD. In the same way that research exploring the motivation beliefs of individuals with LD leads to effective strategies and programming (e.g., Chapman, 1988; Gans et al., 2003; Klassen, 2007), investigations exploring procrastination practices of individuals with LD may result in improved support and lead to an increased
understanding of procrastination and motivation in diverse populations.

**Procrastination**

The literature and theoretical foundations of procrastination research are less well developed than those of other psychological constructs, even though chronic procrastination is common and debilitating. Hammer and Ferrari (2002) found as many as 20 percent of adults experience chronic procrastination for everyday tasks, while the rate for problematic academic procrastination among undergraduates is at least 70 percent (Ellis & Knaus, 1977). Unfortunately, procrastination is a relatively unexplored psychological construct—a database search conducted in the mid-1990s found articles on depression outnumbered articles on procrastination by a factor of 1,000 (Ferrari, Johnson, & McCown, 1995). A late-2006 PsycINFO search conducted for this article found 11,374 articles on self-efficacy, 4,056 articles on self-regulation, and only 422 articles on procrastination as a key word. (For comparison with Ferrari et al. (1995), 93,675 articles on depression were found.)

Procrastination is frequently defined as the delay of completion of a relevant and timely task within an expected or desired time frame, and which often results in unsatisfactory performance on the task (Chu & Choi, 2005; Ferrari, et al., 2005; Solomon & Rothblum, 1984). Definitions of procrastination variously include aspects of delay, substandard performance, irrationality, and emotional upset (Ferrari et al., 1995; Milgram, 1991) and are applied to everyday or academic settings. Recent attention has been given to procrastination in university and business settings (e.g., Ferrari, et al., 2005; Wolters, 2003), with findings that procrastination is related to low self-confidence, high levels of depression, social anxiety, impulsiveness, and behavioral rigidity (Ferrari et al., 2005). As a result, procrastination may be responsible for late assignments, cramming, test and social anxiety, use of self-handicapping strategies, and fear of failure, and it often results in poorer performance than the person is capable of attaining (Lee, 2005; Ferrari & Scher, 2000; Lay & Schouwenburg, 1993; Midgley & Urdan, 2001). Procrastination has also been defined as a deficit in self-regulated performance (Chu & Choi, 2005; DeRoma et al., 2003), with potentially damaging consequences such as depression and anxiety (Dewitte & Schouwenburg, 2002; Fritzschke et al., 2003). Among all of the variables investigated in relationship to academic procrastination, self-efficacy and self-regulation have received the most attention (e.g., Ferrari, 2001; Haycock et al., 1998; Howell et al., 2006; Senécal et al., 1995; Tuckman, 1991; Wolters, 2003), with most studies showing high levels of procrastination associated with lower self-efficacy and self-regulation.

**Self-Efficacy, Self-Regulation, and Individuals with LD**

Self-efficacy has been found to be one of the strongest factors predicting performance in domains as diverse as sports, business, and education (Bandura, 1997; Pajares, 1996). Self-efficacy has been found to show an inverse relationship with procrastination (Ferrari, Parker, & Ware, 1992; Haycock et al., 1998; Tuckman, 1991; Wolters, 2003) and positive correlations with self-regulation (Pintrich, Smith, Garcia, & McKeachie, 1993). A number of procrastination studies have examined the links between self-regulation and procrastination. Ferrari (2001) proposed that procrastination might be considered a “self-regulation failure of performance” (p. 391), and Steel (2001) labeled procrastination as a “quintessential self-regulatory failure” (p. 65). Senécal et al. (1995) found that the ways in which students self-regulate their academic behaviors are strongly connected with procrastination practices, and Wolters (2003) found that metacognitive self-regulation was the second strongest predictor of procrastination after self-efficacy beliefs. Although none of the studies mentioned above included individuals with LD, a few recent studies have shown differences in motivation beliefs of individuals with and without LD.

A recent study investigating the self-efficacy beliefs of adolescents with LD found that participants overestimated their spelling and writing performance by 52 percent and 19 percent, respectively, whereas their non-learning-disabled (NLD) peers were generally accurate in calibrating their efficacy and performance (Klassen, 2007). Students with LD have been found to experience lower levels of self-regulation than their NLD peers because of faulty theories about self, tasks, and required effort (Butler, 1996; Pintrich, Anderman, & Klobucar, 1994) and because of difficulties with selecting, implementing, and monitoring appropriate learning strategies (Butler, 1998). Trainin and Swanson (2005) found that successful college students with LD compensated for reading difficulties with increased use of metacognitive learning strategies and higher levels of help seeking. Although a handful of studies have explored differences in the self-efficacy and self-regulation of individuals with and without LD, no studies to date have extended this line of inquiry to include the exploration of procrastination and LD.

**Current Study**

The purpose of this two-phase explanatory mixed-methods design study (Creswell & Plano Clark, 2007) was to explore the procrastination and motivation of individuals with and without LD. In Study 1, self-report surveys were used to explore the procrastination patterns and motivation beliefs of 101 undergraduates with LD and 107 NLD undergraduates. In Study 2, in-depth individual interviews were conducted with 12 undergraduates with LD. This mixed-methods design allows for analyses and interpretations that take advantage of the strengths of both quantitative and qualitative approaches and allows for insights that might be missed through the use of a single approach (Ivankova, Creswell, & Stick, 2006; Johnson & Onwuegbuzie, 2004). The current study was approached as an exploratory investigation of undergraduates with LD. Based on previous research (e.g., Haycock et al., 1998; Saddler & Buley, 1999;
Senécal et al., 1995; Wolters, 2003), we expected that levels of academic self-efficacy, metacognitive self-regulation, and self-efficacy for self-regulation would be higher in the NLD group than the LD group and that academic self-efficacy, metacognitive self-regulation, self-efficacy for self-regulation, and help seeking would show negative correlations with procrastination for both groups. Based on findings that students with LD have weaker self-regulatory skills, we predicted that levels of procrastination would be higher in the LD group than in the NLD group. Of additional interest were issues such as the role of procrastination in the subjects’ lives and ways they counteract procrastination.

STUDY 1: QUANTITATIVE INQUIRY

Method

Participants

Participants were 208 undergraduate students from three urban colleges/universities in western Canada. Of the total participants, 101 with LD comprised 65 percent female, with a mean age of 24.6 years (SD = 5.32), reported a mean grade point average (GPA) of 2.96 (SD = .45) on a 4-point scale, and represented seven disciplines/majors. There were no significant differences on participant GPA among the three colleges, and an examination of published entrance requirement data shows little difference for undergraduate requirements among the three colleges. Mean year of study for the participants with LD was 2.97 (SD = 1.77). Individuals with LD were identified by disabilities services centers and also self-reported disability status in response to the question, “Do you have a diagnosed learning disability?” In the jurisdiction of the colleges included in this study, LD is conceptually defined according to guidelines published by the Learning Disabilities Association of Canada (2002) and operationally defined and diagnosed by the presence of a significant discrepancy between scores on individual intelligence tests and standardized achievement tests, along with evidence of processing disorders. To gain access to the services provided by the disabilities services centers, students need to provide documentation of their disability in the form of a registered psychologist’s report that includes a diagnosis of LD. Achievement levels and IQ scores were not collected, but, for each of the three colleges represented in this study, aspiring students with LD must meet the same entrance requirements as students without LD.

Of the total participants, 107 NLD participants were 74 percent female, with an average age of 22.8 years (SD = 3.74), reported a mean GPA of 3.04 (SD = .40), and represented six disciplines/majors. Mean year of study was 2.67 (SD = 1.05), and 90 percent of the participants were born in Canada.

Procedure

Participants were volunteers who responded to an electronic invitation sent to undergraduates with diagnosed LDs who were receiving or had received support from the disabilities service center and completed either a paper or electronic version of the survey. The study was explained in the e-mail message and on a front sheet on the paper version of the study. Participants could complete a survey online or complete a paper copy available at the center. Based on our discussion with the disabilities services centers, we estimate a response rate of about 45 percent of the undergraduates with LD who were contacted. Sixty percent of the students with LD chose to complete electronic surveys.

Individuals without LD were volunteers recruited from two undergraduate education classes (nonspecialist classes open to all students) in one of the three colleges and completed paper or electronic versions of the survey, depending on student preference. The second author visited two classes, explained the project, and distributed the paper surveys, and also distributed the URL for the electronic survey. Surveys were completed outside of class time. After the class visits, the instructor reminded the students to complete the survey and once again distributed the survey URL to students. Participants consented to participate in the research after reading and completing an information/consent form. The response rate from the undergraduate education class was approximately 70 percent, with most students (65 percent) completing paper copies. Within each group (LD and NLD) there were no significant differences on any of the variables according to survey format (i.e., paper or electronic).

Measures

Before administering the survey, we conducted a pilot study with a small group of NLD undergraduate students and made minor changes to the wording of the survey instrument to increase understanding and to strengthen adherence to theory. GPA was assessed by self-report on a four-point scale. We used Tuckman’s (1991) 16-item procrastination measure, which provides a measure of “the tendency to waste time, delay, and intentionally put off something that should be done” (p. 479). In Tuckman’s (1991) validation study, the measure was reliable (α = .86) and displayed significant correlations with a behavioral measure of homework completion. Recent studies (e.g., Howell et al., 2006) have used Tuckman’s measure with resulting strong reliability and validity evidence. Procrastination was measured using a 4-point scale, anchored at “1” by “That’s not really me” and at “4” by “That’s me for sure.” Examples of procrastination items included “I needlessly delay finishing jobs, even when they’re important,” and “I postpone starting on things I don’t like to do.”

Sections of the Motivated Strategies for Learning Questionnaire (MSLQ) were used to assess participants’ academic self-efficacy, metacognitive self-regulation, and help-seeking behaviors. The MSLQ is a widely used tool measuring motivational orientations and strategy use, with proven reliability and validity (Pintrich et al., 1993). In a reliability and validity study conducted by Pintrich et al., the MSLQ self-efficacy measure displayed a reliability coefficient of .93, the metacognitive self-regulation showed reliability of .79,
and the four-item help-seeking measure displayed a reliability coefficient of .52. The MSLQ self-efficacy measure contains three expectancy-value items and five self-efficacy items. We adapted the measure by omitting all expectancy-value items from the original eight, and by re-phrasing the remaining five with “I am confident” and the suffix “in my classes” (e.g., “I am confident I can understand the most difficult material presented in the readings in my classes”). This adaptation of the MSLQ self-efficacy measure reflects a stronger adherence to self-efficacy theory (see Bong, 2006) and has been shown to be reliable and valid in previous studies (e.g., Klassen, 2007). The intact 12-item metacognitive self-regulation measure was used. For the help-seeking measure, we noted that one item of the MSLQ four-item measure contained double negative phrasing and from the pilot study we learned that the item was difficult to understand for some of the participants. We removed the confusing item, which resulted in three easily understood items and an improved reliability coefficient. For all of the MSLQ measures, a 7-point scale with descriptors at “1” (“Not at all true of me”) and “7” (“Very true of me”) was used. Item scores were summed for each measure to create scores of academic self-efficacy, help-seeking, and metacognitive self-regulation.

Self-efficacy for self-regulation was measured using the 11-item scale from the academic motivation study conducted by Zimmerman, Bandura, and Martinez-Pons (1992). This measure assesses students’ beliefs in their capability to implement self-regulation strategies. The scale includes items such as “How well can you finish homework assignments by deadlines?” and “How well can you concentrate on school subjects?” Participants responded to each item using a 7-point scale anchored by descriptors at “1” (“Not well at all”) and “7” (“Very well”), with the total score derived from adding together each item score. Previous studies (e.g., Klassen, 2007; Zimmerman et al., 1992) have found the measure to display strong reliability and validity (i.e., significant positive correlations with self-efficacy for academic achievement and student grade goals).

**Results**

**Reliabilities and Mean Differences**

Table 1 presents the means and standard deviations for the LD and NLD groups for each of the variables in the study. Internal consistency reliability coefficients (alpha) for the variables were as follows: procrastination .90, academic self-efficacy .90, metacognitive self-regulation .83, self-efficacy for self-regulation .81, and the three-item help-seeking measure .72.

Multivariate analysis of variance revealed no significant sex differences or sex-LD status interactions among the dependent variables. Analysis of variance was used to examine the levels of the six dependent variables according to LD status. Because the analysis included six cross-group comparisons, a Bonferroni correction was used to adjust the significance level from .05 to .008 for each test (Shaffer, 1995). Individuals with LD reported significantly higher levels of academic procrastination, F(1, 207) = 8.30, p = .004, \( \eta^2 = .04 \); lower metacognitive self-regulation, F(1, 207) = 9.18, p = .003, \( \eta^2 = .04 \); and lower self-efficacy for self-regulation, F(1, 207) = 16.57, p < .001, \( \eta^2 = .07 \) than NLD students. There were no significant (Bonferroni-adjusted) differences between the two groups for GPA, F(1, 207) = 1.56, p = .21, \( \eta^2 = .01 \); academic self-efficacy, F(1, 207) = 1.24, p = .27, \( \eta^2 = .01 \); or help seeking F(1, 207) = 3.88, p = .05, \( \eta^2 = .02 \).

**Correlation Analyses**

Pearson correlations for all of the variables for each group are reported in Table 2. For both groups, procrastination was most strongly related to self-efficacy for self-regulation (r = -.64 and -.66 for the LD and NLD groups, respectively). Significant negative correlations with procrastination were also seen in both groups for metacognitive self-regulation and help-seeking behavior. Academic self-efficacy and procrastination were significantly inversely correlated for the NLD group, but not for the LD group.
A direct logistic regression analysis was performed with LD status as the outcome and the five motivation variables as predictors. Logistic regression helps establish whether there is a relationship between group membership and a set of predictors, provides prediction of group membership, and examines which variables predict group membership. The full model, tested against a constant-only model, was statistically reliable, \( \chi^2(5, N = 208) = 30.00, p < .001 \) (Hosmer and Lemshow test, \( p = .915 \) indicating a good fit of model to data), suggesting that the predictors, as a set, reliably distinguished between the LD and NLD groups. The overall correct prediction rate was 64.4 percent, with a success rate of 59.4 percent for the LD group, compared with 69.2 percent for the NLD group. A look at the Wald criterion and levels of significance shows that only help seeking (\( p < .001 \)) and self-efficacy for self-regulation (\( p < .01 \)) were variables that reliably predicted LD status.

**TABLE 2**
Within-Group Correlations for Procrastination and Motivation Variables

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Procrastination</td>
<td></td>
<td>-.14</td>
<td>.06</td>
<td>-.34**</td>
<td>-.64**</td>
<td>-.37**</td>
</tr>
<tr>
<td>2. GPA</td>
<td>-.30**</td>
<td></td>
<td>.28**</td>
<td>.21**</td>
<td>.35**</td>
<td>.09</td>
</tr>
<tr>
<td>3. Academic SE</td>
<td>-.25**</td>
<td>.35**</td>
<td></td>
<td>.31**</td>
<td>.37**</td>
<td>.03</td>
</tr>
<tr>
<td>4. Metacog. SR</td>
<td>-.57**</td>
<td>.43**</td>
<td>.45**</td>
<td></td>
<td>.58**</td>
<td>.24**</td>
</tr>
<tr>
<td>5. SE for SR</td>
<td>-.66**</td>
<td>.43**</td>
<td>.43**</td>
<td>.69**</td>
<td></td>
<td>.33**</td>
</tr>
<tr>
<td>6. Help-seeking</td>
<td>-.21*</td>
<td>.09</td>
<td>.13</td>
<td>.40**</td>
<td>.34**</td>
<td></td>
</tr>
</tbody>
</table>

*Note. GPA is self-reported on a 4-point scale; SE = Self-Efficacy; Metacog. SR = Metacognitive Self-Regulation; SE for SR = Self-Efficacy for Self-Regulation. Correlations for the LD sample are above the diagonal and correlations for the non-LD sample are below the diagonal.*

*(comparisons using Fisher’s Z transformation resulted in \( p = .025 \)).

**Method**

**Participants**

Participants were 12 undergraduates with diagnosed LD (7 females) who had completed the quantitative survey and who had volunteered to discuss their motivation beliefs and procrastination patterns in individual interviews. Participants ranged in age from 21 to 45 (median age = 25 years) from three colleges/universities.

**Individual Interviews**

Semi-structured individual interviews, ranging from 30 to 60 minutes in length, were conducted either in person (7 participants) or by telephone (5 participants). The interviewer opened the interview with a brief description of the research project, asked for background information (age, major, schools attended, LD history, etc.), and then posed questions based on the interview protocol that featured open-ended questions developed from relevant procrastination and motivation literature and also from the constructs represented in Study 1. Self-efficacy was defined as domain-specific academic confidence (e.g., “How does your confidence to complete a writing task influence how much you procrastinate?”). The interview protocol contained four sections: (a) background information, (b) open-ended questions about general procrastination (personal definitions, procrastination patterns and levels), (c) specific questions about procrastination and LD, and (d) questions about procrastination and self-efficacy. Interviewers worked in pairs for the first six interviews, and then individually, and they took field notes during the interviews.

**Coding and Analysis**

The interviews were digitally recorded and transcribed verbatim. The HyperRESEARCH qualitative data analysis program was used for coding, mapping, and theming. To begin the analysis of the raw data, several a priori (or theoretical) codes were developed based on the central research questions. Additional codes were created through repeated
readings and content analysis, and the 29 resulting codes formed the basis of subsequent analysis procedures. The reliability of our coding process was established following procedures outlined by Miles and Huberman (1994) and reiterated by Creswell and Plano Clark (2007). To begin, three coders independently reviewed interview transcripts and then collaboratively discussed and agreed upon coding strategies. Next, the three coders independently coded the first interview, and then collaboratively resolved coding disagreements (e.g., missing or superfluous codes, differently coded text segments) through discussion. Internal consistency (number of agreements over total number of agreements and disagreements) after the first interview was low (70 percent). Reliability was increased through a second round of coding of the second interview (close to 90 percent). Two coders (first and second author) followed the same process with the second interview, with a resulting reliability of over 90 percent. Thereafter, one coder (second author) independently coded the remainder of the data, with coding issues discussed with and resolved by the first author, throughout the remainder of the coding process.

The codes were further distilled into themes by two of the authors using procedures described by Miles and Huberman (1994) in which the coded data are manipulated and then graphically displayed in order to identify relationships, patterns, and themes. Within- and cross-case analyses of patterns were employed within an iterative process, wherein data were displayed in a code/theme map, tentative conclusions were proposed, and field notes were consulted to evaluate conclusions (Miles & Huberman, 1994). After multiple readings of the data and graphical representation of themes, five major themes—each with a number of sub-themes—emerged. The major themes included (a) LD and procrastination, (b) self-beliefs and procrastination, (c) outcomes of procrastination, (d) antecedents of procrastination, and (e) support systems that help combat procrastination. Quotes are used to provide voice to participants and concrete evidence to support the themes (Creswell, 1998).

Results

LD and Procrastination

A major foci of this investigation was to understand how having a LD affects motivation beliefs and procrastination tendencies. For most participants, having an LD was understood to be a contributing factor to procrastination, with most of the participants linking their procrastination to cognitive difficulties (reading, writing, memory, general processing) but also to difficulties with using metacognitive approaches to learning (planning, strategy use, managing time, and effort). Jason (22 years old), for example, attributed his procrastination primarily to cognitive deficits in reading and writing, but also noted his uncertainty about how to organize his written work: “Things that involve a lot of text, I tend to procrastinate . . . . The times when I really stall out . . . are when I’m not quite sure how to proceed. If I’ve collected all my research for my essay, and I’m sitting down to elaborate on points, and I don’t know exactly what I want to say or how I want to say it, if there’s some general cloudiness, I just stall out.” Jen (21) recognized how her writing problems influenced her procrastination: “I don’t like to write. I don’t like it and I know that I’m not good at it . . . so I’d rather be going out and doing other things instead of just writing.” Melissa (27) noted “. . . it [procrastination] hurts me more [than other students] because it takes me a lot longer to study than it does for other people.” The participants most clearly linked their procrastination to cognitive difficulties, like poor reading, writing, and memory, but made oblique references to metacognitive deficits, although these were not directly linked to their LDs or to procrastination.

Self-Beliefs and Procrastination

A second theme that emerged from the data involved beliefs about self. Participants were directly asked about self-efficacy (phrased as domain-specific confidence), and spontaneously talked of self-esteem (i.e., self-worth), self-concept (i.e., beliefs about competence), and fear of failure. The majority (10) of participants understood that higher levels of self-efficacy is related to lower levels of procrastination, and low self-efficacy levels are related to higher levels of procrastination: “If I’m not very confident about an area, or if I’m not really comfortable with the subject matter . . . it makes it much harder for me to get started and work and stay working on it” (Sarah), and “If I don’t feel like I can do it, I get really frustrated and I don’t even bother opening the book” (Melissa). Participants related high levels of confidence to less procrastination: “I do it [an assigned task] when I have lots of confidence because it seems very easy and it will seem like it will take no time at all, and I seem to imagine the world without any obstacles” (Sarah). Surprisingly, although low self-efficacy was related to higher procrastination for most participants, high self-efficacy was related to higher procrastination for 2 participants because they misinterpreted the difficulty level and time required for the task: “If something is very simple, and that I have lots of confidence in, I’ll probably put it off even longer, because I know it’s simple. Or at least I think it is . . . If I get the confidence, I put it off even longer . . . excellent!” (Jen).

Self-esteem and self-concept were noted in connection with procrastination for a number of participants. Ryan (22) saw a strong connection between self-efficacy and procrastination, but little connection between self-esteem and procrastination: “I’m perfectly fine with myself and who I am, but my writing skills are low, and I know it, and my confidence is low in that area, so that affects the level of my procrastination for sure.” Other students believed that their procrastination was linked with low self-esteem and academic self-concept stemming from their elementary and high school years: “I think it’s more I feel stupid because of my experiences from K-12. I know I’m capable of it, but I get mad because I can’t get it out, what I’m thinking in my head” (Nicole, 25). Samantha (23) believed procrastination lowered her self-esteem: “My self-worth just bottomed out because of procrastination. You don’t do something and you put it off, and then you can’t figure out why you’re putting it off and you just kind of feel hopeless or stupid, and then it’s a vicious cycle after that.”
Steve (24) also noted the cyclical relationship of procrastination, motivation, and affect: “It’s the whole rumination thing, beating yourself up and getting down on yourself. If I’m in a bit of a depressed mood, then I’m more likely to procrastinate because I just don’t feel confident in my own abilities. It becomes more and more of a cycle that really affects everything in general.” Although the quantitative Study 1 results showed no significant relationship between academic self-efficacy and procrastination, most of the participants in the qualitative study believed that high levels of academic self-efficacy counter harmful procrastination.

Outcomes of Procrastination

Our third theme—outcomes of procrastination—encompassed academic and nonacademic outcomes resulting from procrastination. Participants believed that procrastination negatively influenced their work quality, inhibited their ability to reach goals, and took an emotional toll, although a minority noted occasional positive effects of procrastination. All participants spoke of instances where procrastination had a negative impact on their academic lives, and for most of the participants, procrastination resulted in poor outcomes related to writing assignments: “I’m not a strong writer by any means, and I had to drop English 101 in my first year because I procrastinated on writing everything” (Jen), and “I find that because of my learning disability I just don’t want to start doing anything like that [writing], because it’s kind of like a self-confidence thing, and you’re kind of like ‘I don’t want to write a paper,’ so I’ll push it back” (Ryan). Most of the participants (9 of 12) commented on the emotional cost to procrastination, with Beth (41) commenting: “It’s times when you really procrastinated and did certain things when you knew you could have done darn well better—those are regrettable moments.” For Samantha, procrastination resulted in “a lot of anxiety, and helplessness, and those sorts of feelings surrounding it” whereas for Melissa, procrastination “slowed me down—I had to drop a class because of it, and it was annoying, and it was a pain in the butt and sad.”

For most of the students, their LD influenced procrastination only in their academic life, but three participants commented that procrastination stemming from academic deficits affected them more broadly. Jason noted that his poor reading skills resulted in avoiding completing his tax returns: “I haven’t done my taxes yet, and I mean part of that has to do with the documents [having] a lot of reading involved. It’s kind of veiled to me what exactly I’m supposed to do and what pieces of information I’m supposed to have. And so I just kind of push it off, procrastinate.”

Although most of the participants discussed negative outcomes from procrastination, five of the participants were also able to express situations where procrastination functioned positively in their lives. Sarah suggested that procrastination helped her organize her life: “The positive side to it [procrastination] is that I know pretty much exactly what it is I want when I’m done with planning.” Jason found both positive and negative outcomes from procrastination: “It’s kind of a word that taunts me a little bit. I can find really positive, happy situations through procrastination, and some really, really uncomfortable situations . . . . I think some of the best things that I have ever done, have been while procrastinating against something else.” Marc (45) agreed about the positive function of procrastination: “It’s like procrastination is my friend—I think it sometimes keeps me a little healthy because I obviously take on too much all the time.”

Students who believed that they should be working on particular academic tasks found a myriad of activities as substitutes, with cleaning (8 examples), Internet/e-mail (6), socializing (7), and exercising (6), the most popular replacement activities. Jason found his apartment needed much attention when he was meant to be completing an assignment: “I’d clean my house, clean my bathroom, clean the kitchen, vacuum, do the laundry—anything but write the paper,” a sentiment shared by Sarah: “I’m no Martha Stewart, but, man, the toilet sure is clean when it comes to exam time because it’s actually more interesting to do, and I have something to show for it when I’m done.” Marc found himself helping others rather than completing his own work, “So procrastination means I go off track quite a bit, and instead of studying, I’d do anything to help other people. If they had problems with writing papers or labs, I’d sit down and explain to them what is going on. They’d ask me how I did after the exam, and I wouldn’t say anything, because I was pretty embarrassed.”

Antecedents of Procrastination

In theme four, the internal and external conditions that promote procrastination in students, and the reasons given for procrastination were explored. Students were asked, “When are you most likely to procrastinate?” and “What causes you to procrastinate?” For the majority of participants (9), procrastination was most noticeable at the beginning of the semester: “Yeah, at the beginning of term when you don’t have mid-terms and finals, so you’re just chillin’, and going to class, but you should be studying” (Melissa), and “I always have grand plans to start early, and I buy my books early, and look through them, and make all sorts of lists, but it never really catches on . . . and then time slips away and I’m not keeping up with it, and things just get worse” (Samantha). For four students, procrastination was a reaction to late-semester stress: “Typically as things get hairier and hairier near the end of term, with the due dates for the large assignments, the amount of procrastination will increase for sure” (Jason) This opinion was shared by Beth: “As the deadlines get closer, it’s like my procrastination will increase, and there’s some sort of asymptote that I reach, and it’s like ‘OK, I can’t put this off any longer.’ ” For Jill (24), her procrastination was linked to her waning interest, “At the beginning of the semester, it’s exciting to start a class, and every class I start I’m like, ‘Hey you know, I could really enjoy this,’ but then half way through I’m like, ‘Oh, what was I thinking?’ and I pretty much shut down.”

With regards to internal causes, students mentioned stress (6 instances), fatigue (4), and especially fear of failure (8), whereas among external causes, other people (4), task interest (2), and task difficulty (6) were noted most frequently. Marc
highlighted stress as a key factor: “The more stressed out I am, the more I procrastinate on something that is important to me,” but Melissa noted the opposite, “Early in the semester there’s not enough going on yet, I guess—not enough stress to get me going.” Eight of the 12 students mentioned a fear of failure. Dwayne believed that students with LD “have a fear of failure, so they will try to put that [academic task] off as much as possible. If they don’t have a feeling of accomplishment then they will try to avoid the feeling of failure. They’re worried that because of their disability they might fail, so they just keep putting it off.” Samantha noted that she procrastinated because “I’m afraid of the marks. I’m afraid of what people think of me, I’m afraid of myself and my abilities.” Sarah described her pattern of procrastination: “Typically I’ll just think, ‘I’m three lessons behind right now, and I can’t see a way out of this,’ and so I just shut, pretty much shut down and not bother anymore. I know it’s a side effect of my pathological perfectionism.” Three participants linked their history of learning problems with their performance: “What I’m using now is a screen reader, and it allows me to make the mark that will reflect what I know, and then I tend to put off things because it’s like I don’t want to receive that failure mark.”

Support Systems That Help Combat Procrastination

Most of the participants offered suggestions about scheduling, organizing, and strategizing in academic settings to combat procrastination, but participants recognized the shortcomings of their current approaches: “I try making my own little deadlines, but that never seems to work, because I always just know there’s still time left . . . I read books on how not to procrastinate and it never really seems to work as well as the book said it would” (Samantha). Jason noted how technology has helped him by giving him a sense of control: “What I’m using now is a screen reader, and it allows me to edit my own work . . . . It has allowed me the freedom to feel well represented by my own work . . . . because I have control over it, and can hear what other people read when they read my work.” Jill found that focusing on one course at a time was beneficial: “I took some spring and summer courses last year, and they were awesome, and I didn’t procrastinate at all because I had one class to focus on all the time. So that really helps. I find one class is much easier because I am not reading from five different things, I’m just reading from one thing.”

Ten of the students discussed the services provided by disability support centers, with most students claiming the support was beneficial: “It was really helpful to set up an appointment once a week [and] having to be accountable to somebody besides myself that that kind of thing is really helpful . . . . I know I’m a people person and don’t like to let people down, and so if I have to be there once a week I usually get certain things done in advance” (Sarah). Beth also found individual assistance helpful: “It was always really helpful just knowing that they’re there . . . . Just knowing that door was open gave me at least a chance.” Nicole noted that “it’s the ability to schedule an appointment with someone [at the disability services center] who could [help] . . . . we just clicked and were able to understand each other.” Two of the participants expressed frustration with the bureaucracy required to procure support, with Jason noting that for students with LD, the steps required to receive support can contribute to procrastination: “It takes tremendously more effort to get all that organized, and I have friends [with LD] who don’t receive any services because it is too much work. They said with all the extra time running around, carrying documents from professor to professor to the [support center], they can sit at home and struggle with their textbooks, and make it through. They have coping mechanisms that don’t involve the [support center]. I would suggest that streamlining the systems that students with LD are required to navigate through would really help.”

GENERAL DISCUSSION AND IMPLICATIONS

Individuals with LD reported significantly higher levels of procrastination than their peers without LD, and lower levels of metacognitive self-regulation and self-efficacy for self-regulation. For the NLD group, procrastination was significantly negatively related to GPA, academic self-efficacy, metacognitive self-regulation, self-efficacy for self-regulation, and help-seeking. These results are consistent with previous studies that have found individuals with higher levels of procrastination tend to experience lower levels of many functional motivation variables (e.g., Haycock et al., 1998; Saddler & Buley, 1999; Senécal et al., 1995; Wolters, 2003). The bivariate correlations in the LD sample did not paint as clear a picture. For undergraduates with LD, possessing high academic self-efficacy was not related to lower levels of procrastination. Although self-efficacy and GPA were positively related, high levels of procrastination were not related to lower GPA. Possessing higher metacognitive self-regulation skills, self-efficacy for self-regulation, and higher levels of help-seeking behaviors was related to lower levels of procrastination. For both groups, students who are confident that they can manage their learning environments reported that they procrastinate less than their peers who have lower self-efficacy for self-regulation. Logistic regression revealed that help-seeking behaviors and self-efficacy for self-regulation are key in distinguishing between the LD and NLD groups, with higher levels of help seeking in the LD group than the NLD group, accompanied by lower levels of self-efficacy for self-regulation.

The qualitative results paint a bleak picture of the consequences of procrastination—with courses dropped or failed and negative emotional outcomes such as anxiety, depressed mood, and lowered self-esteem stemming from chronic task delays. The interviews indicated that students believe that skill deficits (e.g., in reading and writing) play a key role in procrastination, and that fear of failure, borne from a
history of academic struggle, may be a key antecedent of procrastinating behaviors. Additionally, the personalized support provided at disabilities services centers may be a factor in reducing procrastination.

A comparison of results from the two studies reveals two contradictions. Previous studies have found a significant inverse relationship between self-efficacy and procrastination in normally achieving student populations (e.g., Haycock et al., 1998; Wolters, 2003). In this study, the survey results showed that academic self-efficacy was significantly inversely correlated with procrastination for the NLD group, but not for the LD group, and there was no significant difference in levels of academic self-efficacy between the two groups. In discussion with students with LD, however, academic self-efficacy was seen as strongly inversely related to procrastination. Two explanations for this contradiction are possible. First, there is recent evidence that individuals with LD are overly optimistic in rating their level of self-efficacy (Klassen, 2007). In the quantitative study, undergraduates with LD may have displayed a level of optimism when presented with items asking about confidence to carry out generic academic tasks (e.g., “I am confident I can understand the most complex material presented by my instructors”) without taking into account the specific steps needed to complete the task. Second, level of correspondence between self-efficacy and the task in question influences the strength of the relationship between the two (e.g., Pajares, 1996), and the academic self-efficacy and the procrastination measure were not closely related. The self-efficacy for self-regulation measure, which assessed confidence to complete specific tasks like “How well can you arrange a place to study with no distractions?” was more specific and closer in content to the procrastination measure. As a result, the correlation between procrastination and self-efficacy for self-regulation was strong between the two measures for both groups.

A second contradiction was seen in the relationship of metacognition and procrastination. Quantitative results showed strong links between metacognitive self-regulation and procrastination, but interview participants linked specific cognitive deficits to procrastination. Students with LD in college/university settings may perceive that their greatest need is in the area of specific cognitive tasks, such as reading and writing, and this need certainly exists; however, our quantitative results suggest that support in the development of self-regulation strategies may also be an effective remedy against the tendency to procrastinate. One of our interview participants, Jason, hinted at how procrastination was related to not only his difficulties with writing, but from his lack of strategic knowledge that forms an important part of metacognitive self-regulation: “The times when I really stall out...are when I’m not quite sure how to proceed. If I’ve collected all my research for my essay, and I’m sitting down to elaborate on points and I don’t know exactly what I want to say or how I want to say it, if there’s some general cloudiness, I just stall out.”

Service providers working with undergraduates with LD should be aware that expressions of high academic confidence may not always reflect adequate preparation, but may serve a self-protective role in which students declare a strong academic confidence due to poor metacognitive awareness (Butler, 1995). Fear of failure emerged from the interviews as an important antecedent of procrastination for the majority of interviewees, and although previous research with children has shown a strong relationship between fear of failure and LD (Bryan, Sonnefeld, & Grabowski, 1983), no research has established this relationship in undergraduates with LD. Service providers need to be aware that undergraduates with LD may procrastinate because of fears related to academic demands and performance. Procrastination may be nearly universal, and apparently higher for undergraduates with LD than for those without, but the solution to minimize the damage caused by procrastination may lie in support aimed at bolstering self-regulation behaviors, addressing fear of failure, and providing tools that improve the confidence to implement self-regulating behaviors.

Limitations and Future Directions

Our sample consisted of college undergraduates with LD, who although the largest group of college students with disabilities (Henderson, 1999), may not represent adults with LD in other populations. In particular, individuals who have been diagnosed with LD and who gain entrance into a college or university, and who also seek help from a disabilities services center may be unrepresentative of other adults with LD, but rather represent a uniquely academically successful subset. The findings presented in this article are not negated by the inclusion of a unique subset of participants, but the generalizability of the conclusions is limited. In addition, the qualitative component of the research did not include comparison voices from NLD undergraduates, and the descriptions of procrastination in undergraduates with LD may also hold true for NLD undergraduates. Our quantitative data are based on self-report, and may be subject to the biases associated with mono-method research. The response rate of students with LD was lower than the NLD response rate; thus, the procrastination levels found in the LD group may be an under-estimate of the actual level of procrastination in the LD population. The disability services workers reported that although a high proportion of students agreed to participate, many of them “never got around” to completing the survey. We gain some confidence in the reliability of our findings from results of other studies of non-LD undergraduate populations that have shown similar relationships among procrastination and other motivation variables (Haycock et al., 1998; Saddler & Buley, 1999; Senécal et al., 1995; Wolters, 2003). The average age in our volunteer sample was higher than in most samples of LD undergraduates, even given the tendency of undergraduates with LD to take longer to complete university degrees (e.g., Vogel & Adelman, 1992). The presence of non-traditional or mature students in our interviews, however, gives a flavor of the diversity of students receiving assistance through disability services centers in many universities.

Future research should explore the efficacy of interventions provided to undergraduates with LD, with a particular focus on how individualized support in the area of metacognitive strategies and self-regulation skills reduces the severity
of procrastinating behaviors. In addition, an extension of this research investigating how self-regulatory and metacognitive skills are linked to procrastination and learning in adolescents with LD in secondary schools would be welcomed.

ACKNOWLEDGMENTS

We gratefully acknowledge the assistance provided through the University of Alberta Support for the Advancement of Scholarship Grant provided to the first author. We wish to thank Jenelle Job and Oksaina Babenko for helpful comments on an earlier version of this article.

REFERENCES


**About the Authors**

Robert M. Klassen is an associate professor in the Department of Educational Psychology at the University of Alberta, Canada. Before completing his Ph.D. in 2003 at Simon Fraser University, Canada, he worked as a teacher and school psychologist in Vancouver, along with 1-year stints in England and Australia. His current research focuses on motivation beliefs in a variety of contexts in and outside of Canada.

Lindsey L. Krawchuk is a Ph.D. student in the department of Educational Psychology at the University of Alberta, Canada, where she works as a research assistant with the motivation research group under the supervision of Dr. Robert Klassen. Research interests include motivation and procrastination.

Shane L. Lynch is a Ph.D. Candidate in the Department of Educational Psychology at the University of Alberta, Canada. His interests involve issues pertaining to early diagnosis of, and intervention for, children with autism. His dissertation research examines how autonomy support influences intrinsic motivation in students with autism.

Sukaina Rajani is a secondary-school teacher for the Edmonton Public School Board teaching biological and physical sciences. She completed her B.Sc. in science with a major in pharmacology in 2005 and her B.Ed. in teaching biological and physical sciences in 2006, both at the University of Alberta. She became involved in this research project after winning the Roger Smith Undergraduate Research Scholarship. Her current plans are to complete her MSc. in speech language and pathology.