RESEARCH NOTE

Self-efficacy and Dissertation Performance Among Sport Students

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Abstract

The present study investigated relationships between self-efficacy and dissertation performance among a sample of undergraduate sports studies students. Sixty Level 3 student volunteers completed an open-ended questionnaire to assess competencies needed for dissertation success. Qualitative results identified that self-efficacy was conceptualised in six themes: 1) maintaining motivation, 2) planning, 3) obtaining support, 4) understanding theory, 5) organising time, and 6) effectively writing the dissertation. These themes were developed into a 30-item questionnaire using the same approach as Lane, Hall and Lane (2002). Participants completed the self-efficacy inventory six weeks before the dissertation submission date. Results indicated that self-efficacy toward obtaining support (r = .30, p < .05), understanding theory (r = .35, p < .05), and writing skills (r = .30, p < .05) were associated with good grades. The sum of self-efficacy factors significantly correlated with performance (r = .27, p < .05). Discriminant function analysis results indicated that 80 per cent of failing students could be correctly classified from self-efficacy scores. Findings lend support to previous research that shows self-efficacy can significantly predict academic performance. We suggest that interventions designed to enhance motivation towards studying for an undergraduate dissertation should focus on enhancing self-efficacy.

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Introduction

The dissertation is arguably the most important piece of work a student produces on a degree course. In most universities, the dissertation carries a stronger weighting than other modules, and involves students working relatively independently. Passing the dissertation also has additional importance as it gives the student an honours degree. Thus, given the value of the dissertation to the student and university, research to examine factors influencing performance could be used as a guide to develop teaching methods designed to enhance student performance.

A plethora of factors are proposed to influence dissertation performance. One variable that has been found to influence academic performance in a number of settings is self-efficacy (Multon et al., 1991; Chemers et al., 2001; Lane and Lane, 2001). The nature of self-efficacy makes it particularly appealing as a variable to base applied interventions, as it is malleable and influenced by the cognitive processing of situational factors. Bandura (1997:3) described self-efficacy as 'the belief in one's capabilities to organise and execute courses of action required to produce given attainments'. Self-efficacy theory is not concerned with the skills that an individual has, but rather with the judgements they possess concerning their skills. Self-efficacy is proposed to be a mediating variable between previous performance accomplishments and future performance.

Self-efficacy beliefs are constructed from four fundamental sources of information: performance accomplishments, vicarious experience, verbal persuasion, and physiological states (Bandura, 1977). Bandura (1997) suggested that performance accomplishments are the most influential source of efficacy information, as they provide the most authentic evidence of an individual's ability to successfully complete a task.

Multon et al. (1991) carried out a meta-analytic review of research into self-efficacy in educational settings. This provided support for the facilitating effects of self-efficacy on academic performance, and concluded that self-efficacy beliefs accounted for approximately 14 per cent of the variance in students' academic performance. Subsequent studies have also been supportive of self-efficacy and performance links. For example, Lane and Lane (2001) reported similar findings among a sample of postgraduate students. Chemers et al. (2001) also found that academic self-efficacy was significantly and directly related to academic expectations and performance. Chemers et al. (2001) suggested that academic self-efficacy has greater predictive power than more objective measures such as past performance. If the findings of Chemers et al. (2000) apply to dissertation performance, it could be suggested that lecturers use self-efficacy judgements as the likely prediction of performance rather than performance in related modules, such as research methods, which is typically the pre-requisite module.

The aim of this study was to investigate relationships between self-efficacy and performance. It was expected that students who reported high scores of self-efficacy judgements would perform to a higher standard than students that reported low self-efficacy. In particular, we were interested in the extent to which self-efficacy expectations taken several weeks before submission could be used to identify students who failed the dissertation.

Method

Participants

Sixty Level 3 sports students from the University of Wolverhampton, who were undertaking the dissertation volunteered to participate in the study (male, n = 29; female, n = 31). All participants were aged between 20 and 30 years. To undertake a Level 3 honours project, students needed to have passed a Level 2 research methods module, and would have also achieved 240 credits.

Measures

Development of a measure of self-efficacy specific to passing the dissertation

Prior to participating in the research, students completed an informed consent form. In the first week of semester one, students were provided with a module guide that outlined the aims and objectives of the dissertation module. The guide also contained a description of the skills needed to pass the module, and the marking criteria for the dissertation. Students also met with their dissertation supervisors.

One semester later, students were asked to complete an open-ended questionnaire that related to factors that they perceived were required for success in the dissertation. It is argued that by this time students were more familiar with what was required to complete the dissertation.

Following a similar procedure to that reported by Lane et al. (2002), participants identified thirty meaningful competencies. These competencies were used to develop a self-efficacy measure specific to the dissertation. Questions were phrased around the statement 'how confident are you in your ability to…?' Examples include 'how confident are you in your ability to schedule your work to ensure deadlines are met?'; 'how confident are you in your ability to make time for other activities e.g. exercise/socialising?', and 'how confident are you in your ability to use computers effectively?' A response scale ranging from 'not at all confident' (0) to 'very confident' (4) was used. The rationale for selecting a scale that was anchored by zero was based on the notion that participants would understand the proposed link between the description 'not at all' with the number zero.

A qualitative analysis was used to group the self-efficacy items into a number of themes (see Lane et al., 2002). The themes identified were self-efficacy towards: maintaining motivation, planning, obtaining support, understanding theory, organising time, and effectively writing the dissertation. Self-efficacy toward maintaining motivation included items such as maintaining enthusiasm for the dissertation and avoiding distractions in order to remain focused on the task. Self-efficacy towards planning included items relating to collecting relevant and accurate data and setting realistic goals. Self-efficacy towards obtaining support centred on students perceived capability to arrange tutorials with their dissertation supervisors, as well as to gain support from family and friends. Self-efficacy towards understanding theory related to skills such as understanding and using statistics and critically analysing past research. Self-efficacy towards prioritising workload and making time for other activities are examples of items relating to organising time, and self-efficacy towards the ability to follow the recommended dissertation format and structure of paragraphs and chapters are examples of items relating to effective writing skills.

Procedure

Participants were asked to complete the self-efficacy inventory during lecture time, six weeks before the dissertation submission date. Participants were provided with a separate score for each of the self-efficacy factors of motivation, planning, support, theory, time, and writing.

Students' grades were available following the examination board. The university marking system ranges from A16 to F0. A16 is the top pass grade, representing an outstanding performance. D5 is the lowest pass grade, representing a satisfactory performance. Grades E4 and E3 represent a marginal fail, and F2 and F1 represent an irrefutable fail. Students score F0 for failing to submit the dissertation. All dissertations are first and second marked with an external examiner checking neutral processes and standards.

Results

Descriptive statistics are contained in Table 1. We collapsed male and female scores after a comparison of self-efficacy scores by gender indicated no differences in self-efficacy scores between

males and females (Hotelling $T^2_{7,52}$ = .10, p = .63). Descriptive statistics indicate that students were moderately confident towards all six self-efficacy factors, and as Table 1 indicates, the difference in scores was minimal.

Pearson's correlation was used to assess relationships between the six self-efficacy factors of motivation, planning, support, theory, time, and writing, and performance (grade). Descriptive statistics and correlation results are presented in Table 1.

Correlation results indicate a significant inter-correlation between the self-efficacy factors of maintaining motivation, planning, obtaining support, understanding theory, organising time, and writing skills (p < .05). A principle components analysis was conducted to further explore relationships between self-efficacy factors. Principle components analysis results indicated that one factor emerged, accounting for 64 per cent of the variance in self-efficacy scores.

Cronbach alpha estimate of internal consistency indicated an internally reliable scale (alpha = .88). Thus, the key message is that although factors such as self-efficacy towards motivation, planning, support, theory, time, and writing, appear to assess conceptually different dimensions of self-efficacy, there appears to be a common theme running through the data which suggests that students who are high in self-efficacy generally expressed confidence towards all factors relating to success in the dissertation. Similarly, students low in self-efficacy generally expressed low confidence towards each of the themes.

	M	SD	1	2	3	4	5	6	7
1. Grade			1						
2. Motivation	2.06	0.64	0.13	1					
3. Planning	2.48	0.48	0.23	.68**	1				
4. Support	2.30	0.85	.34**	.54**	.61**	1			
5. Theory	2.40	0.55	.35**	.60**	.64**	.62**	1		
6. Time	2.26	0.49	0.16	.64**	.59**	.45**	.33**	1	
7. Writing	2.60	0.56	.30*	.43**	.66**	.65**	.73**	.38**	1

Table 1: Descriptive statistics and Pearson's correlation between self-efficacy and dissertation performance

*P<.05 level
**P< 0.01 level.

Correlation results between self-efficacy and performance indicated that self-efficacy towards obtaining support (r = .30, p < .05), self-efficacy towards understanding theory (r = .35, p < .05), and self-efficacy towards writing skills (r = .30, p < .05) showed significant relationships. The direction of relationships indicated that self-efficacy scores were associated with good performance. The sum of self-efficacy factors significantly correlated with performance (r = .27, p < .05).

A discriminant function analysis was performed using self-efficacy scores as predictors of students passing or failing the dissertation (see Table 2). Results indicated that five students failed the dissertation. Results revealed that 76.67 per cent of cases could be correctly classified, and importantly 80 per cent of failing students could be correctly classified. Discriminant function relationships indicated that self-efficacy towards understanding theory (r = .72) contributed the most to performance in the dissertation.

The results demonstrate that self-efficacy measures taken six weeks prior to the submission date effectively discriminated students who passed or failed the dissertation. Self-efficacy towards

obtaining support, understanding theory, and writing skills were found to be the greatest predictors of performance.

Mark Group	No. of cases	Predicted pass		Predicted fail	
		n	%	n	%
Pass	55	42	76.4	13	23.6
Fail	5	1	20.0	4	80.0
Correctly classified: n = 46 (76.67%)					

Table 2: Discriminant function analysis of self-efficacy scores

Discussion

The self-efficacy measure utilised was based on competencies perceived by the sample as important for dissertation success. This approach was taken based on the notion that for self-efficacy to predict performance outcome, self-efficacy ratings should be based on competencies that are important in the attainment of the specific behaviour of interest (Bandura, 1997; Lane and Lane, 2001; Lane et al., 2002).

The process of asking students to describe key competencies with a new student's perception was limited in several ways. In the present study, although the competencies identified by students on the preliminary open-ended questionnaire appear to be relevant to successfully completing the dissertation, students had no prior experience of completing a dissertation, and may have had limited knowledge of the skills required. Therefore, it is possible that students identified factors that were not relevant to completing the dissertation, or similarly, failed to identify factors that were important for completing the dissertation. Asking lecturers to complete the same open-ended questionnaire would provide evidence against which a comparison could be made. Evidence showing a discrepancy between the competencies identified by students and those identified by lecturers might serve to highlight that the students were possibly not sufficiently familiar with the competencies required. This could provide a basis for an intervention strategy to improve communication of the competencies required between lecturers and students, for example, possibly through a more comprehensive module guide. Future research is needed to explore the key competencies that staff perceive to be important for performance.

Although the overall sum of self-efficacy scores indicated a significant self-efficacy and performance relationship, an inspection of individual correlations showed that some factors had a stronger relationship with performance than others (see Table 1). The results of the present study identified that self-efficacy towards obtaining support, understanding theory, and writing skills significantly correlated with performance ($p < .05$). The direction of relationships indicated that self-efficacy scores were associated with good performance. Support and guidance from a dissertation supervisor, the ability to understand theory, and the ability to write the dissertation (including accurate referencing) tend to describe themes centred on the students' efficacy expectations to complete the dissertation.

Self-efficacy towards maintaining motivation, planning, and time management did not significantly correlate with performance ($p > .05$). The themes of maintaining motivation and time management are more focused on students' efficacy in expecting to maintain a positive attitude toward completing the dissertation, for example, 'how self confident are you about being enthusiastic about the task?', and 'how confident are you that you will spend time working towards the dissertation?' It should be noted that motivation, planning and time management significantly associated with confidence to use statistical theory, which in turn was associated with performance.

The link between self-efficacy and performance found in the present study is consistent with previous research that showed significant relationships (Multon et al., 1991; Chemers et al., 2001; Lane and

Lane, 2001). Further, Devonport et al. (2003) found that low efficacious students used avoidance coping strategies and high efficacious students used problem focused coping strategies. Devonport et al.'s findings suggest that students low in self-efficacy are poor independent learners as they tend to avoid tackling specific difficulties. In terms of a dissertation, it is likely that a common approach among such individuals is to delay starting, or putting serious efforts into the dissertation until the student feels there are no other options. Among such cases, poor performance can be attributed to a lack of planning. We suggest that findings from the present study could be used as the basis for an intervention designed to enhance performance. In particular, we suggest that identification of students low in self-efficacy should be prioritised.

When designing an intervention strategy to raise self-efficacy, it is important to note that the guiding principle is that performance accomplishments should raise self-efficacy (Bandura, 1997). Interventions could involve making modifications to existing practice. Lecturers typically give support for the dissertation through tutorial sessions and provide feedback on the strengths and limitations of students' work. There is a danger that critical comments by a lecturer on a low efficacious student's work might confirm the student's low self-efficacy. Although the aim of providing feedback is to give students the opportunity to revise and improve the work, low efficacious students tend to adopt avoidance coping strategies, and thus such feedback has the reverse effect. Thus, although the lecturer intends to give feedback to improve student work, if students are not motivated to address this feedback, it has little effect. It is important that lecturers consider carefully how students could interpret feedback that is provided and that critical feedback does not damage self-efficacy.

We suggest that interventions for low efficacious students should be tailored so that they develop perceptions of success. One approach is to encourage students to set goals. Setting short term and challenging goals, and monitoring performance against these goals offer a clear standard with which to compare progress. Low efficacious students tend to prefer straightforward tasks in which they can clearly see how success will be attained. For example, a student could be given a week to read and review an article, or enter data, or collect the reference list. These tasks are relatively straightforward and so it should be possible to generate a sense of accomplishment. It should be noted that students who become very low in self-efficacy will tend to need a straightforward task as more difficult ones tend to be attributed to being beyond ability. Thus, additional work with low self-efficacy should involve setting specific tasks on which students can compare their progress. It becomes crucial for lecturers to provide positive feedback for students low in self-efficacy. Goal attainment can lead to a perception of progress, and this strengthens self-efficacy, which in turn should motivate students to continue to improve (Schunk, 1995; Zimmerman and Bandura, 1994; Zimmerman et al., 1992).

A second approach to raising self-efficacy could be for lecturers to encourage students to develop support groups. Rather than have individual tutorials, lecturers could speak with all dissertation students together, and encourage problem solving in tasks among groups. Students could be encouraged to develop study groups, proof-read each others work, and help share problems. It is suggested that self-efficacy could be enhanced through observing others perform successfully.

Conclusion

In conclusion, results of the present study indicate the importance of developing self-efficacy measures that relate to the behaviours of interest. Results indicate significant relationships between self-efficacy measures and dissertation grades. As self-efficacy measures were taken six weeks before submission, we suggest that measures of self-efficacy could be used to identify students at risk of failing and lecturers could develop individualised programmes of support.

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Appendix 1

Scale of self-efficacy towards completing a dissertation

Question	Factor
How confident are you in your ability to motivate yourself to do the dissertation?	Mot
How confident are you in your ability to maintain enthusiasm for the dissertation?	Mot
How confident are you in your ability to avoid distractions and remain focused on the task?	Mot
How confident are you in your ability to remain positive about the dissertation?	Mot
How confident are you in your ability to keep calm about the dissertation?	Mot
How confident are you in your ability to enjoy writing your dissertation?	Mot
How confident are you in your ability to successfully complete the dissertation?	Mot
How confident are you in your ability to obtain resources e.g. journals from the library?	Plan
How confident are you in your ability to set yourself realistic goals?	Plan
How confident are you in your ability to schedule your work to ensure deadlines are met?	Plan
How confident are you in your ability to find appropriate participants?	Plan
How confident are you in your ability to collect relevant and accurate data?	Plan
How confident are you in your ability to know when to stop work and take a break?	Plan
How confident are you in your ability to arrange tutorials with your dissertation supervisor?	Sup
How confident are you in your ability to gain support from family and friends?	Sup
How confident are you in your ability to understand the subject area?	Theo
How confident are you in your ability to understand and use statistics?	Theo
How confident are you in your ability to use computers effectively?	Theo
How confident are you in your ability to critically analyse past research?	Theo
How confident are you in your ability to critically analyse your own performance?	Theo
How confident are you in your ability to organise your time and use it effectively?	Time
How confident are you in your ability to plan what needs to be done?	Time
How confident are you in your ability to prioritise your workload?	Time
How confident are you in your ability to find time to complete assignments for other modules?	Time
How confident are you in your ability to make time for other activities e.g. exercise/ socialising?	Time
How confident are you in your ability to communicate the subject area to others?	Writ
How confident are you in your ability to use an appropriate writing style?	Writ
How confident are you in your ability to structure paragraphs and chapters of the dissertation?	Writ
How confident are you in your ability to follow the recommended dissertation format?	Writ