

**Career certainty and career decision-making self efficacy in postgraduate study intentions**

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## **ABSTRACT**

*Few studies have examined undergraduate students' decision making on postgraduate study, yet a better understanding may help university administrators provide improved student support and guidance. Career decision-making theory was used in a study of 547 business/management students in five Australian universities to determine the impact of student career decision-making self-efficacy and career decision to predict students' intentions to progress to postgraduate study. Results indicate students with high career certainty, although almost twice as likely to be aware of postgraduate study options as students who are career undecided, are less likely to intend to pursue postgraduate study than students with high self efficacy. Implications for theory and research are included.*

## **Keywords:**

Postgraduate, career, student decision-making, self-efficacy, career decision.

### **Career certainty and career decision-making self efficacy in postgraduate study intentions**

Among the many decisions in a student's time at university the decision to pursue postgraduate study has received significantly less research attention than other decisions made by university students. The decision to pursue postgraduate study is important not only because of the long term professional implications for the student, but also because the decision represents a significant financial benefit to the university offering the postgraduate course. University administrators and policy developers inject considerable effort into campaigns to attract students to postgraduate study. Yet little is understood of how students make decisions on postgraduate study and what factors influence the decision to pursue postgraduate study. This study addresses those questions.

Educational and professional aspirations of university students provide a rich canvas for testing a range of career decision-making theories and constructs. Researchers have consistently focussed on unveiling the intricacies of decisions faced by university students, such as a student's choice of university major (Eide & Waehrer, 1998; Galotti et al., 2006; Ma, 2009; Strasser, Ozgur, & Schroeder, 2002) and university choice (Johnson & Stewart, 1991; Litten, 1982; Martin & Dixon, 1991). A related stream of literature has explored university students' decision-making processes from a career perspective. Research has been conducted on the career or occupational decisions made by university students and factors that influence and facilitate the career decision-making process (Hearn, 1987; Phillips & Strohmer, 1983; Zhou & Santos, 2007).

Perhaps because research tends to focus on a student's entrance into university and choice of major, other decisions made during the undergraduate degree have yet to be explored. One particularly career-relevant decision is the decision whether or not to embark on a postgraduate degree. There has been limited research conducted on the undergraduate students' decision making related to postgraduate study. Researchers have begun to investigate postgraduate decision-making that occurs during a student's undergraduate degree, prior to enrolling in a postgraduate degree. Jepsen and Neumann (2008) examined the effect of a single semester on the postgraduate research

degree intentions of third year students. Results indicate that only slight changes occurred in students' intentions to embark on postgraduate study over the course of a single semester. To further understand how and when students decide to pursue postgraduate study, Varhegyi and Jepsen (2009a) conducted a preliminary focus groups investigation into the knowledge, awareness and aspirations of undergraduate business students. Focus groups conducted across first, second and third year students revealed that entry requirements, costs, financing options and the duration of postgraduate degrees are the four key postgraduate influencers that needed to be articulated clearly, early and frequently throughout the undergraduate degree.

The decision to enrol in a postgraduate degree is influenced by a variety of factors, including how much students are actually aware of the available postgraduate options and what the students know about the relevant postgraduate degree options (Varhegyi & Jepsen, 2009a; 2009b). These influencing factors suggest that a student's decision to pursue postgraduate study, may be made – or changed – at many stages in an undergraduate's university term: before, during, or towards the end of the undergraduate degree, or after graduation (Jepsen & Neumann, 2008). Given that career decisions tend to have long term repercussions as they commit a student to a particular career path involving long periods of education and training before resulting in employment (Creed, Patton, & Prideaux, 2006), the decision to continue to postgraduate study is plausibly career related. It is appropriate, therefore, to apply career decision-making theories to the postgraduate study decision. The current study addresses a gap in the research by exploring the decision by current undergraduate students to pursue postgraduate study through the application of two career decision-making theories, career decision-making self efficacy (Betz & Hackett, 1986) and career indecision/certainty (Osipow, Carney, & Barak, 1976).

### **Career decision-making self efficacy**

Career decision-making self-efficacy is derived from Bandura's social cognitive theory (1986) that proposes an individual's beliefs and confidence in their ability to perform particular tasks and behaviours successfully influence their choices, performance and persistence in these tasks and behaviours. The application of the self-efficacy construct to career behaviour was pioneered by Betz

and Hackett (1986) who established that university students' beliefs about their educational and career capabilities were significantly related to the range and type of career options they considered. High levels of career decision-making self-efficacy should lead to increased participation in career decision-making tasks and behaviours, while low levels of career decision-making self-efficacy would lead to the avoidance of such activities (Betz & Hackett, 1986). Subsequent research has established career self-efficacy as a predictor of career exploration (Blustein, 1989), career maturity (Luzzo, 1995) and stability in the career patterns of university students (Gianakos, 1999).

### **Career Decision**

The difficulty in making a career decision might occur at any time a career is contemplated and is especially likely to occur at career transition points, such as when thinking about a part-time job, choosing school subjects or university programs (Patton & Creed, 2001). The ability to make a career decision may fluctuate depending on a variety of situational factors (Osipow, 1999) and is likely to resolve with the assistance of appropriate interventions such as access to appropriate career-related information and assistance with clarifying values and goals (Gordon, 1981). Career decision is associated with age and gender (Patton & Creed, 2001), career maturity (Rojewski, 1994), decision-making style (Mau, 1995), career barriers (Watson, Creed & Patton, 2003), self-efficacy beliefs (Betz & Luzzo, 1996) and self-knowledge (Gati, Kraus, & Osipow, 1996). It has been estimated that as many as 50% of university undergraduates are undecided about a career (Gianakos, 1999).

A handful of studies have examined the relationship between career decision-making self-efficacy and career indecision (Creed et al., 2006; Taylor & Betz, 1983). Career decision-making self-efficacy is positioned as a causal antecedent to making career decisions, that is, a causal antecedent to being career decided or undecided (Creed & Patton, 2006). It was proposed that if an individual's career decision-making self-efficacy was to change over time, then a change in career decision is likely to occur (Creed & Patton, 2006). Despite a conceptually plausible relationship school students demonstrated little association between career decision-making self-efficacy and career decision over time thereby questioning the developmental nature of career decision-making self efficacy. Similarly, Taylor and Betz (1983) found university students who reported lower self-efficacy reported greater

career indecision and less confidence about their ability to complete career decision-making tasks, suggesting that career decision-making self efficacy is predictive of career decision-making difficulties.

The relationship between career decision and career decision-making self efficacy in relation to the postgraduate decision is important to understand, given the proposition that both are integral to an individuals ability to make career related decisions.

### **Proposed study**

The current study examines the decision of undergraduate students to pursue postgraduate study by applying two closely related but distinct career decision-making theories. Two antecedents of a students' intention to progress to postgraduate study are introduced in the study. First, a student must be aware of postgraduate study options that are available and second, students need to feel knowledgeable about those study options. To test this suggestion, it is hypothesised that:

*Hypothesis 1: Awareness of postgraduate study options will be positively related to knowledge of postgraduate study options.*

Beyond awareness and knowledge of postgraduate options, however, the purpose of the study is to determine the relationship between the two career decision-making theories in predicting undergraduate students' intentions to pursue postgraduate study. It is expected that an individual's career decision-making self efficacy and career decision status will predict a student's seeking out information related to postgraduate study options and their subsequent higher likelihood of intending to study at the postgraduate level. It is hypothesised that:

*Hypothesis 2: Career certainty will be positively related and career indecision will be negatively related to awareness of postgraduate study options.*

*Hypothesis 3: Career certainty will be positively related to postgraduate intentions.*

The competing career decision-making theories suggest that either confidence (self-efficacy) or certainty will predict career intentions. We suggest that the student who is more confident in their own ability is more likely than the student who is more certain in their career intentions to intend to progress to postgraduate study. We suggest the student with stronger career intentions is less likely to

take the slower route to their chosen career and therefore less likely to progress to postgraduate study.

The final hypothesis is:

*Hypothesis 4: Career decision making self efficacy will be positively related to postgraduate study intentions.*

## METHOD

As part of a wider study, 1563 surveys were distributed to first, second and third year Bachelor of Business undergraduate students in five Australian universities in marketing, management, international business, accounting and human resource management. Seven hundred and twelve surveys were returned, representing a 46% response rate. After removing missing data and outliers, the sample was reduced to 547 useable responses, consisting of 323 women (5.05 %) and 224 (40.95%) men with an average age of 18.94 years.

### Measures

*Career Decision-Making Self Efficacy.* Twenty-five items from the short form of Taylor and Betz's (1983) career decision self-efficacy scale (CDMSE-SF; Betz et al., 1996) measured confidence in accomplishing career-related tasks. A five-point response scale from 1 = "No confidence at all" to 5 = "Complete confidence" was used. An overall CDMSE-SF score was calculated by averaging all items to achieve a maximum score of five.

*Career Decision Scale.* The 18 item Career Decision Scale (CDS; Osipow et al., 1976) was used to measure career certainty and career indecision. The scale consists of two subscales. The first subscale consists of two items indicating the degree of certainty respondents feel in having made a career decision. The remaining 16-items are typically used as a unidimensional measure of indecision (Stead & Watson, 1983; Osipow, 1980). There are concerns, however, regarding the scales' factor structure whereby it has been suggested that there is a lack of clarity in some items (Walsh & Osipow, 1988). A five-point Likert scale from 1 = "Not at all like me" to 5 = "Exactly like me" was used. Higher scores on the CDS-indecision subscale indicate greater indecision while higher scores on the CDS-certainty indicate greater certainty.

*Awareness of postgraduate options.* Five items developed in an associated study (Jepsen & Neumann, 2008) assessed the degree to which respondents were aware of their postgraduate study options. Awareness refers the types of postgraduate study available to students including honours, masters and PhD. A five-point Likert response scale from 1= “*Strongly Disagree*” to 5 = “*Strongly Agree*” was used.

*Knowledge of postgraduate options.* Five items (Jepsen & Neumann, 2008) assessed how informed or knowledgeable respondents were about their postgraduate study options. Knowledge refers to what students report that they know about – the level of detail they report they have – regarding each type of postgraduate option. A five point Likert response scale from 1= “*Strongly Disagree*” to 5 = “*Strongly Agree*” was used.

*Intentions for postgraduate study.* Five items (Jepsen & Neumann, 2008) assessed respondents’ aspirations or intentions to pursue postgraduate study. A five point Likert scale from 1= “*Strongly Disagree*” to 5 = “*Strongly Agree*” was used.

## RESULTS

Means, standard deviations, Cronbach alphas and correlations among the scales are presented in Table 1. The internal consistency reliabilities are above the .70 figure recommended by Nunally and Bernstein (1994).

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 Insert Table 1 about here  
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### **Modification of the Career Decision-Making Self Efficacy – Short Form scale**

An exploratory factor analysis was conducted on the 25 CDMSE-SF items. A maximum likelihood factor extraction revealed one factor with an eigenvalue greater than one. Eight items with factor loadings less than .60 were removed, resulting in a more parsimonious 17 item scale with the final scale accounting for 42.58% of the variance. The Cronbach’s alpha of .93 suggests that the shortened scale retained many of the desirable properties of the full-length version.

### **Modification of the Career Decision Scale**

An exploratory factor analysis was conducted on the 18 CDS items. A maximum likelihood factor extraction revealed two factors with eigenvalues greater than one. Inspection of the screeplot revealed a clear break after the second factor. It was decided to retain the two factor model, explaining 40.51% of the variance. The two items from the certainty subscale loaded strongly together on one clear factor. The remaining items loaded predominantly on factor two, the indecision subscale. Twelve items were removed due to cross loadings and loadings of less than .60. The final indecision scale consisted of three items and the certainty scale consisted of two items, yielding Cronbach alphas of .78 and .70 respectively, suggesting sufficient internal validity.

### **Confirmation of awareness, knowledge and intentions scales**

Exploratory factor analyses were conducted on each of the awareness, knowledge and intentions scales. A unidimensional nature for each of the three scales was supported. Two items from the intentions scale and one item from the awareness scale were removed due to low loadings. The knowledge scale retained all five of the original items with strong factor loadings.

### **Measurement Model**

Relationships between the latent variables were explored to ensure discriminant validity between the scales. Career decision-making self efficacy had a correlation of .64 with career certainty. In contrast, career decision-making self efficacy had a correlation of -.38 with career indecision. Similarly, a correlation of -.42 was found between career indecision and career certainty.

The hypothesised model evident in Figure 1 was created and analysed using structural equation modelling (Arbuckle, 2006). Each of the latent variables were allowed to covary. Nonsignificant paths were removed and modification indices were inspected to determine the best fitting model.

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Insert Figure 1 about here  
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Inspection of the SEM goodness of fit results indicates a good fit between the hypothesised model and the data with the relative chi-square,  $CMIN/DF = 2.72$  and the goodness of fit index at .86

slightly below the recommended value of .9 required to accept a model. Similarly, the adjusted goodness-of-fit index at .84 is slightly below the recommended value of .9. The comparative fit index of .90, the incremental fit index of .90, the non-normal fit index, at .89 and the root mean square residual at .062 all indicates acceptable fit.

The final model resulted in a number of statistically significant relationships. An inspection of the path diagram revealed that awareness of postgraduate study options was strongly positively related to knowledge of postgraduate study options (.54) providing support for hypothesis 1.

The first part of hypothesis 2 suggested that career certainty would be positively related to awareness and was supported with a significant positive relationship (.29). The second part of this hypothesis suggested that career indecision would be negatively related to awareness of postgraduate study options, however with a small but still significant positive path of .15 this part of the hypothesis was not supported. The second hypothesis is therefore partially supported.

Hypothesis 3 suggested that career certainty is positively related to intention to study at postgraduate level was not supported. The model demonstrated that the path from certainty to intentions, although significant, was negatively related (-.22). In contrast to hypothesis three, hypothesis four was supported, as a positive although small relationship was found between career decision-making self efficacy and postgraduate intentions (.20).

## DISCUSSION

The study aimed to increase understanding of the decision to pursue postgraduate study through the application of two well established career decision-making frameworks. The study addresses a significant gap in the literature by applying the career decision-making self efficacy and career decision theories to undergraduate students' decision to progress to postgraduate study, a decision that is linked to career prospects and career aspirations. Levels of awareness and knowledge of postgraduate studies were included as mediators to postgraduate intentions.

It is assumed that before students are able to make decisions about postgraduate study, they are firstly aware of postgraduate options and secondly, that the students have some detailed knowledge of each of the study options, including aspects such as entry requirements or course

duration. As demonstrated by previous research (Varhegyi & Jepsen, 2009a; 2009b), undergraduate students expressed significant misconceptions regarding aspects such as entry requirements and course content of postgraduate study, aspects which students admitted are likely to influence postgraduate intentions.

In the current study, awareness of postgraduate study options was found to have a strong relationship with knowledge of postgraduate study options, supporting hypothesis one, suggesting that awareness precedes and is required before knowledge is achieved. The strong relationship between awareness and knowledge suggests there is much work for university administrators to ensure that awareness of postgraduate study options does translate into students' knowledge of postgraduate study options. Although not hypothesised, the path from knowledge to intentions is strongest at .35 and suggests that the more details students know about postgraduate study options the more likely they are to pursue postgraduate study. Knowledge of postgraduate study options include knowing details regarding entry requirements, costs, content involved, duration and benefits of postgraduate degrees.

Although not hypothesised, the positive relationship between career certainty and awareness extends into a positive relationship between awareness levels and intentions suggesting that students who are more aware are also more likely to pursue postgraduate study, but not nearly as much as students who are knowledgeable about postgraduate study. Knowing about study options increases postgraduate intentions, suggesting that although awareness precedes knowledge, knowledge is more powerful than awareness in driving postgraduate intentions. The results further suggest that both awareness and knowledge have a greater impact on postgraduate intentions compared to career decision-making self efficacy alone.

The results support career certainty as the driving force that determines a student's level of awareness of postgraduate study, thereby providing support for hypothesis two. The relationship between career certainty and awareness is positive and suggests that the more career decided a student is, the more likely they are to be aware of the postgraduate study options. This finding may be particularly applicable to students who are career decided and who recognise their chosen career necessitates some form of postgraduate study. The important role that career certainty plays in the

awareness of postgraduate study options is also supported by the significant but substantially smaller correlation between career indecision and awareness. The relationship between career certainty and awareness is almost twice the strength of the relationship between indecision and awareness, confirming that students who are not career decided do not appear to be as open or receptive to information about postgraduate study and are less aware of the postgraduate options overall. The results provide mixed support for hypothesis two.

Results do not support hypothesis three as a negative relationship between career certainty and postgraduate intentions was revealed, suggesting that the more career decided students are, the less likely they are to pursue postgraduate study. This is an important aspect of this result that requires elaboration. While many career-decided students enter postgraduate study because of the specialisation associated with postgraduate degrees, these results suggest that students are more likely to progress to postgraduate study without career certainty than with career certainty.

If we consider the sample of the current study – bachelor of business students – then a clearer understanding of this result may be possible. The bachelor of business degree in Australia is a generalist degree, not attached to a specified occupation on completion. Degrees such as law, dentistry and medicine are associated with the specific occupations of lawyer, dentist and doctor respectively. Some degrees, such as actuarial studies or psychology, require students to progress to masters level to achieve recognised professional qualifications. In this sense, many students from those structured professional degrees – where postgraduate progress is inherent in the degree – will continue to postgraduate study if the occupation requires them to do so. Conversely, generalist degrees such as the bachelor of business do not have clear occupational outcomes but rather have an extensive choice of specialisations and majors. There is a broad range of possible occupations on completion of, say, a management major. It is possible that management students who are undecided on their occupation might consider postgraduate study in order to increase their career certainty. These students in a generalist degree with low career certainty may be more likely to enter postgraduate study compared to management students who have higher career certainty and do not require postgraduate study. An alternative explanation is the idea that those who are not yet sure may pursue postgraduate study to “buy time” – perhaps to buy time for the ageing process as career maturity and career decision have

been found to be developmental (Herr & Enderlein, 1976; Neice & Bradley, 1979). Essentially, these results suggest that the decision of current undergraduate students to pursue or not pursue postgraduate study is impacted by whether the student is career certain.

Contrary to hypothesis three, the results support hypothesis four as career decision-making self efficacy has a direct positive impact on postgraduate intentions. Students with high career decision-making self efficacy are less likely to require high levels of awareness or knowledge to intend to progress to postgraduate study.

In addition to exploring postgraduate intentions, the current study tested relationships between the career related theories. A positive relationship between career decision-making self efficacy and career certainty was found, corroborating a number of previous studies (Robbins, 1985). Further supporting previous studies (Taylor & Betz, 1983; Taylor & Popma, 1990) a negative relationship between career decision-making self efficacy and career indecision was demonstrated.

It is acknowledged that this study is an incomplete attempt to answer some important research questions pertaining to postgraduate intentions. Future research needs to examine the postgraduate intentions of students across a variety of disciplines other than business, allowing greater generalisability and inter-disciplinary comparisons. Moreover, the study's reliance on self report surveys to collect data on all measures may have led to an inflated correlation between the variables (Spector, 2006). Thus common method biases may pose at least a partial rival explanation for the correlation observed between the measures (Podsakoff, MacKenzie, Podsakoff, & Lee, 2003).

Despite a handful of limitations, the results of this study illuminate many factors that shape postgraduate intentions. The study provides university policy makers, university administrators and career practitioners with critical information. The results can be directly applied to the development of campaigns and to postgraduate information dissemination processes to help improve student awareness and knowledge of postgraduate study options. Additionally, this study has provided shortened forms of both the career decision-making self efficacy-short form and the career decision. Moreover, the study provides support for the recently developed concepts of awareness and knowledge, both of which were found to significantly influence postgraduate intentions. The study provides universities with valuable information to potentially increase future postgraduate intakes.

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**Table 1:**  
**Means, standard deviations, reliabilities, correlations of scales**

	Mean	s.d.	1	2	3	4	5	6
1. Career certainty	3.34	.95	(.69)					
2. Career indecision	2.45	1.01	-.292**	(.78)				
3. CDMSE	3.45	.67	.494**	-.323**	(.93)			
4. Awareness	2.76	1.06	.135**	.030	.183**	(.85)		
5. Knowledge	2.35	.91	.119**	.032	.126**	.505**	(.90)	
6. Intentions	2,56	.87	.039	.085*	.145**	.349**	.396**	(.71)

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

**Figure 1:**  
**Resultant structural equation model**

GCC (Chi-sqaure =CMIN, df = 517,  
p = .000, CMIN/DF = 2.724, IFI = .901, GFI = .861, AGFI = .840, TLI = .893, CFI = .901,  
RMR = .062, RMSEA = .056, CAIC = 1977.827.

