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***Career Exploration and Career Decision-Making Self-Efficacy  
Amongst Adolescents: Individual and Contextual Factors***

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requirements for the degree of Master of Arts  
in Psychology, Massey University, 2000

# ***Abstract***

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The nature of the relationship between career exploration and self-efficacy for career decision-making amongst New Zealand adolescents has been examined.

Participants in the study were 483 sixth form students from seven state secondary schools in the Auckland metropolitan area. A self-report questionnaire was administered at schools. The main constructs measured were career exploration, the behaviours, reactions, and beliefs related to this process, and career decision-making self-efficacy (CDMSE). Individual factors and contextual elements (gender, ethnicity, imminence of career decision-point, careers information, work experience, family support, and career decision status) were explored to investigate their influence on the career development variables. A further aim was to examine the underlying structure of career exploration processes.

Adolescents were found to be engaging in career exploration to a moderate degree, believed in its instrumentality, and were not experiencing high levels of stress over exploration. They expressed confidence in their ability to make career decisions. Exploratory behaviours were strongly related to other aspects of career exploration and to CDMSE and specific career exploration dimensions were found to be important predictors of CDMSE. Adolescents felt that their parents were supportive of their career development, but there was not a strong relationship between this and exploration or CDMSE. Students with work experience had engaged in more career exploration and had higher levels of CDMSE. The same applied to students who had decided on a future career, who were also more likely to have work experience. Students using school as their main source of careers information explored to a greater extent. Gender and ethnic differences were found on some CES dimensions but not for CDMSE.

By examining specific aspects of adolescent career development in relation to the broader context in which this takes place, this research has drawn attention to the complexities of this process and its implications. The utility of the career development measures used in this study has been extended by finding them reliable for use with adolescents, and areas where more extensive investigation would be fruitful have been identified.

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# **Chapter 1**

## **Introduction**

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### **Transition**

Adolescents at school-leaving age face a major transition as they move from one stage of their life to another. In their case this transition involves not only a move from adolescence towards adulthood, but also a move from the school environment to the world of work. This transition has both positive and negative aspects (Arnold, 1990). On the positive side, the transition from school to work is anticipated therefore more likely to be welcomed. An anticipated transition also enables the individual to have more control over the course it will take and prepare in advance. Such preparation may include career exploration and planning. As this is a transition which most people experience, it is likely to be openly discussed and supported, thus facilitating a sense of control or stimulating exploration, and at the same time reducing anxiety. On the negative side, Arnold describes how this is also a time of conflicting demands for adolescents, when completing the school year and fulfilling school requirements may mean that exploration is pushed aside, and intense commitment to the role of pupil makes it difficult to disengage. In addition, the individual has little choice over its precise timing in terms of the adverse affects likely to occur in times of the rapid social, economic or technological changes which are characteristic of the world of work of the 21st century.

The complexity of this transition is evident when considering some of the correlates of psychological well-being during the transitional phase. Factors beyond employment or continuation in further education, which would be expected to foster well-being, may be more important contributors to well-being for adolescents (Borgen, Amundsen, & Tench, 1996). Borgen et al. suggested that personally defined needs could affect psychological well-being more significantly than socially defined attainments such as becoming employed.

## ***Career Development Stage***

Looking at the transition in terms of a developmental life-span perspective helps us to appreciate the personal significance of it (Arnold, 1990). Throughout the life-span each individual is faced with successive developmental tasks, the completion of which ensures a smooth passage. For the adolescent important issues arise concerning identity development, and entry into the world of work means that a career decision is imminent. Entry into higher education, obtaining full-time employment, or facing unemployment are just some of the directions in which a school leaver may head as a result of this.

Social and psychological factors are the determinants of life stages over and beyond biological components, and within the maxicycle of an individual's career development, adolescence has been described as an exploratory stage (Super, 1990). According to Super, the process of career development is one of developing and implementing occupational self-concepts which in itself involves a process of synthesis or compromise between individual and social factors. In the exploratory stage an individual crystallises what he/she wants to do before making preferences more specific and taking steps to implement these. Moreover, Super's life-span approach suggests that beyond adolescence, exploration as a developmental task, may be required of individuals at any life stage where adaptation to contextual changes is required. Hence it would seem even more important that exploratory skills be acquired early. Together, the developmental tasks of planning, exploration, and deciding comprise "readiness" for making a career choice, and represent both attitudinal and cognitive factors which facilitate maturation (Phillips & Blustein, 1994). Super also incorporates a life-space component in his theory of career development which recognises the contextual dimension of people's lives (Super, 1990; Super, Savickas, & Super, 1996). An individual occupies several roles at any one time within interacting environments.

An adaptive school-to-work transition has been characterised by three major themes (Blustein, Phillips, Jobin-Davis, Finkelberg, & Roarke, 1997). Firstly, an individual being involved in purposeful behaviour such as environmental and self-exploration, and decision-making. Secondly, the use of institutional facilities such as guidance counselling, working in a supportive environment where further development is facilitated, and having family and close relationships. Finally, where the transition is difficult, having access to further education or employment opportunities.

## ***Self-Efficacy at Adolescence***

Beliefs about our personal abilities influence the choices we make regarding many areas of our lives such as activities, interests, or the environments of which we are a part (Bandura, 1997). Such beliefs contribute to both the social development and occupational pursuits of an individual. In career development, perceived self-efficacy has been shown to function as a key mediator (Hackett & Betz, 1981). During formative periods of life, such as reaching school leaving age, choices made are even more significant in terms of their impact on a person's future.

For adolescents, biological, educational, and social role transitions occur simultaneously. Adolescence is a crucial transition point where skills must be developed appropriate to future adult roles. The way in which personal efficacy develops through mastery experiences, and is applied by adolescents, is a key factor in terms of how the experiences of adolescence facilitate this transition and determine future directions (Bandura, 1997). Bandura argued that this is of particular importance today because career choice for adolescents takes place in the context of interacting socio-cultural and personal determinants of greater diversity and which change more rapidly than in the past.

Research has shown that perceived self-efficacy contributes to career development in numerous ways. These range from broader aspects, such as the range of occupations for which a person perceives he or she has the ability (e.g., Betz & Hackett, 1981), to more specific components, such as self-efficacy for career decision-making (Taylor & Betz, 1983). Because of the increasing amount of change taking place in the occupational structure, career decisions take place recurrently throughout the life-span, so that self-efficacy for decision-making assumes major importance (Bandura, 1997).

## ***The Social Context***

Career decision-making takes place within a particular context. It is not sufficient to look only at an individual's personal characteristics (e.g., gender or ethnicity) to understand where differences lie in relation to career development processes. Blustein et al. (1997) argue that context should be considered in the foreground alongside intrapersonal factors, not as an afterthought to career issues. Factors ranging from an individual's family, to the broader societal, economic, and cultural environment of which the individual is a

part, interplay to influence how this process will occur and the outcome for each adolescent.

Similarly, career development is connected to the development of adolescents in parallel domains requiring an integrative approach to understanding its various aspects (Blustein, 1997). Their relational environment, employment, social class, and cultural setting are some of the diverse contextual elements that interplay as adolescents move towards adulthood.

This research aims therefore to draw together these various elements of adolescent career development. Recognising that this is a major transitional phase as adulthood is approached, there are particular developmental tasks to be undertaken which are specifically related to career issues. Engaging in career exploration is one of these to be followed by choice once options have been appraised. Perceived self-efficacy mediates this process from the way in which options themselves are considered or rejected, through to confidence in career decision-making. As this process takes place within a particular context, the contextual elements of family, part-time work experience, and school careers/transitions services, selected as being of specific relevance to secondary school students, are to be examined.

# **Chapter 2**

## **Literature Review**

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### ***Career Exploration***

#### *Theoretical Background*

Career exploration has recently been described as

“encompassing those activities, directed toward enhancing knowledge of the self and the external environment, that an individual engages in to foster progress in career development” (Blustein, 1992, p.175).

This definition integrates career exploration as an element in the process of career development with the context in which it occurs.

Within psychology, the career exploration literature has emerged from within diverse strands at various times. For example, looking at the antecedents of career exploration, motivational theory and research (Deci, 1980, 1985, cited in Blustein, 1988) has shown exploratory behaviour to be a result of intrinsic motivation rather than reinforcement. Research in this field has demonstrated that extrinsic sources of control reduce intrinsic motivation, while conditions that support autonomy and competence facilitate intrinsic motivation.

In addition, from the developmental perspective Super (1990), in his most recent formulation of the life-span, life-space approach to career development, emphasised the importance for adolescents of developing career maturity prior to selecting a career. Exploration plays a significant role as part of Super’s concept of career planning which also includes decision-making, world-of-work information, knowledge of preferred occupation, and focus on the readiness of the individual. Because individuals are likely to have to recycle through career stages, developmental tasks such as planning and exploration will be relied upon beyond adolescence, making acquisition of the skills involved essential.

The earlier work which provided a theoretical base for defining dimensions and objects of career exploration is credited to Jordaan (1963, cited in Stumpf & Colarelli, 1980). He also broadened the notion of exploration by stressing that although it is important as a person enters a new life stage, it may occur at any life stage. However, while the importance of career exploration as a central concept in careers education had previously been acknowledged, Super and Hall (1978) noted that theory and research into the nature of career exploration had received little attention since Jordaan's work. Observing that the fields of labour economics and vocational counselling, the two main approaches taken with regard to career exploration, did not provide for an operationalised psychological theory of such behaviour Stumpf and Colarelli sought to develop such a theory-based approach. From their preliminary research, seeking both to operationalise career exploration and to discriminate between dimensions and objects of this behaviour, they found empirical support for several dimensions of exploratory behaviour. Individuals varied in the extent, methods, and focus of their exploratory behaviour, but not so clearly in the objects (i.e. the occupations, jobs or organisations) of their exploration. Although gender differences in some exploratory behaviours were found, personality variables were not found to be significant. Exploratory behaviour also differed depending on the imminence of the career decision to be made.

### *Development of a Measure of Career Exploration*

Building on earlier work (Stumpf and Colarelli, 1980), and based on Jordaan (1963, cited in Stumpf, Colarelli, & Hartman, 1983), the Career Exploration Survey (CES; Stumpf et al.) was developed. The CES was designed to go further than other career exploration instruments such as the Vocational Exploration Behavior Checklist (VEBC; Krumboltz, 1964, cited in Stumpf et al.) or the Vocational Checklist (Aiken & Johnson, 1973, cited in Stumpf et al.) which measure only the frequency and variety of exploratory behaviours and the effect of counselling interventions on these.

Stumpf et al. (1983) had three purposes in mind for the CES. Firstly, as a further contribution to research on how career decisions, career development, and job outcomes such as job satisfaction, commitment, and turnover are affected by exploration; secondly, to identify variables relevant to the investigation of the career exploration process; and thirdly, as a criterion measure against which the effects of individual characteristics or counselling interventions could be determined. Career exploration was defined by Stumpf

et al. (p. 192) as “purposive behaviour and cognitions that afford access to information about occupations, jobs, or organizations that was not previously in the stimulus field”.

The CES was seen to provide an integrative model and measure of career exploration, both of which had been lacking amongst a wide range of career-related theories which had career exploration as an important construct. It was therefore proposed by Stumpf et al. (1983) that measures of three domains (1) the exploration process, (2) reactions to exploration, and (3) beliefs about exploration, should be included. The exploration process included environment and self-exploration, how a person goes about exploration, the frequency with which this occurs and how focused the process is. Reactions to exploration focused on affect in terms of a person’s satisfaction with the information obtained and on the stress experienced during the process. Beliefs held by a person regarding the labour market, the instrumentality of one’s exploration for achieving career goals, and the importance placed on obtaining a preferred position comprised the third component of the CES model. As behaviour, reactions, and beliefs can change over time, it follows that CES indices would reflect this. Stumpf et al. developed a model comprised of 16 dimensions or subscales that could be used to measure these three domains.

Items for these 16 dimensions were generated firstly with graduate students involved in searching for jobs, through multiple interviews and self-report questionnaires (see Table 1 for definitions of the dimensions). Several items were generated for each dimension except for the Frequency and Number of Occupations Considered, which each contained only one item.

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Table 1

*Dimensions of Career Exploration*

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Exploration Process Domain

*Environment Exploration.*

The extent of career exploration regarding occupations, jobs, and organisations over the last 3 months.

*Self-Exploration.*

The extent of career exploration involving self-assessment and retrospection over the last 3 months.

*Number of Occupations Considered.*

The number of different occupational areas on which one is acquiring information.

*Intended-Systematic Exploration.*

The extent to which one acquires information on oneself and the environment in an intended or systematic manner.

*Frequency.*

The average number of times per week that one seeks career information over a 2-month period.

*Amount of Information.*

The amount of information acquired on occupations, jobs, organisations, and oneself.

*Focus.*

How sure one feels in his/her preference for a particular occupation, job, and organisation.

Reactions to Exploration Domain

*Satisfaction with Information.*

The satisfaction one feels with the information obtained regarding occupations, jobs, and organisations relative to one's interests, abilities, and needs.

*Explorational Stress.*

The amount of undesirable stress, relative to other significant life events, with which one has to contend, felt as a function of the career decision-making process.

*Decisional Stress.*

The amount of undesirable stress, relative to other significant life events, with which one has to contend, felt as a function of the career decision-making process.

Beliefs Domain

*Employment Outlook.*

How favourable the employment possibilities look in one's career area.

*Certainty of Career Exploration Outcomes.*

The degree of certainty one feels that he/she will attain a desired position.

*External Search Instrumentality.*

The probability that exploring the environment for career opportunities will lead to obtaining career goals.

*Internal Search Instrumentality.*

The probability that reflecting on past career behaviour and retrospection will lead to obtaining career goals.

*Method Instrumentality.*

The probability that being intended and systematic in one's career exploration will lead to obtaining career goals.

*Importance of Obtaining Preferred Position.*

The degree of importance placed on obtaining one's career preference.

---

Source: Stumpf et al. (1983)

Initial coefficient alpha estimates for each scale led to the retention of 60 items. These items were then factor analysed. The single-item scales were not included in the factor analysis.

A preliminary factor analysis using orthogonal varimax rotation, led to the deletion of a further three items, leaving 57 items. A second analysis of the 57 items, from the 14 dimensions, showed 12 of the 14 dimensions emerging as separate factors, according to the criteria of Stumpf et al. (1983). Two of these were described as complex (loading onto more than one factor) and the remainder independent (see Table 2).

Stumpf et al. (1983) suggested that the complexity of some of the factors relative to their model of the dimensions of career exploration (Table 1), for example, the items which load onto both Environment Exploration and Amount of Information reflected the nature of career exploration. Exploring the environment would closely relate to the amount of information obtained. They therefore decided to retain all 14 dimensions which had been factor analysed, and combined with the two single-item scales, the CES contained 16 dimensions or scales, together consisting of 59 items.

Coefficient alpha estimates of reliability ranged from .70 to .92 for the 16 CES scales. The construct validity of the CES was demonstrated through two further studies (Stumpf et al., 1983). Firstly, patterns of intercorrelations differed over time for a group of graduate professionals on a career-change programme. When this group was compared with a dissimilar one (business students prior to graduation) differences in scores were reported which, on the whole, were consistent with hypotheses based on intra-group differences. The exception to this was Explorational Stress where career-changers had lower scores than business students. Secondly, CES dimensions were found to be free of covariance with social desirability, age, and years of work experience, although a weak relationship between gender and some CES scales was found.

Table 2

*Orthogonal Factor Analysis*<sup>a</sup>

| Dimensions                                 | Item <sup>b</sup> | 1         | 2         | 3         | 4         | 5         | 6         | 7         | 8         | 9         | 10        | 11        | 12        |
|--|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Environmental Exploration                  | 1                 | <u>52</u> |           |           | 31        |           |           |           |           |           |           |           |           |
|  | 2                 | <u>37</u> |           |           |           |           |           |           |           |           |           |           |           |
|  | 3                 | <u>67</u> |           |           |           |           |           |           |           |           |           |           |           |
|  | 4                 | <u>43</u> |           | 38        |           |           |           |           |           |           |           |           |           |
|  | 5                 | <u>66</u> |           |           |           |           |           |           |           |           |           |           |           |
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|  | 2                 |           | <u>78</u> |           |           |           |           |           |           |           |           |           |           |
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|  | 2                 |           |           | <u>56</u> |           |           |           |           |           |           |           |           |           |
|  | 3                 |           |           | <u>75</u> |           |           |           |           |           |           |           |           |           |
| Amount of Information                      | 1                 | 47        |           |           | <u>48</u> |           |           |           |           |           |           |           |           |
|  | 2                 | 49        |           |           | <u>46</u> |           |           |           |           |           |           |           |           |
|  | 3                 | 34        |           |           | <u>55</u> |           |           |           |           |           |           |           |           |
| Focus                                      | 1                 |           |           |           | <u>54</u> |           |           |           |           |           |           |           |           |
|  | 2                 |           |           |           | <u>62</u> |           |           |           |           |           |           |           |           |
|  | 3                 |           |           |           | <u>38</u> |           |           |           |           |           |           |           |           |
|  | 4                 |           |           |           | <u>50</u> |           | 38        |           |           |           |           |           |           |
|  | 5                 |           |           |           | <u>61</u> |           |           |           |           |           |           |           |           |
| Satisfaction with Information              | 1                 |           |           |           | <u>69</u> |           |           |           |           |           |           |           |           |
|  | 2                 |           |           |           | <u>65</u> |           |           |           |           |           |           |           |           |
|  | 3                 |           |           |           | <u>69</u> |           |           |           |           |           |           |           |           |
|  | 4                 |           |           |           | <u>72</u> |           |           |           |           |           |           |           |           |
|  | 5                 |           |           |           | <u>56</u> |           |           |           |           |           |           |           |           |
|  | 6                 |           |           |           | <u>70</u> |           |           |           |           |           |           |           |           |
| Explorational Stress                       | 1                 |           |           |           |           | <u>42</u> |           |           |           |           |           |           |           |
|  | 2                 |           |           |           |           | <u>73</u> |           |           |           |           |           |           |           |
|  | 3                 |           |           |           |           | <u>76</u> |           |           |           |           |           |           |           |
| Decisional Stress                          | 1                 |           |           |           |           |           | <u>69</u> |           |           |           |           |           |           |
|  | 2                 |           |           |           |           |           | <u>83</u> |           |           |           |           |           |           |
|  | 3                 |           |           |           |           |           | <u>79</u> |           |           |           |           |           |           |
|  | 4                 |           |           |           |           | 31        | <u>54</u> |           |           |           |           |           |           |
| Employment Outlook                         | 1                 |           |           |           |           |           |           | <u>76</u> |           |           |           |           |           |
|  | 2                 |           |           |           |           |           |           | <u>76</u> |           |           |           |           |           |
|  | 3                 |           |           |           |           |           |           | <u>81</u> |           |           |           |           |           |
| Certainty of CE Outcome                    | 1                 |           |           |           |           |           |           | 54        | <u>48</u> |           |           |           |           |
|  | 2                 |           |           |           |           |           |           | 45        | <u>42</u> |           |           |           |           |
|  | 3                 |           |           |           |           |           |           | 39        | <u>46</u> |           |           |           |           |
| External Search Instrumentality            | 1                 |           |           |           |           |           |           |           |           | <u>30</u> |           | 41        |           |
|  | 2                 |           |           |           |           |           |           |           |           | <u>68</u> |           |           |           |
|  | 3                 |           |           |           |           |           |           |           |           | <u>70</u> |           |           |           |
| Internal Search Instrumentality            | 1                 |           |           |           |           |           |           |           |           |           | <u>56</u> |           | 47        |
|  | 2                 |           |           |           |           |           |           |           |           |           | <u>86</u> |           |           |
|  | 3                 |           |           |           |           |           |           |           |           |           | <u>76</u> |           |           |
|  | 4                 |           |           |           |           |           |           |           |           |           | <u>82</u> |           |           |
| Method Instrumentality                     | 1                 |           |           |           |           |           |           |           |           |           |           | <u>75</u> |           |
|  | 2                 |           |           |           |           |           |           |           |           |           |           | <u>70</u> |           |
|  | 3                 |           |           |           |           |           |           |           |           |           |           | <u>56</u> |           |
|  | 4                 |           |           |           |           |           |           |           |           |           |           | <u>68</u> |           |
| Importance of Obtaining Preferred Position | 1                 |           |           |           |           |           |           |           |           |           |           |           | <u>67</u> |
|  | 2                 |           |           |           |           |           |           |           |           |           |           |           | <u>65</u> |
|  | 3                 |           |           |           |           |           |           |           |           |           |           |           | <u>66</u> |
|  | 4                 |           |           |           |           |           |           |           |           |           |           |           | <u>67</u> |
|  | 5                 |           |           |           |           |           |           |           |           |           |           |           | <u>67</u> |
| % of Variance                              |                   | 2         | 9         | 3         | 19        | 2         | 2         | 4         | 2         | 2         | 6         | 3         | 5         |
| Eigenvalues                                |                   | 1.3       | 5.1       | 1.5       | 11.0      | 1.2       | .9        | 2.1       | .9        | 1.0       | 3.4       | 1.8       | 2.8       |

Source: Stumpf et al. (1983)

Note. <sup>a</sup>Factor loadings with an absolute value of .30 or less are omitted. Underscored factor loadings indicate the factor in which the item has been placed. Decimals omitted. N=241.<sup>b</sup>Original item numbers have been altered to equate with those used in the current study.

When comparing a sample of undergraduate students (liberal arts and business) with a graduate sample used in a previous study Stumpf et al. (1983) found similar patterns of dimensionality for all but one CES dimension (Certainty of Career Exploration Outcome). In addition, differences consistent with the relative distance between the time of the two groups of students completion of the CES and actual career decision point were found, together with acceptable internal consistency for the scales when used with undergraduates. Stumpf et al. took this as evidence of validity generalisation of the CES to undergraduate students.

Overall, from four studies conducted while developing the original scales of the CES, Stumpf et al. (1983) provided detailed evidence for their dimensionality and reliability. Items were consistent with career development theory. That several of these dimensions could be reliably measured by self-report was supported, as were hypotheses regarding both the variability of the exploration process over time and differences between groups of individuals on CES dimensions. However at this stage of the CES's development Stumpf et al. cautioned that all the relevant dimensions of career exploration may not yet have been identified and that generalisation of the constructs to populations other than those studied would require further research.

### *Empirical Evidence*

Since the development of the CES further research has provided support for the psychometric properties of CES scales. In a study using both undergraduate and graduate students, Stumpf and Lockhart (1987) reported coefficient alphas ranging from .76 to .93 as evidence for the internal consistency for the Internal Search Instrumentality, External Search Instrumentality, Importance of Obtaining Preferred Position, Self-Exploration, Environment Exploration, and Amount of Information Obtained scales.

Several studies with undergraduate students have used some or all of the following CES scales: Environment Exploration, Self-Exploration, Explorational Stress, Decisional Stress, Internal Search Instrumentality, External Search Instrumentality, and Career Decision-Making Instrumentality (Blustein, 1988; Blustein & Phillips, 1988; Blustein, Devenis, & Kidney, 1989). Revisions have been made to some of the original CES scales in order to reflect differences in career exploration for this younger age group (Blustein). For the Environment Exploration scale three of the six items were reworded, as were two

of the five Self-Exploration scale items. Four additional Self-Exploration items were added, and a new scale was developed containing four items to measure Career Decision-Making Instrumentality. While the scales measuring Internal Search Instrumentality and External Search Instrumentality remained in their original form, minor modifications were made to the Explorational Stress and Decisional Stress scales.

Internal consistency coefficients ranging from .64 to .89 were reported for these scales. From a smaller pilot sample ( $N = 37$ ) test-retest reliability estimates ranging from .67 to .85 were obtained for Environment Exploration, Self-Exploration, Internal Search Instrumentality, External Search Instrumentality, and Career Decision-Making Instrumentality. Overall, the reliability information reported was consistent with that of the original study although the slightly lower coefficients obtained for the new Career Decision-Making Instrumentality scale (.64 and .67), suggested that it would need to be used with caution.

The scales Amount of Information, Intended-Systematic Exploration and Focus scales from the CES were used by Blustein, Pauling, DeMania, and Faye (1994) with undergraduate students and further reliability information was reported. In this study only the Amount of Information scale was modified for use with a younger population. Internal consistency coefficients were obtained of .87, .78, and .92, respectively, comparable with those of the original research.

Most recently, Taveira, Silva, Rodriguez, and Maia (1998) in adapting the CES for use with adolescents in Portugal, used the responses of a screening sample for item analysis and followed this by eliminating items from the scale which lacked reliability or validity, appeared redundant or culturally inadequate. The version of the CES used contained 53 of the original items and was factor-analysed for its construct validity using principal components analysis. This resulted in a 12-factor model being found to best describe the complete data set including 10 simple factors and 2 more complex ones (comparable to that of Stumpf et al. 1983). When this factor structure was tested in relation to the gender and the two different grade-levels of the participants, only seven of the twelve factors were the same for both of the grades. There was no variation by gender. A subsequent higher-order analysis produced a model of the CES which contained only three factors but was identical for both grades. Confirmatory factor analysis revealed that a four-factor model best represented the exploratory process component of the CES, a five-factor

model for the beliefs component, and a three-factor model for the reactions component. These did not differ by age or by gender.

### *Research using the CES*

In addition to providing psychometric data on the Career Exploration Survey, Stumpf et al. (1983) also provided some useful comparisons between groups. For both graduate and undergraduate students mean scores on CES dimensions were generally near the mid-point of the range with Self-Exploration, Internal Search Instrumentality, Method Instrumentality, and Importance of Obtaining Preferred Position, being higher and Intended-Systematic Exploration being lower. For undergraduates, who were closer to making a career decision, scores were higher than the graduates' scores on Environment Exploration, Frequency, Amount of Information, Focus, and Satisfaction. Both the exploration process dimensions and the belief dimensions tended to correlate more strongly with dimensions from within their own domains, rather than with other dimensions from other domains. The most substantial correlations being Amount of Information with Focus and with External Search Instrumentality (for both,  $r = .71$ ) for the graduates, and Satisfaction with Information and Focus ( $r = .72$ ) for undergraduates. Other intercorrelations were similar for both groups, although for the undergraduates, Environment Exploration and Self-Exploration correlated more highly with beliefs.

Since the development of the scale, a small amount of research using some of the CES dimensions has been carried out. All except for one study (Taveira et al., 1998) have been conducted with undergraduate university students.

Using a longitudinal design, Stumpf and Lockhart (1987) firstly investigated the relationships of gender, work-role salience, work preferences (three individual difference variables), with beliefs about exploration (Internal Search Instrumentality, External Search Instrumentality, and Importance of Obtaining Preferred Position).

In the second study, the relationships among beliefs about exploration and three exploratory behaviours (Self-Exploration, Environment Exploration, and Amount of Information) were explored. Significant relationships were observed between all three individual difference variables and the exploratory belief variables, except for gender and Importance of Obtaining Preferred Position. Women held stronger beliefs regarding search instrumentality than men; work-role salience and work preference correlated significantly

(although weakly) with all three beliefs about exploration. Therefore each contributes in some way to the beliefs' an individual holds regarding exploration.

The hypothesis that beliefs about exploration expressed at one time period would be related to exploratory behaviour reported at a later date was generally supported in the second study (Stumpf & Lockhart, 1987). Both Internal Search Instrumentality and External Search Instrumentality were related to the Amount of Information obtained. However Internal Search Instrumentality was related to later Self-Exploration (but not Environment Exploration) and External Search Instrumentality to later Environment Exploration (but not Self-Exploration), the latter being the far stronger relationship of the two. Work-role salience and work preferences related to the importance of work. The imminence of making a career decision and the degree of focus towards particular occupations for individuals, were both related to the strength of beliefs individuals' held about the instrumentality of their career exploration.

Stumpf and Lockhart (1987) used only some of Stumpf et al.'s (1983) CES dimensions. They concluded that the variables used accounted for only a small amount of instrumentality variance overall, suggesting that future research needed to consider such factors as labour market conditions and access to counselling as predictors of exploratory beliefs and behaviours. Both of which are to be addressed in this study.

The use of the CES has been extended through research examining a number of personal factors that are sources of individual difference. The relationship between career exploration and identity development has been explored in two studies. In an investigation of four ego identity statuses and career development (Blustein et al., 1989), exploratory activity was measured by combining the Self-Exploration and Environment Exploration scales of the CES into one index. Blustein reported that exploratory activity was related to both moratorium (individuals who are currently exploring without having made a commitment to an ego identity) and identity-achieved status (individuals who have emerged from exploration with a sense of commitment to their ego identity) amongst female and male undergraduate students. Further to this, Self-Exploration alone was significantly and moderately related to identity-achieved status, but not related to moratorium for both genders (Lucas, 1997).

Career exploration has also been associated with motivational processes in research finding that self-exploration and beliefs in the instrumentality of career decision-making exploration were positively related to autonomy and control orientations (associated with

intrinsic and extrinsic sources of motivation) (Blustein, 1988). Between all of the CES dimensions measured (Environment Exploration, Self-Exploration, Career Decision-Making Instrumentality, Internal Search Instrumentality, and External Search Instrumentality) significant, moderate correlations were found.

Related to the area of motivation, goal instability and career decision-making self-efficacy beliefs were tested as predictors of exploratory activity (Blustein, 1989). A canonical model indicated that self-efficacy for career decision-making was positively related to exploration (the Environment Exploration and Self-Exploration scales of the CES) more so than goal instability. Research investigating the relationship between progress in decision-making and exploration and choice factors (Blustein et al., 1994) furthered the relationship between decision-making and exploratory variables. Results showed that only the exploration factors (the Amount of Information and the Intended-Systematic Exploration scales of the CES) were significantly and strongly associated with decisional progress (including the Focus scale of the CES) for both males and females. Correlations between all three CES scales were significant, positive and moderate to strong.

Contextual anxiety measured using the Exploratory Stress and Decisional Stress dimensions of the CES had different effects on two exploratory dimensions, Self- and Environment Exploration (Blustein & Phillips, 1988). While both the stress dimensions and exploration dimensions had positive and significant correlations with each other, only Explorational Stress was associated with the exploration dimensions. Contrary to predictions, canonical analysis showed that contextual anxiety facilitated exploration rather than inhibiting it.

The one study undertaken with a group of high school students used 12 CES dimensions to investigate the effects of the individual characteristics of gender, age, and grade-level on career exploration (Taveira et al., 1998). On the CES belief dimensions, adolescents were less positive about the outcome of their career exploration than they were about the employment outlook overall. Although they believed in the instrumentality of both self- and environment exploration they had engaged in less environment exploration or intended-systematic exploration, and also had low scores on the amount of information obtained. They reported low levels of satisfaction with information and high levels of explorational and decisional stress. Gender and grade-level were more significant than age.

In particular, twelfth grade students, when compared with ninth graders, scored significantly higher on environment exploration and engaged in more self-exploration.

### Gender.

Females reported less intended-systematic and less environment-oriented exploration than males suggesting that gender may be an important moderator variable (Stumpf & Colarelli, 1980) and may also limit women's potential for successful job performance or obtaining job satisfaction, if as Stumpf and Colarelli suggest, exploratory behaviour is positively related to these two outcomes. However, for graduate females in a subsequent study (Stumpf et al., 1983) a systematic method of exploration was felt to be more instrumental, while graduate and undergraduate women showed greater internal and external search instrumentality than men (Stumpf & Lockhart, 1987). Stumpf et al. also reported that for graduate women, it was more important to obtain their preferred position than it was for men and that undergraduate women held less positive beliefs regarding their employment outlook, obtaining preferred positions, and experienced greater explorational stress than men.

Contrasting results were obtained for the Importance dimension also. For women it was more important to obtain a preferred position than it was for males (Stumpf et al., 1983), yet Stumpf and Lockhart (1987) found that both men and women held similar beliefs about the importance of obtaining a preferred position.

Gender did not correlate significantly with any of the five CES dimensions namely Environment Exploration, Self-Exploration, Career Decision-Making Instrumentality, Internal Search Instrumentality, and External Search Instrumentality, measured in a study exploring the relationship between motivational processes and career exploration (Blustein, 1988). Again, gender was not significantly correlated with either Environment Exploration or Self-Exploration (Blustein et al., 1989). Motivational beliefs, rather than gender or age accounted for the greatest amount of variance in exploratory beliefs and behaviours when canonical analysis was conducted (Blustein). For both genders, career development variables, including the CES Self-Exploration scale, predicted both moratorium and identity-achieved ego identity statuses (Lucas, 1997).

Fewer studies have investigated the career exploration of adolescents. High school girls held less positive views about exploration and employment outcomes than boys

Taviera et al. (1998), as did female undergraduates (Stumpf et al., 1983). They did however engage in more self-exploration, but less intended-systematic exploration. Girls experienced less satisfaction with the information they had obtained, and greater levels of decisional and explorational stress than were experienced by boys.

Using alternative measures to investigate awareness of occupations and occupations suitable for oneself, Poole and Cooney (1985) found that female high school students listed a significantly greater number of occupations known to them, than did male high school students, and significant differences between females and males were apparent in the proportion of occupations of different status types thought to be suitable for self. Similarly, Grotevant, Cooper, and Kramer (1986) defined the career exploration process and its congruence with personality style using four dimensions of occupational environments: the social prestige of occupations; the substantive complexity of the occupation; gender dominance within an occupation; and the skills, opportunities, and problems associated with the occupational environment. These were considered in terms of their salience for high school adolescents. As hypothesised by the researchers, only the gender dominance variable was found to be a significant predictor of congruence of primary interests, and only for males, while the number of interest environments explored tended to be negatively related to congruence possibly reflecting a non-systematic approach to exploration. These findings were seen to support the notion that congruence is affected by developmental processes and emphasises the importance of considering the process rather than just the content of career choice.

#### Ethnicity.

No studies to date have analysed CES dimensions in terms of ethnic groupings. However, a recent study undertaken in Portugal (Taveira et al., 1998) demonstrated that the measure could be translated for use in a different cultural environment.

#### Family context.

Family context has not been investigated as a contextual variable that may have an influence on an individual's career exploration.

### Career decision status.

No studies using the CES to date have directly measured career exploration in relation to career decision status. However, in a related area, exploratory activity appeared to be facilitated by a thinking-oriented decision-making style when this was accompanied by exploratory stress (Blustein & Phillips, 1988).

In addition the Focus scale of the CES, as one measure of progress in career decision-making, was found to correlate highly with Amount of Information and moderately with Intended-Systematic Exploration in a study with a group of undergraduate students (Blustein et al., 1994). This was the same for both females and males.

### *Summary*

Although the Career Exploration Scale has not been used widely in research some CES dimensions have been tested alongside a variety of variables. Taking the three CES domains reflecting behaviours, beliefs, and reactions separately, some consistent patterns of results appear. Dimensions within each domain tend to be intercorrelated and to a lesser extent this applies to dimensions across the three domains. However, only one study (Taveira et al., 1998), used twelve CES dimensions as measures at one time. More commonly, only four or five have been measured. Different relationships between the CES dimensions might become apparent if all were used together. It may be that the length of the scale and time involved in its administration has made use of the entire CES appear prohibitive. In fact the subscales are scored individually and through factor analysis have been shown to be independent, however, researchers have tended not to clearly indicate why some dimensions have been chosen over others from the same domain.

Several investigations (e.g., Blustein, 1988, 1989) have used canonical analysis to produce models showing the simultaneous relationships between career exploration and other variables of interest so that the specific relationships amongst the CES dimensions themselves or against other criteria have not been measured or, if so, not reported. This has therefore not produced additional psychometric information to further establish the validity of the scale. More information of this nature may also serve as an indicator for the use of each of the 16 CES subscales relative to each other.

Studies have mainly been conducted within the university student population, with no attention paid to analyses on the basis of ethnicity. This clearly indicates an area where

expansion is required in order to be able to generalise the information obtained from using the CES as a measure of career exploration. Gender has been analysed, however, no consistent differences have been clearly established.

On the basis of previous research, it would therefore be expected that dimensions within each domain of the CES would relate more strongly to each other than to dimensions from other domains. This applies in particular for the Environmental and Self-Exploration and Amount of Information dimensions, although because other dimensions have not been as widely investigated the possibility of there also being strong relationships between them cannot be overlooked. Gender differences would be most likely to appear on dimensions related to beliefs regarding the labour market, and the instrumentality of exploration, and on dimensions regarding reactions to the career exploration process. Career exploration has been shown have a positive relationship with variables related to decision-making, which this research aims to investigate.

## ***Self-Efficacy***

### *Theoretical Background*

Within psychology, self-efficacy theory derives from the general social cognitive approach to understanding human behaviour. This approach views individuals as not merely reacting in a passive way to their surrounding environments, but actively shaping them through cognitive mechanisms which facilitate self-reflection and self-control (Bandura, 1986). A most important assumption of social cognitive theory is that of triadic reciprocal causation, the interacting relationship between behaviour, internal personal factors (cognitive, affective, and biological events), and the external environment, forming an interdependent causal structure through which human agency operates. According to Bandura, the central mechanism in human agency is beliefs of personal efficacy. In his most recent definition, Bandura stated:

“perceived self-efficacy refers to beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments”  
(Bandura,1997, p.3.).

Self-efficacy is therefore a base for action, with individual control being facilitated not as personal drive, but as a mechanism of personal agency. Self-efficacy differs from self-

esteem, a concept with which it is often equated, in that it refers to judgements of an individual's capability, rather than of an individual's self-worth.

Bandura (1977, 1986) describes four sources of information and experience that facilitate the development of such beliefs: personal performance accomplishments; vicarious learning; social persuasion; and physiological states and reactions. As individuals exercise personal agency self-efficacy beliefs interact together with two other sociocognitive mechanisms, outcome expectations and goals. In social cognitive theory self-efficacy beliefs therefore have a pivotal role in that they act on other classes of determinants, produce action, are multifaceted, and operate differently depending on the context.

#### Self-efficacy development at adolescence.

Throughout the life-span, beliefs in personal efficacy influence the choices individuals make. Cognitive, motivational, and affective processes as regulative influences do not come into operation if courses of action are selected on the basis of perceived lack of efficacy (Bandura, 1997). This may therefore have a long-term impact on the direction a person's life takes, particularly if occurring at formative periods. For example, future career options may be foreclosed if appropriate interests or career related activities are not developed. Bandura summarises the ways in which self-efficacy contributes to career development at this stage. Self-efficacy partly determines how well basic sociocognitive skills which are the basis of careers are developed. Efficacy is required for the effort needed to prepare oneself for a career path. Beliefs about abilities may foreclose options, or this may occur in conjunction with gender barriers or socioeconomic factors.

#### Social cognitive approach to career development.

Social cognitive career theory (SCCT; Lent, Brown, & Hackett 1994,1996; Lent & Brown, 1996) has links to two earlier approaches, the social learning theory of career decision-making (Krumboltz & Nichols, 1990, cited in Lent et al., 1994) and the application of the construct of self-efficacy to the career development of women (Hackett & Betz, 1981), and draws on Bandura's (1986) general social cognitive theory, attempting to provide conceptual links with other career development theories. Like developmental theories, social learning theory emphasises the process of career development but instead

of focusing on the stages focuses on the mechanisms whereby we learn interests, values and decision-making (Krumboltz & Nichols). Cognitive processes are the prime focus, especially perceived self-efficacy and how it operates.

In addition to drawing on Bandura's (1986) model of triadic reciprocal causation with self-efficacy, outcome expectations, and personal goals being the mechanisms of personal agency, SCCT also incorporates person and contextual factors into the analysis. Three interlocking conceptual models, career interest development, interests promoting career-relevant choices, and performance and persistence in career pursuits, comprise the basic segments of this career development theory. Similarly, the models are intended to apply to academic development which Lent et al. (1996) argue overlap with career development particularly with reference to the school-to-work transition. Attention is therefore drawn to processes underlying career development and choice rather than the outcomes.

Of the three sociocognitive mechanisms, outcome expectations, goals, and self-efficacy, self-efficacy has been the one most closely examined in the area of career development (Lent et al., 1994)

### *Career Self-Efficacy*

The application of self-efficacy theory to career development originated in literature on women's career development when Hackett and Betz (1981) applied Bandura's (1977) work in examining the content of women's choices, in particular restriction of choice, resulting in the under-representation of women in some career fields. The term "career self-efficacy" has come to be used generically to refer to self-efficacy expectancies for a range of behaviours related to career development (Betz & Hackett, 1986). Included within career self-efficacy are self-efficacy for various domains such as occupations, academic achievement and persistence, choice of college major, and career decision-making processes. Because the broad notion of career self-efficacy originated in research addressing issues regarding occupations this area will be discussed more fully. One of the major constructs of this study, self-efficacy for career decision-making, also emerged from this area.

### Empirical evidence for career self-efficacy: Occupations.

For Hackett and Betz (1981) the main focus of their initial study was to examine gender differences in self-efficacy with regard to educational requirements and job duties of a variety of traditionally female and traditionally male occupations. No significant gender differences as regards overall occupational self-efficacy were found. However, when taking traditionality of the occupation into account, men were found to have equivalent self-efficacy for both traditionally male and traditionally female occupations. Women showed much lower self-efficacy expectations for nontraditional occupations, and much higher self-efficacy expectancies for traditional occupations.

Prior to this and taking a somewhat different approach, Ayres (1980; cited in Betz & Hackett, 1986) in an investigation of four specific occupations found gender differences. Female college students' self-efficacy expectancies were higher in relation to specific tasks related to stereotypically feminine occupations, while male college students' self-efficacy expectations were higher in relation to scientific occupations.

Other studies, with groups of college students, subsequently replicated and extended the work of Hackett and Betz (1981). Analysis by gender has been an important feature of many studies.

In comparing a self-efficacy model of occupational choice with an expectancy-valence one, Wheeler (1983) found that both occupational self-efficacy and occupational valence, related to occupational choices. Occupational valence refers to the interaction between a person's work values and expected outcomes from the occupations being considered. This supported the applicability of Bandura's concept of outcome expectancies (which is similar to expectancy-valence) to career behaviour. However, when self-perceptions of occupational efficacy described as "perceived ability match" were taken into account, these were more significantly predictive of preferences than was occupational valence (i.e., choice being dependent on the interaction between a person's work values and the availability of the outcomes in the occupations being considered). Gender differences in relation to both the relative percentages of males and females in the occupations considered, and in the correlation of self-efficacy expectancies with differences in preferences were found.

Layton (1984, cited in Betz & Hackett, 1986) found that a self-efficacy model was of greatest significance as a predictor, when compared with a locus of control model of women's career development, of career exploration and range of options being considered.

Women had higher self-efficacy for traditional occupations than for non-traditional ones, and this difference also correlated with the range of traditional or nontraditional occupations being considered.

Rotberg, Brown, and Ware (1987) in addition to using gender dominated categories, included a gender-neutral category in their analysis. No gender differences in occupational efficacy were found, with occupational efficacy rather than gender found to be a significant predictor of range of career choices considered by both men and women.

Through replicating the findings of Betz and Hackett (1981), Matsui, Ikeda, Oshni (1989, cited in Matsui, 1994) established the existence of sex differences cross-culturally. Matsui extended this further by exploring the mechanisms of instrumentality and expressiveness hypothesised to underlie such differences with another sample of Japanese students. Consistent with Betz and Hackett (1981), self-efficacy for males was equivalent for both types of occupations whereas for females, self-efficacy was significantly higher for female-dominated occupations. From the finding that for males both instrumentality and expressiveness were significantly related to self-efficacy for both female-dominated and male-dominated occupations, while for females only instrumentality was related to self-efficacy for male-dominated occupations and only expressiveness for female-dominated occupations, Matsui concluded that it is not a person's gender which predicts self-efficacy for occupations, but sex-role related personality characteristics. This had previously been suggested by Rotberg et al. (1987).

Fewer studies have been undertaken using high school students as participants. Post-Kammer and Smith (1985, cited in Lent & Hackett, 1987) reported finding gender differences in self-efficacy over a range of occupations narrower than that of Betz and Hackett (1981) regarded as traditionally male or female. However in a second study (Post-Kammer and Smith, 1986, cited in Lent & Hackett) gender did not predict consideration of mathematics oriented or non-mathematics oriented occupations.

Hannah and Kahn (1989) found twelfth grade high school students reported higher self-efficacy for same-gender-dominated occupations, girls chose male-dominated and female-dominated occupations equally, whereas boys chose male-dominated over female-dominated occupations. Groups were also analysed on the basis of socioeconomic status (SES) with the low SES group reporting significantly lower self-efficacy expectations for both high- and low-prestige occupations than the high SES group.

With rural high school students, Lauver and Jones (1991) observed gender differences in self-efficacy estimates for predominantly female and predominantly male occupations, with male self-efficacy estimates for predominantly female occupations being lower than female estimates for predominantly male occupations. This contrasts with Betz & Hackett's (1981) college student population in which female efficacy estimates were lower for such occupations.

More recently, Gillespie and Hillman (1993) found that high school students gave more consideration to same-gender dominated occupations, and also reported greater self-efficacy for performing the job duties required by same-gender dominated occupations. However, females reported greater self-efficacy than males for completing educational or training programmes for female-dominated occupations, whereas for male-dominated occupations there were no gender differences.

Although not using identical occupational self-efficacy measures to the previous studies cited, Vondracek and Skorikov's (1997) study is of interest. Leisure, school, and work, activity preferences amongst adolescents were examined in terms of their interrelationships with vocational identity, two components of which were occupational self-efficacy and occupational choice self-efficacy. All three activity preferences were positively and strongly intercorrelated and a strong correlation between activity preferences, exploration, self-efficacy and occupational prestige was also found. Because school preferences had a higher explanatory power than that of work or leisure preferences explaining 100% of the variance in vocational preferences and 86% for leisure preferences, Vondracek and Skorikov suggested that this could be explained by a contextual factor, the school. Students' self-efficacy for occupations corresponded perfectly with their ratings of the attractiveness of the same occupations. They therefore cautioned that basing occupational preferences so strongly on school preferences could mislead students, as this finding suggests a gap between what students like and what they could realistically expect to be able to do, in terms of the labour market and the selectivity of the most attractive occupations.

#### Empirical evidence for career self-efficacy: Career-related domains.

Research has shown that efficacy beliefs contribute to career development in a variety of ways. The development of basic sociocognitive skills is partially determined by

efficacy beliefs, as is an individual's career path (Betz & Hackett, 1986; Lent & Hackett, 1987). Future options are foreclosed if self-efficacy for fulfilling entry requirements is low. Several studies serve as a small representation of the various other ways in which self-efficacy may be a useful construct in the discussion of career development issues.

Self-efficacy for mathematics has been seen as a domain relevant to the study of career self-efficacy because of the finding that gender differences in maths self-efficacy expectancies impacted significantly on the choice of maths as an academic major (Betz & Hackett, 1983). Male college students, having higher maths self-efficacy scores over several domains, were in turn more likely than females to choose an academic major in this area.

Similarly, using Bandura's (1977) hypothesised sources of efficacy information, Lent, Lopez, and Bieschke (1991) found that performance accomplishments were significant predictors of gender differences, and Matsui, Matsui, and Oshni, (1990) found that vicarious learning and emotional arousal factors explained unique increments in maths self-efficacy. Men and women differed in their past mathematics performance but not in their perceptions of vicarious learning, social persuasion, or emotional arousal. Regression analysis suggested that the effects of gender are mediated by differential efficacy-building experiences for the two sexes. These findings were consistent with Hackett and Betz (1981). However, this contrasts with the findings of Matsui et al. who did not find that efficacy source variables fully mediate gender effects on maths self-efficacy, nor did they find differences in past performance. Similar to Betz & Hackett (1983) they found a relationship between mathematics self-efficacy and science based career choices.

Self-efficacy for the domain of science and technology has also been investigated. Although Lent, Brown, and Larkin (1984, 1986) did not observe gender differences in self efficacy expectancies in their studies of technical/scientific self-efficacy and its relationship to degree of persistence and academic success, they did find that technical/scientific self-efficacy was predictive of both persistence and success and of the range of career options considered. Similarly, Hackett, Betz, Casas, and Rocha-Singh (1992) did not find gender differences in occupational self-efficacy in their study of social cognitive factors as predictors of academic achievement amongst engineering students. Lower positive outcome expectancies were however reported by women.

Self-efficacy for career decision-making focuses on efficacy for a task specifically related to career development unlike the more general areas referred to so far. Female and

male university students did not differ in the finding that career decision-making self-efficacy had a positive relationship with occupational self-efficacy (Taylor & Popma, 1990), suggesting that people who are confident about completing the entry requirements for an occupation are also confident about career decision-making.

#### Ethnic differences.

While a major focus of the occupational self-efficacy research has been on gender differences, differences based on ethnicity have scarcely been discussed.

Ethnic groups were found to differ in their efficacy estimates on several predominantly female and predominantly male occupations, with American Indians reporting the lowest estimates for these occupations and Whites reporting the highest estimates amongst a group of high school students (Lauver & Jones, 1991). For each ethnic group, differences were also found for factors related to their perceived range of career options (e.g., life events, self-esteem). Both occupational self-efficacy and academic milestones self-efficacy were found to be most strongly predicted by ethnicity (Hackett et al., 1992).

However, for Rotberg et al. (1987) although ethnicity correlated with socioeconomic status amongst a group of undergraduate students, ethnicity did not predict self-efficacy or range of perceived career options. Post-Kammer and Smith's study (1986, cited in Lent & Hackett, 1987) consisted of an ethnically mixed group, but no analysis based on ethnicity was reported.

#### Summary.

Several indexes of career development have been found to be related to self-efficacy beliefs in the research that has been conducted since Betz and Hackett (1981) first suggested that such relationships could exist. Much of this research has found gender differences particularly in relation to traditionally male or female occupations where women are most likely to have lower self-efficacy for non-traditional options, thus restricting their choices.

However, differences in results regarding gender differences are apparent. This can partially be explained by differences in the participant groups used (Lent & Hackett, 1987).

Science/engineering students (Lent et al., 1984, 1986) would be expected to have an already narrowed range of interests and academic abilities overshadowing differences on the basis of gender, compared with Hackett and Betz's (1981) diverse group of undergraduate psychology students amongst whom gender differences for self-efficacy were apparent.

In general, self-efficacy beliefs appear to most strongly predict behaviour within particular domains if they are specifically related to it. For example, occupational self-efficacy in relation to the choice of occupational field and academic self-efficacy in relation to achieving academic milestones. Research participants have mainly been undergraduate college students therefore whether the findings of such studies can be generalised to other populations has not been clearly established. The few studies undertaken where ethnicity has been taken into account have also produced varying results.

### *Career Decision-Making Self-Efficacy*

Career self-efficacy as discussed so far has dealt mainly with the content of career choice, or what an individual considers or chooses. This can be distinguished from the process of career choice (Betz & Hackett, 1986) which focuses attention on the way an individual goes about making choices.

In the first application of Bandura's (1977) self-efficacy theory to components of career indecision, Taylor and Betz (1983) investigated self-efficacy in relation to elements of the process of career choice, namely the skills and activities required for decision-making. They suggested that assessment of self-efficacy expectations in terms of such skills and activities would in turn provide targets for intervention based on the sources of efficacy information. The specific purpose of Taylor and Betz's study was therefore to develop a measure of career decision-making self-efficacy.

### *Development of the Career Decision-Making Self-Efficacy Scale*

The Career Decision-Making Self-Efficacy Scale (CDMSE; Taylor & Betz, 1983) was developed as a measure of self-efficacy expectations with regards to 50 tasks or behaviours required in career decision-making. Crites' (1961, 1965, cited in Taylor & Betz) model of career maturity defining five Career Choice Competencies was used to

determine the domain of behaviours relevant to the process of career decision-making. The five were (1) accurate self-appraisal, (2) gathering occupational information, (3) goal selection, (4) making plans for the future and (5) problem-solving. For the scale 10 behavioural items, reflecting each of the five areas of competency, were selected to operationalise each competency. Both an overall scale score and five subscale scores could be obtained.

At the same time, vocational indecision was measured using the Career Decision Scale (CDS; Osipow, Carney, Winer, Yanico, & Koshier, 1980, cited in Taylor & Betz, 1983), and American College Test maths and english scores were obtained for the two groups of university students (a total of 346) who participated in the study.

#### Psychometric properties.

Following administration of the scale Taylor and Betz (1983) reported obtaining high internal consistency reliability of the CDMSE scale with a standardised coefficient alpha value of .97 for the total group of 346 participants. Item-total score correlations were mostly high with values for 43 of the 50 items ranging from .50 to .80, and only one value falling below .30. Coefficient alpha estimates for the five 10-item subscales of Self-Appraisal, Occupational Information, Goal Selection, Planning, and Problem Solving were .88, .89, .87, .89, and .86, respectively.

The predictive validity of the CDMSE scale was supported in that CDMSE scores were found to significantly predict levels of career indecision with students having low levels of career decision-making self-efficacy having high levels of indecision.

However, factor analysis was not supportive of the existence of five subscales reflecting the five competencies postulated by Crites (1961, 1965, cited in Taylor & Betz, 1983). The internal consistency reliability of .97 for the total scale, the high inter-subscale correlations, and the obtained factor structure suggested that there was one general factor, with most items loading on to that factor. Taylor and Betz used the factor structure reported for the CDS (Osipow et al., 1980, cited in Taylor & Betz) which consisted of four factors (lack of structure and confidence, approach-approach conflicts, external barriers to preferred choice, and personal conflict). However from their data, five factors emerged and when rotated accounted for 52% of the total variance. The factor structure obtained

appearing to have most in common with the lack of structure and confidence component of the CDS.

It was therefore concluded that the CDMSE could best be seen as a means of assessing self-efficacy expectations regarding the general domain of career decision-making tasks and behaviours, rather than the individual competencies as defined by Crites (1961, 1965, cited in Taylor & Betz, 1983). Bandura's (1977) suggestion that self-efficacy measures reflect specific tasks also appeared not to be met.

Subsequent studies have provided more evidence for the psychometric validity of the CDMSE scale.

Concurrent validity estimates were obtained by correlating four criterion variables, measuring self-esteem, trait anxiety, vocational identity, and career decidedness, with the five subscale and total scale scores on the CDMSE (Robbins, 1985). Overall, a significant, high to moderate correlation was found between CDMSE and self-esteem, moderate relationships between CDMSE, identity, and decidedness and a low relationship between CDMSE and anxiety. In terms of the subscales, Goal Selection and Planning and the total scale scores had the highest correlations with all four of the criterion variables. The CDMSE measure reflected career behaviours rather than self-esteem or trait anxiety only in some instances. Robbins also investigated the potential for the CDMSE measure to discriminate extreme ranges of career indecision and through discriminant function analysis found all five subscales to be related to a significant discriminant function accounting for 25% of the variance. However subsequent stepwise selection suggested that only the Self-Appraisal and Goal Selection subscales were significant in discriminating between two groups of high and low vocational identity. Robbins therefore concluded similarly to Taylor and Betz (1983) that the CDMSE scale was a generalised measure and drew attention to the nature of the overlapping relationship between the CDMSE and self-esteem.

In an examination of the relationships between self-efficacy, career salience, locus of control, and vocational indecision for a group of undergraduate university students, Taylor and Popma (1990) performed a principal components factor analysis with varimax rotation in order to replicate Taylor and Betz's (1983) factor analysis. They extracted five factors accounting for 26% of the total variance (compared with 52%) and reported a factor structure similar to that of Taylor and Betz. The structure was clearer in that most factors did not have loadings on more than one factor, and were more evenly distributed over the

first four. Taylor and Popma also found a significant negative relationship between CDMSE scores and vocational indecision ( $r = -.51$ ) confirming earlier results (Taylor & Betz). Finding a significant positive relationship between CDMSE scores and vocational decidedness ( $r = .46$ ) lent further support for CDMSE as a predictor of career decidedness. Career decision-making self-efficacy, from a range of variables, was the only significant predictor of vocational indecision. No gender differences in CDMSES scores were found.

Further research has addressed the issue of the factor structure of the CDMSE with differing results. Two major factors representing decision-making and information gathering were found by Peterson and del Mas (1994, cited in Betz & Luzzo, 1996) and Gati, Osipow, and Fassa (1994, cited in Betz & Luzzo) reported that the removal of items that correlated highly with other scales or had low item scale correlations resulted in a five-factor structure.

Results of reliability and validity testing with a sample of 230 college undergraduates using CDMSE and career decision-making attitudes and skills, showed a test-retest reliability of .83, and item-total score correlations above .50 for 46 out of 50 items (Luzzo, 1993a). Internal consistency for the scale was high, with a coefficient alpha value of .93 being obtained. Luzzo's (1993b) hypothesis that higher levels of CDMSE would be related to high levels of career maturity was supported by correlations between decision-making attitudes and CDMSE scores ( $r = .41$ ), thus providing evidence of construct validity for the CDMSE. However, correlations between decision-making skills and CDMSE scores were not significant ( $r = .05$ ). Evidence for the discriminant validity of the scale came from finding a non-significant relationship between students' GPA and CDMSE scores ( $r = .15$ ) and the absence of gender differences on CDMSE scores (Luzzo, 1993b).

In a study to validate their Career Search Efficacy Scale (CSES; Solberg, Good, Fischer, Brown, & Nord, 1994) also provided information regarding the CDMSE scale. Principal components analysis of the four subscales of the CSES together with the subscales of the CDMSES loaded together onto one factor, separate from personality scales which loaded onto another factor, providing evidence for the convergent and discriminant validity of both scales.

However, Luzzo (1996) criticises the fact that validity and reliability studies to date have been conducted only on undergraduate students, representing a narrow age range. He

also suggests that studies to assess the use of the CDMSE as a predictor of career exploration behaviours would be of value.

### *Development of the Short Form of the Career Decision-Making Self-Efficacy Scale*

In order to increase the utility of the CDMSE for research purposes and career counselling a shorter form was developed (CDMSE-SF; Betz, Klein, & Taylor, 1996). Based on the same theoretical structure as the original, the 5 items meeting the fewer of four criteria (e.g., generality, appropriate factor loading) were eliminated from each subscale.

In their study detailing the development of the new scale Betz et al. (1996) reported that all of the 5-item subscales had acceptable coefficient alpha values ranging from .73 (Self-Appraisal) to .83 (Goal Selection), with a scale total of .94, comparable to the value of .97 for the longer version. When compared with the 50-item CDMSE, the short form had concurrent validity correlations as high or higher than the long form.

Consistent with previous research using the longer CDMSE (Taylor & Betz, 1983; Taylor & Popma, 1990) factor analysis provided only marginal support for the five-factor theoretical basis for the CDMSE-SF. Occupational Information and Goal Selection factors were most clearly identified, Planning, Problem-Solving and Self-Appraisal being spread across two other factors, and one Self-Appraisal item made up a fifth factor. Similarly, no gender differences were found on subscale or overall scores, and relationships of the CDMSE-SF and career indecision were negative (but even stronger than with the longer version). Additional reliability information came from a study with undergraduate students, where Betz & Voyten (1997) obtained values of coefficient alpha ranging from .71 to .83 for the subscales and a coefficient alpha for the total scale of .93.

The CDMSE was chosen as a measure of career decision-making in this study because sufficient evidence exists for its reliability and validity, although in terms of content validity the existence of five separate factors has not yet been clearly proven. Despite this the CDMSE differs from a generalised career self-efficacy measure by focusing on decision-making skills and from measures of career indecision by acknowledging the component of self-efficacy which has been shown to relate to a wide range of career-related variables.

Because these comments apply equally to both the longer and shorter versions of the CDMSE, for the purposes of the present research it was decided to use the short-form in order to reduce administration time.

### *Empirical Evidence*

Participants in Taylor and Betz's (1983) study were two groups of undergraduate students. For one group no gender differences in CDMSE total or subscale scores were found; for the second group, females reported greater self-efficacy than males on two scales (goal setting and planning), but total CDMSE scores did not differ significantly. Regarding career indecision, women in one group showed significantly lower indecision scores than men in their group and both the men and women in the second group of students.

Strength of career decision-making self-efficacy expectancies was found to be strongly and negatively related to levels of career indecision, in particular to the lack of structure and confidence in decision making component. Taylor and Betz (1983) suggested that career indecision could be defined in terms of low efficacy expectancies for the tasks which are required for decision-making, predicting in turn, that low self-efficacy for such tasks would lead to their avoidance and further indecision. In addition, relationships of CDMSE scores to ability tests were not significant.

Additional investigations have shown a significant positive relationship between CDMSE scores and vocational identity (Robbins, 1985; Solberg, et al. 1995). Solberg et al. using both the CSES and the CDMSES as career self-efficacy indices found that both of these indices were mediators of the relationship between human agency indices (social facility, assertiveness, instrumentality) and other career indices (activities performed, vocational identity, career decision needs) for a group of undergraduates. Motivation, general self-efficacy, commitment, and occupational choice status correlated significantly with CDMSE, and the first three significantly predicted CDMSE which lends added support to the application of self-efficacy theory to career issues (Niles & Sowa, 1992).

### *Research using the Career Decision-Making Self-Efficacy Scale*

For female students, the higher their CDMSE scores, the more likely they were to hold non-traditional attitudes towards women and towards career choices (Foss & Slaney, 1986).

Career decision-making self-efficacy has also been found to have a moderate and negative relationship with locus of control (Taylor & Popma, 1990), and a moderate and positive relationship with career decision-making attitudes (Luzzo, 1993b). Luzzo also found a low but positive relationship with age as did Peterson (1993). However in Peterson's study there was an overlap in the pattern of age increase and CDMSE increase.

Ego identity status, represented by moratorium identity status (exploring with no commitment to an ego identity status) and achieved identity status (committed to an ego identity status) correlated negatively and positively, respectively, with CDMSE (Lucas, 1997) as had been expected. The relationship between sex-role identity and CDMSE was examined by Gianokos (1995) with a group of undergraduate students. Following Bem's (1974, cited in Gianokos) sex role inventory, students were classified into four groups (androgynous, feminine, masculine, and undifferentiated) which differed significantly on CDMSE. The undifferentiated group scored significantly lower than the other three, whose scores did not differ. Gianokos suggested that this could be due to previous socialisation experiences.

In a later study, Gianokos (1999) explored the relationship of CDMSE to career patterns. Groups representing four different career patterns (stable, conventional, multiple path, and unstable) differed significantly on the five CDMSE subscales. Overall, the conventional group (people whose career choice at adulthood differed from that of late teenage years) reported significantly higher CDMSE than the unstable group, but it was only the goal selection component that accounted for this.

No relationship was found between CDMSE and academic aptitude and grades (Taylor & Betz, 1983; Taylor & Popma, 1990); gender differences (Taylor & Betz; Taylor & Popma); anxiety (Robbins, 1985); career salience (Taylor & Popma); and grade point average (Luzzo, 1993b). Luzzo also found that contrary to his hypothesis there was no relationship between CDM skills and CDMSES and suggested that this challenges Bandura's (1977) contention that there would be a relationship between personal self-efficacy expectations and performance in a closely related behavioural domain. Luzzo

suggested that this may be because the CDMSE scale is measuring affective rather than cognitive components of career decision-making.

#### Gender.

Although Betz and Taylor (1983) and Robbins (1985) reported gender differences on some CDMSE subscales, total CDMSE scores showed no significant gender differences (Betz & Taylor), while Robbins found that for men, total scores were lower than for women. No gender differences were found in subsequent studies by Luzzo (1993b), Peterson (1993), Bergeron and Romano (1994), Solberg et al. (1995), and Betz & Voyten (1997).

Other studies have not analysed CDMSE scores on the basis of gender e. g., Blustein, Walbridge, Friedlander, & Palladino (1991) and Gillespie and Hillman (1993).

#### Ethnicity.

Amongst a group of under-prepared college students, only CDMSE scores were significantly different between ethnic groups. African American students scored significantly higher on CDMSE than Native American, Asian, or Caucasian students, while Hispanic and Caucasian students scored significantly higher than Native American or Asian students. However, Peterson (1993) noted that this relationship was not the same for measures of goals, commitments, and integration, which she would have expected.

#### Family context.

Two family-related variables have been studied amongst undergraduates in relation to CDMSE. Psychological separation from parents was not found to have a significant relationship with either CDMSE or career indecision, as had previously been hypothesised by Blustein et al. (1991). Similarly for Lucas (1997) neither CDMSE nor self-exploration were significantly related to psychological separation.

The Personal Growth Dimension of the Family Environment Scale (FES; Moos & Moss, 1986, cited in Whiston, 1996) was the only FES dimension found by Whiston to have a significant relationship with CDMSE, for both men and for women, confirming her

hypothesis. Structure coefficients of the canonical root produced in the analysis indicated that efficacy for using occupational information related positively to families who emphasise intellectual-cultural activities and negatively to families who stress independence and have an achievement orientation. Career indecision (CDS) and the FES System Maintenance subscales (measuring organisation and control) were related inversely for women only, but these same subscales were not found to be related to CDMSE, as had been predicted.

#### Career decision status.

Taylor and Betz's (1983) finding that career decision-making self-efficacy was strongly and negatively related to levels of career indecision has been supported by subsequent studies with college undergraduates (Bergeron & Romano, 1994; Betz & Voyten, 1997; Blustein et al., 1991; Robbins, 1985; Solberg et al., 1995; Taylor & Popma, 1990).

Unlike Betz and Voyten (1997), Blustein et al. (1991), Robbins (1985), and Taylor and Popma (1990) who used the Career Decision Scale (CDS; Osipow et al., 1980, cited in Taylor & Betz, 1983) to measure career indecision, Bergeron and Romano (1994) used a three-level self-report measure (decided upon a career, tentatively decided, undecided). The relationship between vocational indecision and career decision-making self-efficacy was found to differ significantly over the three levels being measured with "decided" persons having a greater degree of career decision-making self-efficacy and the converse. However the most conclusive result of the study appeared on examination of the relationship between levels of vocational indecision and college major indecision (another variable measured), which found that students reported the same level of decision for both. No gender differences were found. A two-level (decided or undecided) measure also found that occupational status correlated significantly with CDMSE. However the relationship was low and Niles and Sowa (1992) suggested from this that different measures of career decidedness may be reflecting different constructs with occupational choice status being only one aspect of career decidedness.

An alternate career decidedness measure, The Career Decision Profile (Jones, 1989, cited in Solberg et al., 1995) was used in the study by Solberg et al. and again by Lucas (1997). Lucas using a set of CDP subscales assessing extent of decidedness, comfort, and self-clarity found significant, moderate to strong relationships between these and CDMSE

for both men and women, contrasting with previous studies because level of decidedness rather than level of indecision was being measured.

For high school students, Gillespie and Hillman (1993) reported a significant negative relationship between CDMSE and career indecision (CDS). Career decision-making self-efficacy, rather than occupational self-efficacy, accounted for the greatest variance in career decidedness. No gender differences were found.

### *Summary*

The construct of self-efficacy for career decision-making has emerged from a strong theoretical background and research base (Betz & Hackett, 1986). Career decision-making self-efficacy differs from occupational efficacy in that it describes the process of career choice rather than its content (Luzzo, 1993a; Robbins, 1985). The CDMSE scale developed to measure this construct has sound psychometric properties although the question of it being a generalised rather than specific measure of career decision-making self-efficacy continues to be investigated. Related to this is another measurement issue concerning the use of the scale to produce a total score or subscale scores. Although much of the research with the CDMSE produces results based on subscale scores, there is still no strong evidence for the independence of the subscales. Meanwhile, the development of the shorter version of the scale is likely to make the CDMSE a more useful tool for purposes other than research.

Research continues to link self-efficacy for career-decision-making to a variety of other variables that are related to career development, individual characteristics or contextual factors. The most consistent results have come from studies on career indecision where the inverse relationship between indecision and self-efficacy for decision-making is firmly established (e.g., Taylor & Betz, 1983; Taylor & Popma, 1990). Gender differences in self-efficacy for career decision-making are not apparent even though the area of career self-efficacy developed from the concern that women were at a disadvantage to men when facing career choices (Hackett & Betz, 1981).

As is the case for much psychological research, this area also suffers from the fact that most studies have been conducted with university students, which deters the generalisation of results to other populations. Nor has attention been paid to differences between ethnic groups.

## ***Career Exploration and Career Decision-Making Self-Efficacy***

Research has shown that selected dimensions from the Career Exploration Survey (CES; Stumpf et al., 1983) and the Career Decision-Making Self-Efficacy Scale (CDMSE; Taylor & Betz, 1983) have some common correlates. For example, identity status (Blustein et al., 1989; Lucas, 1997) and career decidedness (e.g., Blustein et al., 1994; Gillespie & Hillman, 1993; Taylor & Popma, 1990). For both factors, gender differences have not been significant.

Specific evidence for the relationship between career decision-making self-efficacy and career exploration behaviour came from a study where goal instability, environment exploration, and self-exploration were measured with a group of undergraduate students (Blustein, 1989). In Blustein's study career decision-making self-efficacy was found to be more predictive of exploratory behaviour than any of the other variables measured namely goal instability, age, and gender. However when two sociocognitive variables, outcome expectancies and self-efficacy were compared for their relative effects on career indecision and exploratory intentions, it was found that CDMSE was the best predictor of career indecision while outcome expectancies best predicted exploratory intentions (Betz & Voyten, 1997). In turn, career indecision predicted exploratory intentions.

Other studies have investigated career exploration and CDMSE using alternative exploration measures. Solberg et al. (1995) used 24 career search activities ranging from active involvement to use of directories, to develop a career search score. The number of activities a participant had completed in the previous six months provided the score on this index. A moderate positive relationship between CDMSE and career search activities was found, CDMSE correlating more highly with this than did the other variables measured. Lucas (1997) found CDMSE and the Self-Exploration dimension of the CES to be positively and significantly related for both men and women.

Finding self-efficacy for career decision-making to be a predictor of exploratory activity when compared with goal instability Blustein (1988) suggested that self-efficacy represented a domain specific factor rather than a global one such as goal instability. This relationship between career decision-making self-efficacy and exploration, he argued, supported Bandura's (1986) hypothesis that self-beliefs are linked to particular performance domains and are predictive of them. However, the debate still continues as to whether the CDMSE scale, used both in this study and by Blustein, measures specific elements of self-efficacy for decision-making domain or is a more generalised measure

(Luzzo, 1993a; Robbins, 1985). The four sources of self-efficacy, performance accomplishments, vicarious learning, verbal persuasion, and emotional arousal (Bandura, 1977) could in some ways be paralleled to the three domains of the CES, namely behaviours, reactions, and beliefs, which have been linked to CDMSE (Blustein). Exploration comprises active involvement (performance accomplishment) in obtaining useful information from a variety of sources; observing other individuals in the world of work (vicarious learning) and believing in the positive outcome of career exploration and reacting with stress or satisfaction (emotional arousal) to the ongoing exploration process.

It was therefore of interest in this study to further investigate the relationship between career exploration and self-efficacy for career decision-making but from the perspective of viewing CES dimensions as sources of self-efficacy which may predict career decision-making self-efficacy. So far this relationship has only been investigated using exploratory process dimensions. The present study aims to extend this by exploring the relationship between CDMSE and CES dimensions from all three exploration domains, behaviours, beliefs, and reactions.

## ***Individual Factors and Contextual Elements in Adolescent Career Development***

### *Individual Factors*

Imminence of career decision.

Although as the end of the student role draws near the pressure of school examinations for example, may cause students to put aside career exploration and planning (Arnold, 1990), the imminence of making a decision has been shown to affect some exploratory attitudes and behaviours (Taveira et al., 1998). When compared, students in a higher school grade had done more environmental and self- exploration and were less optimistic about employment outlook for example, than were students in an earlier grade. However, it was also found that decisional stress decreased with age and that overall, girls irrespective of age or grade, reported higher levels of stress and less satisfaction with information than boys (cf. Blustein & Phillips, 1988).

Students in this study were therefore asked to indicate what their plans were for the following year in order to determine whether there were differences on dimensions of

career exploration or self-efficacy for decision-making, between those who planned to leave school, those who planned to return, and those who were undecided.

#### Career decision status.

Career decision-making has been frequently described in terms of career indecision. Early research in this area took two different approaches, to classify students according to whether they were decided or undecided, or to look for differences between students in each category and studies reached fairly inconsistent conclusions (Slaney, 1988). More recently, developmental approaches have recognised that being undecided about a career choice was normal for young adults and that this would be resolved appropriately and that differences lie in indecisiveness rather than in indecision. Slaney described how this has led to a variety of measures being developed to measure different degrees of indecision and to identify the range of components it may represent. As career indecision is not one of the major constructs being studied, career decision instruments will not be discussed fully, however some have been referred to previously in relation to the self-efficacy for career decision-making research.

Several studies, already referred to, have discussed career indecision in relation to career decision-making self-efficacy (e.g., Robbins, 1985; Taylor & Betz, 1983; Taylor & Popma, 1990). These studies have served both to validate the Career Decision-Making Self-Efficacy Scale (CDMSE; Taylor & Betz) and to provide further support for the finding of an inverse relationship between levels of CDMSE and career indecision. Other studies using alternate indecision measures have also confirmed this (e.g., Solberg et al., 1995).

Career indecision in relation to exploration has not been specifically measured. It was therefore decided to include an item to gauge the career decision status of students, as a relationship has been found between CDMSE and some dimensions of career exploration (Blustein, 1989; Lucas, 1997).

The Occupational Alternatives Question (OAQ; Zener & Schnuelle, 1976, cited in Slaney, 1988) is a measure of expressed vocational interests assessing different levels of career decidedness. It consists of two questions which together allow for four different responses depending on whether an individual has any alternatives in mind and whether a first choice has been made. Slaney reported finding clear relationships between OAQ

scores and scores on other career decision scales including the Vocational Decision-Making Difficulty Scale (Holland & Holland, 1977, cited in Slaney), and the Career Decision Scale (Osipow, et al., 1980, cited in Taylor & Betz, 1983), thus supporting the use of the OAQ as a career decision measure. Slaney also cited additional studies supporting the concurrent validity of the OAQ, one of which compared high school students with older age groups finding that differences between the groups were consistent over all the career indecision measures used.

Based on the OAQ, Bloor and Brook (1993) adapted the measure for use with undergraduate students in New Zealand. In order to distinguish participants who were relatively clear regarding career plans from those who lacked a clear preference or had no commitment to a career goal, a filter question was added thereby setting a more stringent criterion for differentiating career decision status. Only those who responded positively to the filter question were asked to respond to the questions adapted from the OAQ. Three career decision status groups were identified and classified as described in Table 3.

Bloor and Brook (1993) found that over half of their participants had no commitment to an occupational goal despite having chosen to go on to higher education. Consistent with their predictions, career maturity scores (career planning, world of work information and career decision-making) were highest for those who were decided. This was in turn associated with personal adjustment.

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Table 3

*Operationalisation of Career Decision Status*

| <b>Career Decision Status</b> | <b>Response</b>                              | <b>Definition</b>                           |
|-------------------------------|--|---|
| Decided                       | A first choice is listed                     | A chosen commitment to an occupational goal |
| Undecided                     | No first choice is listed, just alternatives | Uncertain of an occupational goal           |
| Avoider                       | No jobs are currently being considered       | Uncommitted to an occupational goal         |

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Source: Bloor & Brook (1993)

For the purposes of this study a complex measure of career indecision was not required as this was not one of the main constructs under investigation. It was therefore

decided to include Bloor and Brook's (1993) adapted OAQ as a brief estimate of career decision status, one that had already been used with a group of New Zealanders, in order to investigate differences amongst groups on the basis of career exploration dimensions and self-efficacy for career decision-making.

### *Social Context*

Adolescent career development takes place within a particular context within which several elements have been identified which may influence this process. A secondary aim of this research therefore, was to investigate selected contextual elements in terms of the way they relate to the career development variables, namely career exploration and self-efficacy for decision-making amongst adolescents in New Zealand.

#### *Careers /transition information and guidance.*

The transition of an adolescent from school to work is one of societal as well as personal significance. When seen as crucial to social stability it is managed carefully through institutional mechanisms (Arnold, 1990). In the United States, for instance, the School-to-Work Opportunities Act of 1994 has been designed to address the career development needs of youth who are not bound for a college education (Worthington & Juntenen, 1997). Careers/transition services for adolescents are a further example of this. In New Zealand these services have been recognised as crucial if students are to make appropriate decision about their future and schools have been charged, under government guidelines, to take responsibility for this area (Ministry of Education, 1997a). However, the translation of these guidelines into practice, and the subsequent access to and uptake on the part of adolescents depends on the resources of the individual schools and the motivation of students. Structures and systems, such as state examinations, operating within the education system in Australia have been shown to clearly affect the choice process for high school students (Hesketh, 1998) and it is likely that similar effects would be seen here where the school year also runs parallel to the calendar year. In addition, external to the education environment there are events such as career expos or work experience days provided by the business community to which students may also have access.

For the purposes of this research a demographic question pertaining to sources of careers help and information was included to see whether students' use of either sources

from school or out of school were related to their levels of career exploration or self-efficacy for decision-making.

#### Family context.

Career choice, being one of the main developmental tasks for adolescents provides an arena for constructive or conflictual parent-adolescent engagement (Young, 1994).

A small amount of research exploring one of the major constructs being investigated in this research, self-efficacy for career decision-making, has addressed one of the contextual elements to be measured in this study, the family. Addressing the quality of family relationships, no relationship was found between psychological separation and CDMSE for both men and women (Blustein et al., 1991; Lucas, 1997). However, CDMSE was related to a family dimension named Personal Growth, together representing the positive relationship between a family with an intellectual-cultural orientation and an individual having self-efficacy for using occupational information for decision-making (Whiston, 1996). Again, no gender differences were found. Irrespective of the type of career pattern an individual exhibited, parents were found to be important career role models in a study investigating CDMSE and career patterns amongst a group of adult undergraduate students (Gianokos, 1999).

In relation to career exploration, no studies appear to have used any of the CES scales to measure this construct in relation to family variables. However, vocational exploration and commitment was shown to be greater amongst women who experienced conflictual independence from their parents as well as some degree of attachment to them, and for men this was greater when conflictual independence from parents and attachment to fathers was experienced (Blustein et al., 1991).

Kracke (1997) explored the effect of parental behaviours on adolescents' career exploration by other means. Four family behaviours, parental support of occupational preparation, authoritative parenting style, parental openness to adolescent issues, and individuated parent-adolescent relationship, were examined alongside parental educational background. Kracke found all four behaviours correlated positively with adolescent exploratory behaviour and there were no significant differences between them. Parental education had only a marginal effect. Kracke suggested that this not only supported the importance of the family for adolescent career exploration, but also enabled comparison of

a process measure, parental behaviour, and a structural measure, parental education, showing the process measure to be of greater importance.

For the purposes of this research, Kracke's (1997) 6-item Parental Support of Occupational Preparation Scale was used to assess whether perceived levels of family support were related to career exploration, CDMSE or any of the other variables under investigation. Kracke reported a Cronbach alpha of .83 for the scale. It was chosen for use because the scale related specifically to career development, was brief, and had been developed and used with an adolescent group.

#### Work experience.

The early work experiences of adolescents would be expected to contribute to the way in which they approach work in general and career development issues. Both sociological and developmental theories suggest that work experience as an aspect of socialisation into the workforce and as a facilitator of exploratory activity should have a positive influence on career development, but the empirical research which is currently available is inconclusive as to its value (Skorikov & Vondracek, 1997). In their summary of the various approaches that have been taken to explore the effects of work experience on adolescent career development Skorikov and Vondracek pointed out that variables such as educational outcomes, personality development, and problem behaviour have been focused on rather than career development variables.

A recent study exploring the relationship between multiple work dimensions, such as hours worked, and quality of work in terms of their relationship with grades and sports participation, for example, also included a work orientation measure (Mael, Morath, & McLellan, 1997). Although no strong support was found for either the positive or negative effects of part-time work, Mael et al. did find that those who worked more also expressed higher levels of work orientation at the end of their secondary education. Although not to be specifically measured in this study, this could have implications for students' readiness to explore career options.

In a longitudinal study with high school students, it was found that work status (working part-time or non-working) did not have a significant effect on the career variables of work values and career indecision on a pretest measure, however posttest there were group differences on some work values but not on career indecision (Skorikov &

Vondracek, 1997). For both groups, however, there was a decrease in some work values and in career indecision. For career indecision, this was the same for both females and for males. Career indecision was therefore not related to work status, supporting the contention that because of its nature, part-time work has little exploratory value, nor is it undertaken in relation to students' career development status. Pretest scores did not differ for the two groups.

Students' engagement in part-time work was therefore of interest in this research in terms of the difference seen on other dimensions being measured between those who had or did not have part-time work experience.

### *Summary*

The social context areas discussed have been selected as being relevant to the environment within which adolescents make career decisions. A great amount of time is spent in school or engaging in school related activities at this stage, and careers services are the specific element within the school environment dealing with career development issues. Although the importance of such services is acknowledged, availability and access are variable both on a school to school basis and in terms of the individual making use of such resources.

Adolescents at school-leaving age are most likely to be living at home and under the influence of the family. It is unclear from research to date what the nature of this influence is, as very few variables have been examined in terms of their relationship to career development.

Regarding part-time work, which draws adolescents out into the world of work, research is inconclusive as to its positive or negative impact the lives of adolescents in general (Skorikov & Vondracek, 1997). The relationship between part-time work and career development variables is yet to be addressed in an extensive fashion.

Adolescents facing an imminent career decision have been found to engage in more exploratory behaviour than those whose decision point lies further ahead (Taveira, et al. 1998). Career indecision has been extensively researched and has been measured by a number of instruments shown to have sound psychometric properties. Although an extensive review of this area was not appropriate for the purposes of the present research, it

would appear that decidedness has been positively associated with several career development variables.

Apart from the area of career indecision, insufficient empirical evidence exists on which to base predictions as to the specific the nature of the relationships between the contextual and individual factors discussed. Therefore an exploratory approach was taken for this part of the investigation in order to examine the nature of the relationships between these factors, the career exploration dimensions and career decision-making self-efficacy, and amongst the individual and contextual factors themselves. Career decidedness would be associated with high levels of exploration and self-efficacy for decision-making. Logically, the use of careers/transition services, family support, and facing an imminent career decision would all be expected to have a positive relationship with the career development variables, however, there may be no relationship between these variables and part-time work experience.

### *Research Objectives*

A review of the literature pertaining to the two major career development constructs under examination in this research has shown that while self-efficacy for career decision-making has emerged from a sound theoretical and research base, career exploration tends to be based on a more integrative approach drawing from several theoretical sources. Career exploration, neither as a theoretical construct, nor as it has been operationalised through the Career Exploration Survey (CES; Stumpf et al., 1983) has received the same amount of attention. Research has demonstrated links between the two constructs and it would seem logical that all three of the career exploration domains (behaviours, beliefs, and reactions) could be possible sources of self-efficacy as described by Bandura (1977).

The primary objective of this research is to examine the nature of the relationship between two aspects of adolescent career development, career exploration and self-efficacy for career decision-making. The three components of career exploration, namely engaging in the exploration process, reacting to this process, and developing beliefs regarding it, are also to be examined as predictors of career decision-making self-efficacy. The effect of both career exploration and career decision-making self-efficacy on career decidedness will be evaluated.

As a secondary aim, individual and contextual variables, namely gender, ethnicity, imminence of school-leaving, sources of careers information, family support, and work experience will be explored to determine firstly, their relationship to adolescent career development, and secondly, their relationship to each other.

Finally, this study seeks to examine the utility of the career development measures the Career Exploration Survey (Stumpf et al., 1983) and the short form of the Career Decision-Making Self-Efficacy Scale (Betz et al., 1996) with New Zealand adolescents.

# **Chapter 3**

## **Methodology**

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### **Introduction**

The purpose of this study was to explore factors pertaining to the career exploration and self-efficacy for career decision-making amongst adolescents in New Zealand. For two reasons, the research strategy most appropriate to this aim was to use a survey methodology.

Firstly, psychometrically validated self-report measures exist for the major constructs being researched in this study, namely The Career Exploration Survey (CES; Stumpf, Colarelli, & Hartman, 1983), and The Career Decision-Making Self-Efficacy Scale - Short Form (CDMSE-SF; Betz, Klein, & Taylor, 1996).

Secondly, quantifiable data from a group of sufficient size was needed in order to be able to test hypotheses based on previous research and career development theory. A large sample of this population was most easily found in secondary schools. Therefore it was from secondary schools in the Auckland metropolitan area who agreed to participate in the study that the sample was drawn. In order that data collection would cause as little disruption as possible to schools, the necessity of using a straightforward questionnaire that could be administered at one point in time and in a standardised way was reinforced.

### **Participants**

The participant group was comprised of 483 secondary school students with an average age of 17 years. Of the group 254 (52.59%) were females, 216 (44.72%) were males while the remaining 13 (2.69%) declined to state their gender. Participants were classified into 5 groups pertaining to their ethnic identity, 102 (21.12%) participants identified themselves as Asian, 54 (11.18%) as Indian, 187 (38.72%) as New Zealand Europeans, 39 (8.07%) as New Zealand Maori, and 56 (11.59%) as Pacific Island Polynesian. Another 28 (5.8%) participants identified with neither of these groups and a

further 17 (3.52%) did not complete the question. All students came from within the area of the Auckland City secondary schools zone and attended State secondary schools that were both coeducational and single-sex.

## ***Measures***

The career development measures used were a modified version of the Career Exploration Survey (CES; Stumpf, et al., 1983), and the short form of the Career Decision-Making Self-Efficacy Scale (CDMSE-SF; Betz, et al., 1996).

Demographic information pertaining to the age, gender, and ethnicity of participants was sought. In addition, items were included in the questionnaire regarding respondents' imminence of school leaving, sources of careers information, family support measured by the Parental Support of Occupational Preparation Scale (Kracke, 1997), work experience, and career decision status measured by the Occupational Alternatives Question (OAQ; Zener & Schnuelle, 1972, modified by Bloor & Brook, 1993).

For the placement of the career development measures and the demographic items in the questionnaire see Appendix A.

### ***Career Exploration***

Career exploration was measured using the self-report Career Exploration Survey (CES; Stumpf, et al., 1983), designed to assess multiple dimensions of career exploration. Six beliefs about career exploration, seven dimensions of the career exploration process, and three reactions to exploration were assessed by the original CES. Evidence for the dimensionality, reliability, and validity is found in four studies with college students and professionals (Stumpf et al.), see literature review.

In order to adapt the CES for use with a younger population, minor modifications were made through the addition of four new items to the Self-Exploration scale, and adding a dimension of exploratory instrumentality, namely, Career Decision-Making Instrumentality (Blustein, 1988). For this study the revised version of the CES was obtained from Dr Blustein and 65 items comprising 17 CES scales appeared in the questionnaire in the following order: Amount of Information, Satisfaction with Information, Focus,

Intended-Systematic Exploration, Environmental Exploration, Self Exploration, Employment Outlook, Certainty of Career Exploration Outcomes, Frequency, Career Decision-Making Instrumentality, External Search Instrumentality, Internal Search Instrumentality, Method Instrumentality, Importance of Obtaining Preferred Position, Explorational Stress, and Decisional Stress, and the single-item Number of Occupations Considered (see Appendix A).

Following the recommendation of Dr D. L. Blustein (personal communication, July, 1998) on the utility of the modifications which he had made to the original CES, the four additional Self-Exploration items were not included in the questionnaire, however the new Career Decision-Making Instrumentality scale was included, plus an additional item each for the Explorational and Decisional Stress scales. In consultation with secondary school educators and careers personnel minor changes were made to the wording of some items to make them more easily understood by this age group in the New Zealand context. In particular, the five Self-Exploration items and three of the four Internal Search Instrumentality items were those which were altered most substantially in order to avoid what might appear to be redundant items and to focus on the self-exploration/internal search issues most likely to be confronting this age group in New Zealand.

The extent of self-exploration was assessed under the heading "To what extent have you behaved in the following ways over the last few months?". The item "Reflected on how my past integrates with my future career" was revised to "Reflected on how past events in your life will affect your future career"; the item "Focused your thoughts on me as a person" to "Focused your thoughts on the kind of person you are"; and "Been retrospective in thinking about my educational background and career options" to "Thought about your educational background and career options". Instead of "Contemplated my past" and "Understood a new relevance of past behaviour for my future career plans", which appeared substantially similar to the previous items and less meaningful for this age group, two reworded exploratory items, "Thought about your work experiences up till now" and "Thought about your main strengths and weaknesses as they would affect your career" were used instead of reducing the total number of items in the scale.

For Internal Search Instrumentality, assessed under the heading of "How likely is it that the following will result in your achieving your career goals?": "Assessing myself for the purpose of finding a job that meets my needs" was revised to "asking yourself what

sort of job will meet your needs'; "Understanding a new relevance of past behaviour for my future career" was revised to "thinking about how your past behaviour will relate to your future career"; "Focusing my thoughts on me as a person" to "thinking about the kind of person you are".

Participants responded to the majority of the 65 CES items on 5-point Likert response-scales with anchors varying according to the item's content. For example, 1 was anchored *little or none, not satisfied* or *very low*; 5 was anchored *a great deal, very satisfied* or *very high*. The exceptions to this were: a 6-point scale for Employment Outlook ranging from 1 *not good* to 6 *not applicable*; a 4-point response scale for Frequency ranging from 1 *none* to 4 *five plus*; a 7-point scale for both Explorational Stress and Decisional Stress ranging from 1 *insignificant* to 7 *most stressful*; and the Number of Occupations Considered had an open-ended single-item response, truncated at 5 *five or more*.

Each of the 17 scales of the CES contained a different number of items and was scored individually by averaging responses to each constituent item. No single summary score for an overall career exploration index was obtained.

### *Career Decision-Making Self-Efficacy*

Self-efficacy for career decision-making was measured using the short form of the Career Decision-Making Self-Efficacy Scale (CDMSE-SF; Betz, et al., 1996).

The original Career Decision-Making Self-Efficacy Scale (CDMSE; Taylor & Betz, 1983) was developed as a measure to assess self-efficacy expectations for undertaking the tasks required for career decision-making based on the application of Bandura's (1977) self-efficacy theory to this task. It consists of five 10-item subscales following Crite's (1961, 1965, cited in Taylor & Betz) model of the five Career Choice Competencies, or domains of behaviour postulated to be relevant to career maturity. The subscales are Self-Appraisal, Occupational Information, Goal Selection, Planning, and Problem Solving. They represent the five areas of competency outlined by Crites.

The 25 item short-form of the CDMSES is comprised of the same five subscales each of which uses the best 5 items from the original 10 (Betz, et al., 1996). As for the longer version, a subscale score could be obtained by summing the responses given to the

five constituent items, and a total score obtained by summing all 25 items. For the total CDMSE-SF a coefficient alpha estimate of .93 was obtained, comparable to that of the original, so for the purpose of this research, the shorter version was used.

A 5-point Likert scale was used for all items as this corresponded to the format of the CDMSE-SF obtained from Dr Nancy Betz. Response scale anchors ranged from 1 *no confidence at all* to 5 *complete confidence*. As previous research using the original CDMSE has not demonstrated the usefulness of subscales scores due to the substantial overlap which appears to exist between them (Taylor & Betz, 1983; Robbins, 1985) only total 25-item scores were obtained. This was done by averaging responses over the 25 items.

In order that the CDMSES-SF items would be more easily understood and relevant in the New Zealand context, secondary school educators and careers personnel were consulted and minor changes to wording were made. For example, because the students in this study were not currently undertaking tertiary study nor may they intend to do so in the future, questions using the word "major" as it applies in the American context were modified to read "major academic subject" or "course of study".

### *Parental Support of Occupational Preparation*

Parental support of occupational preparation was measured using the Parental Support of Occupational Preparation Scale (PSOP; Kracke, 1997). The PSOP was developed for use with 15-year-old students in Germany as part of a more extensive questionnaire used to assess the influence of parental education and behaviours on adolescents' occupational preparation. The scale consists of 6 items responded to on a 4-point Likert scale anchored at 1 *does not apply* and 4 *fully applies*. Responses were then averaged to give a total score. Kracke reported a Cronbach alpha of .83 for this scale. No other psychometric information is available; the use of this scale in other studies has not been reported. For the purpose of this research no alterations were made to the original format of the PSOP.

### *Career Decision Status*

Career decision status was measured using Bloor and Brook's (1993) modified version of Zener and Schnuelle's 1972 Occupational Alternatives Question (OAQ). Responses to three questions pertaining to whether or not participants had jobs in mind for the future were coded to reflect three levels of career decidedness and to divide respondents into one of three Career Decision Status categories. 1 *Decided* a participant who responded *Yes* to a filter question together with stating a first choice for a job; 2 an *Undecided* respondent who responded *Yes* to a filter question and listed some job options but with no current first choice; and 3 an *Avoider* who responded *No* to currently having any jobs in mind.

### *Demographic Information*

One aim of this research was to take into account both individual and contextual factors affecting career development. Participants were asked their age and to respond to questions aimed at obtaining the following information: gender, ethnic identity, plans for the next year (the decision to leave or return to school reflecting the imminence of a career decision), sources of careers information, and involvement in part-time work.

### *Procedure*

The measures described had previously been used either with an age group older than that required for the purposes of this study, or in a different country, so a pilot study was carried out. This took place with a group of 24 sixth formers at one of the Auckland City secondary schools. No statistical analyses to establish the psychometric properties of the measures for use with this sample were undertaken, for the purposes of this research student feedback only was taken into account. Their comments made regarding clarity of the questions and instructions, ease of completion and time taken led to minor format adjustments being made. Students in this group took an average time of 20 minutes to complete the questionnaire, with staff and students commenting that subsequent discussion arising from the career issues raised in the questionnaire was a positive outcome of students' participation in the study. The school involved in the pilot study offered to have

it's identity and a brief comment on it's response to taking part included in the letter sent to other prospective participants.

State secondary schools listed by the Ministry of Education (1997b) located within the Auckland City Territorial Authority were contacted to invite their sixth form students to participate in the study. As the legal school leaving age is 16 years, it was assumed that at this level all students would have passed this age, were legally eligible to leave school and therefore would be facing imminent career decisions. Except for one school located out of Auckland City although under it's authority, all state schools listed by the Ministry were contacted. The schools contacted were both coeducational and single-sex, and represented a range of decile levels determined by the Ministry of Education's criteria. Twelve schools were approached, in the first instance by letter to the Principal outlining the nature and purpose of the study and inviting participation. A copy of the questionnaire was included along with details regarding informed consent and privacy issues. This was followed-up by telephone which in most cases led to a discussion with school personnel responsible for careers/transition guidance within the school to whom the initial letter had been passed. In all, seven secondary schools agreed to the participation of their sixth form students, the details of which was then agreed upon between the researcher and the careers/transition staff member.

Working within large school environments meant that flexibility was required to fit in with school timetables and dates when students would be available to participate. All seven schools agreed that administration of the questionnaire could take place during students' class periods. The career/transition staff member carried this out either personally, or in liaison with the staff member responsible for the class at that period. To ensure that informed consent protocols were in place and that the questionnaire would be properly administered these issues were fully discussed by the researcher and careers/transition staff. Written instructions were attached to each questionnaire. Prior to completing the questionnaire each participant was asked to read, and if they agreed to participate, sign, the accompanying consent form. On completion, questionnaires and consent forms were returned to careers/transition staff to be collected by the researcher.

A total of 845 questionnaires were distributed to the schools. Many questionnaires were returned unused because the number of students thought by school personnel to be possible participants in the study fell short of predictions. In the final data analysis 483 questionnaires were used after those which had been poorly completed were eliminated.

## **Data Analysis**

Internal consistency coefficients were obtained for each Career Exploration Survey scale, the Career Decision-Making Self-Efficacy Scale - Short Form, and the Parental Support of Occupational Preparation Scale.

Means and standard deviations were calculated for scores on each Career Exploration Survey scale, the Career Decision-Making Self-Efficacy Scale - Short Form, and the Parental Support of Occupational Preparation Scale.

Pearson product-moment correlations describing the relationships among career exploration scale scores, career decision-making self-efficacy scores, and parental support of occupational preparation scores were obtained. Separate correlation analyses were conducted for both females and males.

Demographic variables were examined in two ways, firstly, by using a multivariate analysis of variance (MANOVA) to investigate the effects of the demographic variables on a set of dependent variables derived from participants scores on the Career Exploration Survey, the Career Decision-Making Self-Efficacy, and the Parental Support of Occupational Preparation Scales. Secondly, the relationships between the demographic variables themselves, were examined through crosstabulation.

Using the Career Exploration Survey scales as predictors of career decision-making self-efficacy, regression analyses were conducted. Regression analyses were also conducted to determine how well the demographic variables predicted CES dimensions, CDMSE and PSOP.

Principal components factor analysis with varimax rotation was used to investigate the factor structure underlying the career exploration construct (CES) when used in this study with a group of adolescent participants, and to compare this structure with those of previous studies. Following this, factor scores were used in a MANOVA to investigate the effects of the demographic variables in order to compare the results of this MANOVA with the outcome of the MANOVA conducted using scale scores.

All data analyses were performed using SPSS (7.5 and 9.0) for Windows.

# **Chapter 4**

## **Results**

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### ***Data Entry and Quality Control***

Data collected by means of a questionnaire from 483 participants were coded and entered into an Excel spreadsheet. A total of 48 questionnaires, approximately 10 percent of those collected, were rechecked against the entries made into the spreadsheet to give an overall rating of data entry accuracy. For 5,200 entries an error rate of 0.3% was found, sufficiently low to suggest that further checking was not necessary.

### ***Missing data***

Data for this study consisted of responses to a self-report questionnaire comprised of career development measures and a set of demographic items.

For each scale derived from the career development measures, data from participants found to have missed responses to more than half of the items for that particular scale were eliminated from the data set. This same criterion was not applied to the Career Exploration Survey (CES; Stumpf, Colarelli, & Hartman, 1983) scales Employment Outlook and Frequency. Participants who indicated that all three questions in the Employment Outlook scale were “not applicable” to them were eliminated from further analyses. Participants who did not complete the Frequency scale were also eliminated. The CES item Number of Occupations Considered was very poorly responded to and was therefore not included in the final analysis.

For the CES, analysis of the results was based on individual scales, therefore fewer individuals had sufficient missing data to warrant elimination than for the the Career Decision-Making Self-Efficacy Scale - Short Form (CDMSE-SF; Betz, Taylor, & Klein, 1996), where scale scores were combined to form a total scale score and therefore increased the number of individuals to be eliminated.

For the Parental Support of Occupational Preparation scale (PSOP; Kracke, 1997), its placement at the end of the questionnaire resulted in its completion by fewer participants. Subsequently a lower number of valid data entries were obtained.

For each participant, a data set for each scale was retained if the quantity of missing values fell below the criterion for elimination. Because scores were based on averaging the individual items within each scale, scale scores for each participant could be obtained, irrespective of the missing values.

## ***Scoring of Measurement Scales***

### *The Career Exploration Survey*

A total score for each of the 16 career exploration dimensions, or scales, (CES; Stumpf et al., 1983) was obtained by averaging the responses made to each constituent item. Although each of the 16 scales contained a different number of items, most used a 5-point Likert rating system enabling response values to range from 1-5. Higher values represented higher levels of the dimension being measured. The exceptions to this were: Employment Outlook which had a 6-point response scale (values ranged from 1-6); Frequency a 4-point response scale (values ranged from 1- 4); Explorational Stress and Decisional Stress each had a 7-point response scale (values ranged from 1-7); and Number of Occupations Considered had an open-ended single-item response, truncated at 5 to represent 5 or more.

No previous studies using the CES appear to have used a summary score of all scales to give a total career exploration index, therefore in the present study only individual scale scores were obtained.

### *The Career Decision-Making Self-Efficacy Scale - Short Form*

In this study, scoring was based on responses made on a 5-level confidence rating scale corresponding to the format of the CDMSE-SF questionnaire (Betz et al., 1996). The CDMSE-SF comprises five subscales each containing five items, a total of 25 items. Analysis of the results obtained in previous studies using both the CDMSE and the CDMSE-SF support the use of a total scale score rather than the use of subscale scores (see

Betz & Luzzo, 1996). Therefore in the current study a total CDMSE-SF score was obtained for each participant by averaging scores to the 25 items. Response values for each item ranged from 1-5 so that the total scale score also fell within this range with a higher value representing a higher level of CDMSE.

### *Parental Support of Occupational Preparation*

To obtain scores for PSOP scale (Kracke, 1997), responses made to the six items on a 4-point Likert scale were averaged to give a total score. Response values ranged from 1-4, as did the scale score for each individual and high scores represented a high level of perception of PSOP.

### *Demographic Information*

Responses to items regarding gender, ethnicity, plans for the following year, sources of careers help and information, and work experience were coded 1 to 5 depending on the number of response categories available for each question.

The final item assessed the career decision status of respondents and followed the Occupational Alternatives Question (Modified Version; Bloor & Brook, 1993). Responses to three questions were coded to reflect three levels of career decidedness (*decided*, *undecided*, and *avoider*).

### ***Internal Consistency***

Coefficient alpha estimates were computed as a measure of internal consistency for the scales used in this study (see Table 4). For each scale the analysis was conducted using only those participants who had complete item scores, therefore the effective sample size differs for each scale and was also recorded. Although data from some participants were lost due to missing item scores, the minimum effective sample size used was 418 (86%) of the total sample, with the majority of samples being in excess of 95% of the total sample. Because internal consistency analysis was based on a high percentage of the sample, it can be confidently assumed that obtained alpha estimates are representative of the sample and .93 indicating a sufficiently high level of internal consistency (Nunnally, 1978).

Regarding the individual measures, firstly, for the CES scales reliability estimates ranged from .60 to .89. Internal consistency estimates obtained for this study were lowest for the scales containing fewer items. The scale with the poorest internal consistency, External Search Instrumentality (.60) contained only 3 items making a less stable response pattern more likely to occur. For Stumpf et al. (1983) this scale also had the lowest internal consistency when compared with other scales.

Table 4

*Reliability Analysis for Scales*

|                                  | <i>N</i> | Number of<br>Items | Coefficient<br>Alpha | Comparison<br><sup>a</sup> |
|----------------------------------|----------|--------------------|----------------------|----------------------------|
| <b>Career Exploration Survey</b> |          |                    |                      |                            |
| Exploration Process              |          |                    |                      |                            |
| Environment Exploration          | 471      | 6                  | .87                  | .88                        |
| Self-Exploration                 | 474      | 5                  | .83                  | .87                        |
| Intended-Systematic Exploration  | 476      | 3                  | .70                  | .83                        |
| Frequency                        |          |                    |                      |                            |
| Amount of Information            | 476      | 3                  | .68                  | .79                        |
| Focus                            | 477      | 5                  | .88                  | .90                        |
| Reactions to Exploration         |          |                    |                      |                            |
| Satisfaction with Information    | 474      | 6                  | .79                  | .92                        |
| Explorational Stress             | 452      | 4                  | .78                  | .77                        |
| Decisional Stress                | 470      | 5                  | .85                  | .85                        |
| Beliefs                          |          |                    |                      |                            |
| Employment Outlook               | 418      | 3                  | .89                  | .89                        |
| Certainty of Career Exploration  | 472      | 3                  | .82                  | .88                        |
| Outcome                          |          |                    |                      |                            |
| External Search Instrumentality  | 479      | 3                  | .60                  | .70                        |
| Internal Search Instrumentality  | 474      | 4                  | .82                  | .84                        |
| Career Decision-Making           | 482      | 4                  | .75                  | .64 <sup>b</sup>           |
| Instrumentality                  |          |                    |                      |                            |
| Method Instrumentality           | 477      | 4                  | .85                  | .86                        |
| Importance of Obtaining          | 477      | 5                  | .89                  | .83                        |
| Preferred Position               |          |                    |                      |                            |
| <b>Career Decision-Making</b>    | 439      | 25                 | .93                  | .94 <sup>c</sup>           |
| <b>Self-Efficacy</b>             |          |                    |                      |                            |
| <b>Parental Support of</b>       | 465      | 6                  | .82                  | .83 <sup>d</sup>           |
| <b>Occupational Preparation</b>  |          |                    |                      |                            |

Note.

<sup>a</sup> Comparative coefficient alpha estimates refer to values obtained by Stumpf, et al. (1983) unless otherwise indicated.

<sup>b</sup> Values of alpha obtained by Blustein (1988).

<sup>c</sup> Values of alpha obtained by Betz, et al. (1996).

<sup>d</sup> Values of alpha obtained by Kracke (1997).

A problematic item within a scale may have a disproportionate influence when the scale contains few items. The internal consistency of the scale can therefore be affected, which needs to be taken into account in further analyses. Amount of Information also had relatively poorer internal consistency. A reason for poor internal consistency can be that the items making up the scale measure dissimilar things and examination of the content of the External Search Instrumentality scale items confirms this. In this study Amount of Information was placed first on the questionnaire, and this may have affected interpretation of items.

Although it contained a relatively large number of items (six) the wording of which had been only slightly altered from the original study, the coefficient alpha of .79 for the Satisfaction with Information scale was much lower than the .92 obtained by Stumpf et al. (1983) and .89 (Stumpf & Lockhart, 1987). This could be explained partially by the fact that participants in this study were younger, and that for them several items in the scale appeared to be too specific and irrelevant to their career stage. For example, "How satisfied are you with the amount of information you have on the specific organisation or work setting in which you are interested?" Also, whereas for this age group the questions may have appeared to be measuring disparate items, for college students or workers the questions may have appeared similar. Taveira, Silva, Rodriguez, & Maia (1998) whose study also had adolescent participants and could have provided an appropriate comparison reported no reliability information. Coefficient alpha estimates consistent with those of Stumpf et al. (1983) have been obtained in the few studies using the CES with undergraduates where reliability information has been reported (Blustein, Pauling, DeMania, & Faye, 1994; Stumpf & Lockhart, 1987). Not all scales have been used however.

Secondly, for the CDMSE-SF, reliability estimates of .94 (Betz et al., 1996), and .93 (Betz & Voyten, 1997), have been reported, consistent with .93 for this study and with studies using the 50-item CDMSE (e.g., Taylor & Betz, (1983)  $\alpha = .97$ ; Luzzo (1996) reporting on his 1993 study  $\alpha = .93$ ). This is noteworthy for two reasons, firstly, because participants in this study were not from a North-American background and were on average younger than the undergraduate college students who had participated in previous studies, and secondly, under expert advice, the wording of some questions had been modified to terminology more meaningful for New Zealand adolescents.

Thirdly, for the Parental Support of Occupational Preparation scale (Kracke, 1997) a coefficient alpha of .83 was reported, coefficient alpha of .82 for the current study being consistent with this.

## **Descriptive Statistics**

For all the CES dimensions, mean values for these participants fell above the mid-points on the scales (see Table 5). Adolescents in this sample generally engaged to a moderate degree in the career exploration behaviours assessed while holding predominantly positive beliefs about career exploration. Relatively higher levels of

Table 5

*Means, Standard Deviations, and Range of Scores*

|   | <i>n</i> | <b>Range</b> | <i>M</i> | <i>SD</i> |
|---|----------|--------------|----------|-----------|
| <b>Career Exploration Survey</b>                    |          |              |          |           |
| Exploration Process                                 |          |              |          |           |
| Environment Exploration                             | 478      | 1 – 4        | 2.50     | .94       |
| Self-Exploration                                    | 479      | 1 – 4        | 3.00     | .96       |
| Intended-Systematic Exploration                     | 478      | 1 – 4        | 2.31     | .98       |
| Frequency <sup>a</sup>                              | 470      | 1 – 4        | 1.83     | .74       |
| Amount of Information                               | 480      | 1 – 4        | 2.54     | .86       |
| Focus   | 482      | 1 – 4        | 2.72     | .98       |
| Reactions to Exploration                            |          |              |          |           |
| Satisfaction with Information                       | 479      | 1 – 4        | 2.74     | .98       |
| Explorational Stress                                | 481      | 1 – 6        | 3.38     | 1.40      |
| Decisional Stress                                   | 481      | 1 – 6        | 4.03     | 2.29      |
| Beliefs   |          |              |          |           |
| Employment Outlook                                  | 461      | 1 – 4        | 3.22     | 1.06      |
| Certainty of Career Exploration Outcome             | 481      | 1 – 4        | 2.71     | 1.11      |
| External Search Instrumentality                     | 481      | 1 – 4        | 2.82     | .74       |
| Internal Search Instrumentality                     | 481      | 1 – 4        | 3.24     | .88       |
| Career Decision-Making Instrumentality              | 482      | 1 – 4        | 3.13     | .81       |
| Method Instrumentality                              | 481      | 1 – 4        | 2.82     | .74       |
| Importance of Obtaining Preferred Position          | 481      | 1 – 4        | 3.24     | .88       |
| <b>Career Decision-Making Self-Efficacy</b>         | 473      | 1 – 4        | 3.17     | .64       |
| <b>Parental Support Of Occupational Preparation</b> | 469      | 1 – 4        | 2.68     | .73       |

<sup>a</sup>This scale represents only single-items. <sup>b</sup> multiple modes exist. The smallest value is shown.

Decisional Stress were reported in comparison with lower scores on the other Reaction dimensions of Explorational Stress and Satisfaction with Information. Because Frequency was represented by only a single-item, mean scores differ from scale scores.

CDMSE scores above the mid-point of the scale indicated a relatively high level of confidence for career decision-making amongst these adolescents. Similarly for parental support, mean values fell above the mid-point of the scale, indicating a of Obtaining Preferred Position Table 6).

Table 6

*Means and Standard Deviations for Significant t tests by Gender (p < .05)*

| Scale                                      | Males |      | Females |      | df     | t     |
|--|-------|------|---------|------|--------|-------|
|  | M     | SD   | M       | SD   |        |       |
| Environment Exploration                    | 2.39  | .87  | 2.60    | .98  | 462.30 | -2.47 |
| Self-Exploration                           | 2.84  | .93  | 3.05    | .97  | 456.85 | -2.32 |
| Decisional Stress                          | 3.81  | 1.44 | 4.22    | 1.52 | 461.12 | -2.30 |
| External Search Instrumentality            | 2.74  | .74  | 2.88    | .74  | 452.07 | -2.07 |
| Internal Search Instrumentality            | 3.13  | .88  | 3.34    | .86  | 452.17 | -2.56 |
| Method Instrumentality                     | 2.92  | .90  | 3.14    | .90  | 454.24 | -2.65 |
| Career Decision-Making Instrumentality     | 2.96  | .82  | 3.28    | .77  | 446.09 | -4.28 |
| Importance of Obtaining Preferred Position | 3.44  | 1.06 | 3.68    | .96  | 434.11 | -2.52 |

Results of a one-way analysis of variance (ANOVA) showed that ethnic groups differed significantly from each other on six CES scales, specifically one exploration dimension, the three reaction scales, one instrumentality scale, and Importance of Obtaining Preferred Position. No differences were found on CDMSE or PSOP scores (see Table 7). Post hoc comparisons showed that on all but Decisional Stress groups differed significantly from each other. The greatest number of differences was between NZ Europeans and Pacific Island Polynesians, with NZ Europeans having significantly lower External Search Instrumentality, Satisfaction with Information, Explorational Stress and Intended-Systematic Exploration scores (for means and standard deviations see Appendix B). For Importance Asian students had significantly lower scores than all other groups

except Indian students. More differences were found in scores on the Importance of Obtaining Preferred Position and Intended Systematic Exploration scales than on the other scales, and Pacific Island Polynesian students differed from other groups the most frequently.

Table 7

*Result of ANOVA and Effect Size for Ethnicity ( $p < .05$ )*

| Scale                                      | <i>F</i> | <i>df</i> | $\eta^2$ |
|--|----------|-----------|----------|
| Intended-Systematic Exploration            | 7.31     | 4, 429    | .06      |
| Satisfaction with Information              | 3.68     | 4, 430    | .03      |
| Explorational Stress                       | 6.97     | 4, 431    | .06      |
| Decisional Stress                          | 2.58     | 4, 432    | .02      |
| External Search Instrumentality            | 4.92     | 4, 431    | .04      |
| Importance of Obtaining Preferred Position | 5.13     | 4, 431    | .05      |

### *Intercorrelations*

Correlation coefficients were computed among the 16 CES scales, CDMSE scale and the PSOP scale. The Bonferroni approach was used to control for Type 1 error across the 153 correlations, a p-value of less than .003 ( $.05 / 18 = .003$ ) was required for significance when correlation analyses were conducted (Green, Salkind, & Akey, 1997). The results of these analyses (see Table 8) indicate that in fact almost all intercorrelations were significant at the .001 level. Following Cohen's (1992) test of the significance of a sample, small, medium, and large effect sizes were .10, .30, and .50, respectively. Many scales were strongly interrelated.

### **Career exploration dimensions.**

Amongst the scales representing the CES many intercorrelations had a large or medium effect size and all were positive except for two. The correlations between Decisional Stress and Focus, and Decisional Stress and Satisfaction were negative and non-significant.

In particular, the correlations among all of the 6 scales representing *Exploration Processes* (Amount of Information, Focus, Intended-Systematic Exploration, Self-Exploration, Environment Exploration, and Frequency) were strong and statistically significant. Coefficients ranged from .61 (Environment Exploration and Intended-Systematic Exploration) to .32 (Frequency and Intended-Systematic Exploration) indicating large or medium effect sizes following Cohen's (1992) criteria. Environment Exploration was highly intercorrelated with all other Exploration Process scales. Environment Exploration, Self-Exploration, and Intended-Systematic Exploration were moderately to strongly related to all other scales (including CDMSE and PSOP).

Amongst the 7 scales representing *Beliefs* about the career exploration process, out of 21 statistically significant intercorrelations 14 had large or medium effect sizes ranging from .55 (Intended-Systematic Exploration and External Search Instrumentality) to .30 (Employment Outlook and External Search Instrumentality, Employment Outlook and Internal Search Instrumentality). Both Certainty of Career Exploration Outcome and Employment Outlook, and Career Decision-Making Instrumentality and Method Instrumentality were strongly intercorrelated also. All four instrumentality scales were moderately to strongly related to all other scales (including CDMSE and PSOP).

Of the 42 statistically significant intercorrelations between Exploration Process and Belief scales, 20 had medium and 2 had large effect sizes, Self-Exploration and Internal Search Instrumentality, Focus and Certainty of Career Exploration Outcome.

The 3 scales representing *Reactions* to exploration differed markedly from all the others. For two of these, Explorational Stress and Decisional Stress, the only statistically significant and strong correlation was with each other (.57), and both had only weak relationships, if any, with all other CES scales and the third Reaction scale, Satisfaction with Information.

Alone, Satisfaction with Information was significantly correlated with all of the Exploration Process and the Beliefs scales. With the Exploration Process scales three correlations were strong (with Focus, Amount of Information, and Environment Exploration) the others moderate. The two largest coefficients of the entire analysis were for Satisfaction with Information and Focus (.67), and with Amount of Information (.65). With the Beliefs scales, medium strength relationships were found between Satisfaction

with Information and Employment Outlook, and Certainty of Career Exploration Outcome, and External Search Instrumentality. All other relationships were weak.

#### Career decision-making self-efficacy.

CDMSE correlated significantly with all CES scales except Explorational Stress and Decisional Stress, and with PSOP. There was a strong relationship between CDMSE and Amount of Information, and Focus, and with Satisfaction with Information, while other relationships apart from Frequency (.26) were of medium strength.

#### Parental support of occupational preparation.

PSOP correlated significantly with all the CES scales and CDMSE. However, all of these correlations were low apart from a medium relationship between PSOP and the CES Belief scale External Search Instrumentality (.31).

#### Gender differences.

Correlation analyses were also conducted separately for females and for males. No substantial differences were found, however one difference worth noting lay in the strength of some relationships. For females, the intercorrelation of CES scales with the CDMSE produced strong intercorrelations for 8 scales (CDMSE with Amount of Information, Satisfaction with Information, Focus, Environment Exploration, Self-Exploration, Employment Outlook, Certainty of Career Exploration Outcome, and Method Instrumentality). For males only one CES scale (Focus) was highly intercorrelated with the CDMSE scale. Therefore for females, CDMSE appears to be more strongly related to a wider range of career exploration variables than for males. For males PSOP was moderately related to 5 other scales (Self-Exploration, External Search Instrumentality, Importance of Obtaining Preferred Position, Explorational Stress, and CDMSE), whereas for females, this was only found for one scale, namely, Amount of Information.

Overall, eight of the 18 scales were significantly related to all other scales. Only 13 of the intercorrelations were insignificant at the .001 level and each of these included either the Decisional Stress or the Explorational Stress scales. Only four of the eighteen largest

correlations were found not to include an Exploration Process scale. All of the Exploration Process scales intercorrelated with each other. From this domain, the Environment Exploration scale stood out as being the scale that most strongly correlated with all others. It appeared, therefore that for both female and male students, engaging in environmental exploration was strongly related to engaging in all other aspects of the exploration process (e.g. self-exploration and the amount of information a respondent obtained), and to a slightly lesser extent, beliefs about outcomes of that process. Beliefs regarding the instrumentality of career exploration were significantly related to all other aspects of it. Stress was not a significant factor for this group, yet Satisfaction with Information (also a Reaction) was significant, but more strongly for Exploratory Process behaviours than for Beliefs. CDMSE was closely related to most dimensions of career exploration.

Table 8

*Student Means, Standard Deviations, and Intercorrelations Between Career Exploration Survey Scores, Career Decision-Making Self-Efficacy Scores, and Parental Support of Occupational Preparation Scores*

| <b>Career Exploration Survey</b>                    | <i>M</i> | <i>SD</i> | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18 |
|---|----------|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|----|
| <b>Exploration Process</b>                          |          |           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |
| 1. Environment Exploration                          | 2.50     | .94       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |
| 2. Self-Exploration                                 | 3.00     | .96       | .57* |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |
| 3. Intended-Systematic<br>Exploration               | 2.31     | .98       | .61* | .49* |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |
| 4. Frequency  | 1.83     | .74       | .52* | .36* | .32* |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |
| 5. Amount of Information                            | 2.54     | .86       | .59* | .48* | .41* | .37* |      |      |      |      |      |      |      |      |      |      |      |      |      |    |
| 6. Focus  | 2.72     | .98       | .57* | .47* | .42* | .38* | .55* |      |      |      |      |      |      |      |      |      |      |      |      |    |
| <b>Reactions to Exploration</b>                     |          |           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |
| 7. Satisfaction with Information                    | 2.74     | .98       | .56* | .42* | .41* | .35* | .65* | .67* |      |      |      |      |      |      |      |      |      |      |      |    |
| 8. Explorational Stress                             | 3.38     | 1.40      | .26* | .25* | .20* | .17* | .20* | .09  | .13* |      |      |      |      |      |      |      |      |      |      |    |
| 9. Decisional Stress                                | 4.03     | 2.29      | .15* | .16* | .14* | .11  | .05  | -.09 | -.02 | .57* |      |      |      |      |      |      |      |      |      |    |
| <b>Beliefs</b>                                      |          |           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |
| 10. Employment Outlook                              | 3.22     | 1.06      | .46* | .39* | .33* | .27* | .43* | .44* | .44* | .09  | -.03 |      |      |      |      |      |      |      |      |    |
| 11. Certainty of CE Outcome                         | 2.71     | 1.11      | .41* | .29* | .31* | .25* | .36* | .50* | .40* | .06  | -.03 | .52* |      |      |      |      |      |      |      |    |
| 12. External Search<br>Instrumentality              | 2.82     | .74       | .30* | .38* | .29* | .22* | .33* | .22* | .30* | .25* | .24* | .30* | .28* |      |      |      |      |      |      |    |
| 13. Internal Search<br>Instrumentality              | 3.24     | .88       | .31* | .52* | .26* | .17* | .28* | .26* | .29* | .20* | .21* | .30* | .25* | .55* |      |      |      |      |      |    |
| 14. Career Decision-Making<br>Instrumentality       | 3.13     | .81       | .34* | .35* | .15* | .22* | .32* | .26* | .24* | .17* | .18* | .37* | .23* | .46* | .44* |      |      |      |      |    |
| 15. Method Instrumentality                          | 3.05     | .91       | .34* | .39* | .21* | .24* | .33* | .32* | .27* | .23* | .18* | .23* | .28* | .45* | .48* | .54* |      |      |      |    |
| 16. Importance of Obtaining<br>Preferred Position   | 3.56     | 1.03      | .33* | .34* | .27* | .18* | .26* | .30* | .23* | .13  | .11  | .28* | .32* | .29* | .31* | .36* | .38* |      |      |    |
| 17. Career Decision-Making<br>Self-Efficacy Scale   | 3.17     | .64       | .46* | .48* | .33* | .26* | .51* | .57* | .51* | .05  | -.05 | .46* | .47* | .38* | .41* | .38* | .46* | .44* |      |    |
| 18. Parental Support of Occup.<br>Preparation Scale | 2.68     | .73       | .24* | .24* | .17* | .14* | .25* | .16* | .21* | .24* | .18* | .24* | .25* | .31* | .20* | .21* | .23* | .26* | .25* |    |

*Note.* Sample sizes range from 451 to 482.

\*  $p \leq .001$

## **Regression Analysis**

A multiple regression analysis was conducted to see how well scale scores from the Career Exploration Survey (CES; Stumpf, et al., 1983) predicted scores on the Career Decision-Making Self-Efficacy Scale - Short Form (CDMSE- SF; Betz, et al., 1996), and which of the CES scales were the most useful in this regard. The predictors were the sixteen scales of the CES, and the criterion was the respondent's CDMSE score. The linear combination of CES scores was significantly related to CDMSE scores,  $F(16, 431) = 32.02$ ,  $p < .001$ . The sample multiple correlation coefficient was .74, indicating that approximately 54 percent of the variance of CDMSE scores for this sample was accounted for by the linear combination of the CES scores.

In Table 9 the bivariate correlation indices show the relative strength of the individual predictors. All were positive except for Decisional Stress, and all were statistically significant ( $p < .001$ ) except for Explorational Stress and Decisional Stress. Alone Focus accounted for 32% of the variance with the other 15 predictors only contributing an additional 22%. In combination with all the other predictors Focus accounted for only 4% of variance indicating that other variables may be acting as suppressors.

In combination the most important predictors in providing unique information regarding the criterion CDMSE was therefore Focus (.19), Importance (.17), Method Instrumentality (.16), and Amount of Information (.13) at the .01 level.

In addition, a series of multiple regression analyses were conducted to determine how well the demographic variables (Gender, Ethnicity, Plans, Information, Work, and Career Decision Status) predicted CES dimensions, CDMSE, or PSOP. Although regression equations for each demographic variable showed that significance level had been reached on one or more levels of the variable, in each instance less than 1% of variance could be accounted for. Therefore the variables could not be considered to have useful amounts of predictive value.

Table 9

*Standardised Coefficients, Bivariate Correlations, and Partial Correlations of the Predictors and Career Decision-Making Self-Efficacy Scores*

| Predictors                                 | Standardised Coefficients | Correlations between each predictor and CDMSE scores | R Square Values |
|--|---------------------------|--|-----------------|
| Career Exploration Survey                  |                           |  |                 |
| Exploration Process                        |                           |  |                 |
| Environment Exploration                    | .01                       | .46***   | .21             |
| Self-Exploration                           | .12*                      | .48***   | .23             |
| Intended-Systematic Exploration            | -.04                      | .34***   | .11             |
| Frequency                                  | -.05                      | .30***   | .07             |
| Amount of Information                      | .13**                     | .51***   | .26             |
| Focus                                      | .19***                    | .57***   | .32             |
| Reactions to Exploration                   |                           |  |                 |
| Satisfaction with Information              | .09                       | .51***   | .26             |
| Explorational Stress                       | -.08*                     | .05  | .003            |
| Decisional Stress                          | -.08                      | -.05   | .003            |
| Beliefs                                    |                           |  |                 |
| Employment Outlook                         | .07                       | .46***   | .21             |
| Certainty of Career Exploration Outcome    | .10*                      | .47***   | .22             |
| External Search Instrumentality            | .08                       | .38***   | .15             |
| Internal Search Instrumentality            | .06                       | .41***   | .17             |
| Career Decision-Making Instrumentality     | -.003                     | .38***   | .14             |
| Method Instrumentality                     | .16***                    | .46***   | .21             |
| Importance of Obtaining Preferred Position | .17***                    | .43***   | .20             |
| <i>R</i>                                   | .74                       |  |                 |
| <i>R</i> Square                            | .54***                    |  |                 |
| Adjusted <i>R</i> Square                   | .53***                    |  |                 |
| <i>F</i>                                   | 32.02***                  |  |                 |

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\* $p < .001$

### ***Underlying Factor Structure of Career Exploration Processes***

The modified version of the CES used in this research contained a total of 65 items (cf. 59 items, Stumpf, et al., 1983; 53 items, Tavieria et al., 1998). The results of correlational analysis (see Table 8) of the data obtained for this study, indicated that

moderate to strong relationships existed between many Career Exploration Survey (CES) dimensions. In order to examine the underlying factor structure of the career exploration construct (see Stumpf et al.; Tavieria et al.) items from the CES were first analysed using principal components analysis. All items were included in the analysis except for the single items measuring Number of Occupations Considered and Frequency. A 13-factor model emerged explaining 55% of the item variance, however only 9 factors had eigenvalues of greater than 1.0 (51% of variance), and a scree plot also indicated that a 9-factor solution could best describe the data.

### *Twelve Factor Structure*

For both Stumpf et al. (1983) and Tavieria et al. (1998) a 12-factor solution was found to describe the respective CES dimensions analysed in each study so for purposes of comparison, a 12-factor solution was also applied to the data. In this case the items were rotated using a Varimax rotation procedure excluding factor loadings with an absolute value of less than .30.

From our data, a complex factor structure emerged with no single factors emerging to represent single CES constructs. For four factors the total pool of items from single CES dimensions loaded onto them, however this was in addition to items from other dimensions also appearing. For example, all six Satisfaction with Information items (a Reactions to Exploration scale) loaded onto factor 1, alongside items from Focus, Amount of Information, and Intended-Systematic Exploration (all Exploration Process scales). The items, which loaded onto factors 10, 11, and 12, also loaded onto other factors, leaving factors 11 and 12 with no unique items. Seven of the twelve factors contained items from single CES domains (either the Career Exploration Process, Reactions to Exploration, or Beliefs about Exploration) yet those items represented multiple dimensions.

### *Nine Factor Structure*

Because the initial extraction of factors showed that a 9-factor solution best described the data, a Varimax rotation was again used to obtain such a solution. The rotated 9-factor solution accounted for 50% of the item variance, and was similar in complexity to the 12-factor model. Again, items from differing CES domains and

dimensions overlapped and loaded onto more than one factor. Factor 1 contained all of the items from both Focus and Satisfaction (two differing domains) as well as items from two other Exploration Process dimensions. Four of the nine factors contained items representing multiple dimensions, but only one item from a different CES domain. Factor 9 had no unique loadings.

### *Seven Factor Structure*

As the criterion of not including item loadings of less than .25 had already been applied to the 9-factor solution, a more stringent approach was taken before a further rotation was carried out whereby all items with double loadings were removed. This produced a clear 7-factor structure with no double loading of items, explaining 63% of the total variance see Table 10.

Internal consistency estimates for the scales produced were all above the acceptable level of .7 (Nunnally, 1978), and all scales contained at least three items. Although most factors contained items from overlapping dimensions and two contained five or six items from one domain plus a single item from another domain a theoretical consistency was apparent in the constructs being represented. For example, one Focus dimension item (Exploratory Process domain) appeared together with four Satisfaction with Information dimension items (Reaction domain). This appears logical in that a person who was satisfied with the amount of information they had about jobs, and the match between personal abilities, interests and such jobs, would be more likely to be sure (focused) about knowing which job was best for him/her. Similarly, factor 2 contained six Exploration Process items from two dimensions plus one Career Decision-Making Instrumentality item from the Beliefs domain. The latter item asks whether a person believes that a specific behaviour will result in achieving career goals which is compatible with the extent of engagement in exploratory behaviours being referred to in the other six items.

The 7-factor model was comprised of 32 items from all seven dimensions relating to Beliefs regarding the career exploration process and all three dimensions relating to Reactions to this process. Missing however, were two of the five Exploration Process dimensions Amount of Information and Self-Exploration. A 7-factor model that did not differ by age or gender of a group of Portuguese adolescents, was also obtained by Taviera, et al. (1998).

Table 10

*Orthogonal Factor Analysis of Exploration Dimensions<sup>a</sup>*

| Original Dimensions                        | Item | Factors      |             |          |            |        |         |        |
|--|------|--------------|-------------|----------|------------|--------|---------|--------|
|  |      | Satisfaction | Exploration | Decision | Importance | Stress | Outlook | Method |
| Satisfaction with Information              | 4    | .83          |             |          |            |        |         |        |
|  | 6    | .80          |             |          |            |        |         |        |
|  | 5    | .80          |             |          |            |        |         |        |
|  | 2    | .79          |             |          |            |        |         |        |
|  | 3    | .79          |             |          |            |        |         |        |
| Focus                                      | 1    | .78          |             |          |            |        |         |        |
| Intended-Systematic Exploration            | 2    |              | .72         |          |            |        |         |        |
|  | 3    |              | .67         |          |            |        |         |        |
| Environment Exploration                    | 3    |              | .66         |          |            |        |         |        |
|  | 6    |              | .66         |          |            |        |         |        |
|  | 2    |              | .66         |          |            |        |         |        |
| Career Decision-Making<br>Instrumentality  | 1    |              | .65         |          |            |        |         |        |
|  | 1    |              | .44         |          |            |        |         |        |
|  | 3    |              |             | .73      |            |        |         |        |
|  | 4    |              |             | .72      |            |        |         |        |
| External Search Instrumentality            | 1    |              |             | .71      |            |        |         |        |
|  | 2    |              |             | .64      |            |        |         |        |
| Career Decision-Making<br>Instrumentality  | 2    |              |             | .62      |            |        |         |        |
| Importance                                 | 4    |              |             |          | .85        |        |         |        |
|  | 2    |              |             |          | .84        |        |         |        |
|  | 5    |              |             |          | .81        |        |         |        |
|  | 3    |              |             |          | .75        |        |         |        |
| Decisional Stress                          | 4    |              |             |          |            | .85    |         |        |
|  | 5    |              |             |          |            | .84    |         |        |
|  | 1    |              |             |          |            | .70    |         |        |
| Explorational Stress                       | 4    |              |             |          | .63        |        |         |        |
| Employment Outlook                         | 2    |              |             |          |            |        | .85     |        |
| Certainty of Career Exploration<br>Outcome | 1    |              |             |          |            |        | .82     |        |
| Employment Outlook                         | 3    |              |             |          |            |        | .78     |        |
| Method Instrumentality                     | 1    |              |             |          |            |        |         | .87    |
| Internal Search Instrumentality            | 3    |              |             |          |            |        |         | .78    |
|  | 4    |              |             |          |            |        |         | .74    |
| % of Total Variance                        |      | 25           | 9           | 7        | 5          | 5      | 4       | 4      |
| Eigenvalues                                |      | 8.2          | 3.2         | 2.5      | 1.9        | 1.8    | 1.5     | 1.3    |
| Cronbach Alpha coefficients                |      | .91          | .74         | .74      | .87        | .78    | .83     | .79    |

<sup>a</sup> Factor loadings with an absolute value of .25 or less are omitted.

## Demographic Factors

### Demographic Frequencies

Responses of students on the six demographic items namely, **Gender**, **Ethnicity**, plans for the following year - **Plans**, source of careers information - **Information**, part-time work experience - **Work**, and **Career Decision Status** were analysed to determine the relative frequencies of females and males in each category for each demographic variable (see Table 11).

Table 11

*Percentages of Students within Categories of Demographic Measures*

| Demographic Variable          | Valid Percentages        |                        |                               |
|-------------------------------|--------------------------|------------------------|-------------------------------|
|                               | Females<br>(n = 212-254) | Males<br>(n = 157-216) | Total Sample<br>(n = 438-469) |
| <b>Gender</b>                 | 53.9                     | 46.1                   | 100                           |
| <b>Ethnicity</b>              |                          |                        |                               |
| Asian                         | 19.3                     | 28.1                   | 23.3                          |
| Indian                        | 11.7                     | 13.3                   | 12.3                          |
| NZ European                   | 49.4                     | 35.2                   | 42.7                          |
| NZ Maori                      | 7.9                      | 9.7                    | 8.9                           |
| Pacific Island Polynesian     | 11.7                     | 13.7                   | 12.8                          |
| <b>Plans</b>                  |                          |                        |                               |
| Return                        | 87.6                     | 80.5                   | 84.0                          |
| Leave                         | 6.2                      | 10.5                   | 8.2                           |
| Undecided                     | 6.2                      | 9.0                    | 7.8                           |
| <b>Information</b>            |                          |                        |                               |
| School                        | 78.1                     | 72.0                   | 74.9                          |
| Non School                    | 21.9                     | 28.0                   | 25.1                          |
| <b>Work</b>                   |                          |                        |                               |
| Work Experience               | 66.3                     | 58.9                   | 62.9                          |
| No Experience                 | 33.7                     | 41.1                   | 37.1                          |
| <b>Career Decision Status</b> |                          |                        |                               |
| Decided                       | 44.8                     | 38.8                   | 42.3                          |
| Undecided                     | 31.7                     | 27.6                   | 29.5                          |
| Avoider                       | 23.5                     | 33.7                   | 28.2                          |

The majority of students, both males and females, were planning to return to school, over 60% of students had some work experience, with slightly more females than males having work experience, and 75% of students had used mainly school sources rather than outside sources of careers help and information. Breaking down these sources further, the most frequently used were careers/transitions staff and subject teachers, by 25% and

24% of students respectively, followed by senior teachers (19%) and home a non-school source (12%) ( $n = 466$ ). When students were asked to select one source (school or non-school) as being the most useful, 25% placed careers expos and workdays (non-school) sources in this category, followed by careers/transition advisers (19%) ( $n = 298$ ).

Less than half of the students were *decided*, in having made a first choice from the occupations they were considering, slightly more females than males were in this category, while more males than females were *avoiders* and were not considering any jobs at present. Over the total group, the percentages of *undecided* and *avoider* students were almost identical. Similar percentages of females and of males were *undecided* and *avoiders*, respectively.

### *Demographic Effects*

Correlation analysis has shown that there are many interrelationships between the scales used to measure career exploration processes, beliefs about career exploration, career decision-making self-efficacy and to a lesser extent reactions to exploration and parental support of occupational preparation. Therefore it is possible to look at the outcome variables as a linked set rather than as independent variables. The Career Exploration Survey (CES; Stumpf et al., 1983) is in fact structured around a set of related scales, each one individually scored. CDMSE scores were also found to have medium to strong intercorrelations with almost every CES dimension reinforcing the linked nature of career exploration and decision-making processes. It was therefore decided to conduct a one-way multivariate analysis of variance (MANOVA) because this approach takes into account information already obtained from the correlations and treats a linked set of variables at the same time. A MANOVA also facilitates identification of combinations of dependent variables which clearly distinguish between groups, when on the basis of individual variables, these same groups might not differ significantly from each other (Everitt, 1996).

Groups were derived from the two or more levels of each of the demographic variables used in this study to capture individual and contextual differences affecting participants' career exploration and decision-making.

A one-way multivariate analysis of variance was conducted to determine the effects of the six demographic variables (gender, ethnicity, plans, information, work experience, and career decision status) on the 18 dependent variables derived from the scales of the

CES, the CDMSE Scale, and the PSOP Scale. Unlike the other demographic variables the PSOP scale was used to measure the demographic factor of family support, scores were derived from items ranked on a scale and PSOP was therefore analysed together with the other scale scores (from the CES and CDMSE) alongside the categorical demographic variables. Significant differences were found amongst all the demographic variables for the dependent measures (see Table 12).

Table 12

*Results of MANOVA and Effect Size for Dependent Variables at Significance Level  $p < .01$  for each Demographic Variable*

| Demographic Variable   | Wilks' $\Lambda$ | $F$  | $Df$     | $\eta^2$ |
|------------------------|------------------|------|----------|----------|
| Gender                 | .90              | 2.49 | 18, 391  | .10      |
| Ethnicity              | .65              | 2.25 | 72, 1417 | .10      |
| Plans                  | .85              | 1.76 | 36, 748  | .08      |
| Information            | .90              | 2.56 | 18, 391  | .11      |
| Work                   | .85              | 3.45 | 18, 379  | .14      |
| Career Decision Status | .78              | 2.95 | 36, 748  | .12      |

Analyses of variances (ANOVA) on each dependent variable were conducted as follow-up tests to the MANOVA (see Table 13). ANOVAs were tested at the .003 level (.05 divided by the number of ANOVAs conducted) using the Bonferroni method (Green, et al., 1997). Only data from individuals who had scores on each outcome variable were included for the purposes of this comparison. For each demographic variable a different combination of dependent variables were significant at this level. Means and standard deviations on the dependent variables for each demographic variable group are found in Appendix B. Because of the large number of dependent variables used in this analysis, means and standard deviations were recorded only for those dependent variables for which a significance level of  $p < .003$  was obtained.

Table 13

*Results of ANOVAs and Effect Size for Dependent Variables at Significance level  $p < .003$  for each Demographic Variable*

| Dependent Variable                         | <i>F</i> | <i>df</i> | $\eta^2$ |
|--|----------|-----------|----------|
| <b>Gender</b>                              |          |           |          |
| Environment Exploration                    | 9.21     | 1, 408    | .02      |
| Career Decision-Making Instrumentality     | 20.99    | 1, 408    | .05      |
| <b>Ethnicity</b>                           |          |           |          |
| Intended-Systematic Exploration            | 6.44     | 4, 377    | .06      |
| Explorational Stress                       | 5.52     | 4, 377    | .06      |
| External Search Instrumentality            | 4.59     | 4, 377    | .05      |
| Importance of Obtaining Preferred Position | 6.54     | 4, 377    | .07      |
| <b>Plans</b>                               |          |           |          |
| Environment Exploration                    | 8.40     | 2, 391    | .04      |
| Satisfaction with Information              | 8.04     | 2, 391    | .04      |
| Career Decision-Making Self-Efficacy       | 6.44     | 2, 391    | .03      |
| <b>Information</b>                         |          |           |          |
| Environment Exploration                    | 10.47    | 1, 408    | .03      |
| Frequency                                  | 12.02    | 1, 408    | .03      |
| Method Instrumentality                     | 11.25    | 1, 408    | .03      |
| Career Decision-Making Instrumentality     | 17.55    | 1, 408    | .04      |
| <b>Work</b>                                |          |           |          |
| Environment Exploration                    | 9.36     | 1, 396    | .02      |
| Intended-Systematic Exploration            | 22.34    | 1, 396    | .08      |
| Importance of Obtaining Preferred Position | 34.32    | 1, 396    | .08      |
| Career Decision-Making Self-Efficacy       | 11.62    | 1, 396    | .03      |
| <b>Career Decision Status</b>              |          |           |          |
| Environment Exploration                    | 8.26     | 2, 391    | .04      |
| Self-Exploration                           | 10.83    | 2, 391    | .05      |
| Intended-Systematic Exploration            | 6.31     | 2, 391    | .03      |
| Frequency                                  | 6.44     | 2, 391    | .03      |
| Amount of Information                      | 16.50    | 2, 391    | .08      |
| Focus                                      | 30.43    | 2, 391    | .14      |
| Satisfaction with Information              | 9.67     | 2, 391    | .05      |
| Certainty of Career Exploration Outcome    | 15.48    | 2, 391    | .07      |
| Internal Search Instrumentality            | 6.63     | 2, 391    | .03      |
| Importance of Obtaining Preferred Position | 10.79    | 2, 391    | .05      |
| Career Decision-Making Self-Efficacy       | 12.04    | 2, 391    | .06      |

Post hoc analyses to the univariate ANOVAs consisted of conducting pairwise comparisons for the demographic variables with more than two groups at the  $p \leq .001$  level (.003 divided by the number of groups). Means and standard deviations are found in Appendix B.

#### Gender.

Female scores were significantly higher than male scores on Environment Exploration and on the Career Decision-Making Instrumentality scale.

#### Ethnicity.

Post hoc analysis revealed two significant differences in mean scores. On the Intended-Systematic Exploration scale of the CES, scores for the Asian group were lower than for the Pacific Island Polynesian group; on Importance of Obtaining Preferred Position, the Asian group had lower scores than the NZ European group. No differences were found for External Search Instrumentality and Explorational Stress, the only other dependent variables to also have significant ANOVAs.

#### Plans.

Those students who were *returning* to school had significantly lower scores for Satisfaction with Information than those who were *leaving*. Environment Exploration and Career Decision-Making Self-Efficacy were the only other dependent variables for which post hoc analyses were conducted but no significant differences were found.

#### Information.

Respondents were divided into two groups depending on whether they had obtained careers help or information mainly from a *school* source or from a *non school* source. *School* source students had significantly higher scores on all four dimensions, Environment Exploration, Frequency, Method and Career Decision-Making Instrumentality.

## Work.

When compared with those students having *no experience*, students with *work experience* had significantly higher scores on three CES dimensions, Environment Exploration, Intended-Systematic Exploration, Importance of Obtaining Preferred Position, and CDMSE.

## Career Decision Status.

Pairwise comparisons were made for the three groups of respondents who were *decided* on a job choice, were *undecided*, or were *avoiders*, on 11 dependent variables (10 CES scales and CDMSE scores). Respondents who were *decided* had significantly higher mean scores on four variables, Amount of Information, Satisfaction with Information, Focus, and Certainty of Career Exploration Outcome when compared with both of the other two groups. When compared with *avoiders* alone, the *decided* group had significantly higher scores on four other variables, Environment Exploration, Self-Exploration, Importance of Obtaining Preferred Position, and Career Decision-Making Self-Efficacy. No significant differences were found between the *undecided* and *avoider* groups on any of the post hoc analyses conducted. Nor were there significant differences between groups for Intended-Systematic Exploration, Frequency, or Internal Search Instrumentality.

## Summary

In this analysis, significant differences between groups from all six demographic variables were found. Amongst the demographic variables Career Decision Status stood out as being the one variable for which groups were significantly different over the widest range of dependent variables (eight), representing all three Career Exploration domains, and the CDMSE. For Work significant differences were found on three CES dimensions and on CDMSE and for Information on four CES dimensions.

Regarding the groups themselves, those with *work experience*, those who had *decided* on a job, and those using a *school* source of information stood out most clearly in terms of having higher scores on several of the CES dimensions and/or CDMSE.

Amongst the dependent variables, the greatest number of significant differences were seen in scores on Exploration Process dimensions. All of these dimensions

distinguished between groups from one or more of the demographic variables. The most useful dependent variable in terms of distinguishing between demographic variable groups was Environment Exploration on four variables. CDMSE scores distinguished between groups on two demographic variables, while PSOP scores were not significant at all.

### *Factor Solution*

Factor analysis produced a 7-factor solution to best describe the data set obtained from using the CES in this study. Because this solution differed from the original 12-factor solution on which the CES was based, it was decided to conduct a second one-way multivariate analysis of variance (MANOVA) to determine the effects of the six demographic variables on these seven factors, and to compare the outcome with the previous MANOVA results. As scores on the CDMSE scale and the PSOP scale had been included in the previous analysis, they were also included in this analysis. Significant differences were found amongst all the demographic variables on the factors (see Table 14).

Table 14

*Results of MANOVA and Effect Size for Dependent Variables at Significance Level  $p < .01$  for each Demographic Variable Using Factor Scores*

| Demographic Variable   | Wilks' $\Lambda$ | $F$  | $df$     | $\eta^2$ |
|------------------------|------------------|------|----------|----------|
| Gender                 | .93              | 3.56 | 9, 393   | .08      |
| Ethnicity              | .75              | 3.04 | 36, 1358 | .07      |
| Plans                  | .89              | 2.40 | 18, 752  | .05      |
| Information            | .93              | 3.14 | 9, 392   | .07      |
| Work                   | .85              | 7.35 | 9, 380   | .15      |
| Career Decision Status | .86              | 3.40 | 18, 750  | .08      |

Analyses of variance (ANOVA) on each factor were conducted as a follow-up test to the MANOVA (see Table 15). Each ANOVA was tested at the .006 level, following the Bonferroni method where .05 is divided by the number of ANOVAs conducted (Green et al., 1997).

Table 15

Results of ANOVAs and Effect Size for Factors at Significance Level  $p \leq .006$  for each Demographic Variable

| Factor                                  | <i>F</i> | <i>df</i> | $\eta^2$ |
|---|----------|-----------|----------|
| <b>Gender</b>                           |          |           |          |
| Decision                                | 16.86    | 1, 401    | .04      |
| <b>Ethnicity</b>                        |          |           |          |
| Importance                              | 5.70     | 4, 370    | .06      |
| Stress                                  | 7.81     | 4, 370    | .08      |
| Exploration                             | 3.66     | 4, 370    | .08      |
| <b>Plans</b>                            |          |           |          |
| Exploration                             | 5.12     | 2, 384    | .03      |
| Satisfaction                            | 6.46     | 2, 384    | .03      |
| <b>Information</b>                      |          |           |          |
| Decision                                | 19.99    | 1, 400    | .05      |
| <b>Work</b>                             |          |           |          |
| Exploration                             | 18.17    | 1, 388    | .05      |
| Importance                              | 30.57    | 1, 388    | .07      |
| Career Decision-Making<br>Self-Efficacy | 14.98    | 1, 388    | .07      |
| <b>Career Decision Status</b>           |          |           |          |
| Importance                              | 7.55     | 2, 383    | .04      |
| Outlook                                 | 5.14     | 2, 383    | .03      |
| Career Decision-Making<br>Self-Efficacy | 14.98    | 2, 383    | .07      |

Post hoc analyses to the univariate ANOVAs consisted of conducting pairwise comparisons for the demographic variables with more than two groups at the  $p \leq .002$  level (.006 divided by the number of groups). Means and standard deviations are found in Appendix B.

#### Gender.

Females and males differed only on the Decision factor where females had significantly higher factor scores.

#### Ethnicity.

In comparing average factor scores for Importance, NZ Europeans scored significantly higher than Asians, while for Stress, Pacific Island Polynesians scored significantly higher than NZ Europeans. No significant differences between ethnic groups

emerged from post hoc analysis on the Exploration factor, the only other factor to have a significant ANOVA result.

#### Plans.

Post hoc analysis was conducted for two factors, Exploration and Satisfaction but no significant differences were found.

#### Information.

For the Decision factor, respondents who had received their careers help or information mainly from *school* compared with *non school* sources, had on average, significantly higher factor scores.

#### Work.

Those respondents who had *work experience* had on average, significantly higher factor scores for Exploration, Importance, and Career Decision-Making Self-Efficacy than those with *no experience*.

#### Career Decision Status.

Post hoc analysis showed that for both Importance and Career Decision-Making Self-Efficacy, *decided* respondents had on average significantly higher factor scores than *avoiders*. No other significant differences between the three career decision status groups were found for these factors, nor for Outlook, the third factor analysed.

### *Summary*

In this analysis, significant differences were found between groups from five of the demographic variables (Gender, Ethnicity, Information, Work and Career Decision Status) on the new set of factors. No significant differences were found for Plans.

Those respondents with *work experience* were significantly different from those with *no experience* on two factors, Exploration and Importance, and for the ethnic groups NZ European and Asian, NZ European and Pacific Island Polynesian, there were significant differences on two factors Importance and Stress, respectively. Respondents whose careers information came from a *school* source had significantly higher factor scores for Decision than those whose careers information came from a *non school* source. *Decided* students had significantly higher Importance factor scores and CDMSE scores than *avoiders*.

Amongst the factors themselves, significant differences amongst groups were found on Exploration, Decision, Importance, and Stress, but not on Satisfaction, Outlook, and Method. For Importance, differences were found on three demographic variables, for Decision on two, and for Exploration and for Stress, on one.

### *Comparison of the MANOVAs*

Significant differences between groups from all the demographic variables were found when the original scale scores were used as dependent variables, when using factor scores differences were found on all but Plans. In the analysis using scale scores, one demographic variable, Career Decision Status, stood out as differentiating between groups over a larger number of scales than did the other variables. When using factor scores, no one demographic variable stood out, and for Career Decision Status differences occurred only for the Importance factor.

Amongst the factors, Importance was related to the greatest number of demographic variables (three), while amongst the scales, Environment Exploration related to four demographic variables and overall, all Exploration Process scales related to one or more of the demographic variables. The Exploration factor was only related to one demographic variable.

Comparing each demographic variable individually, there were similarities on all variables except Plans. For both Gender and Information significant differences were found on both the factor Decision (comprising the Career Decision-Making Instrumentality and External Search Instrumentality scales), and the Career Decision-Making Instrumentality scale. A significant difference was found on Ethnicity for both the Importance factor and the Importance of Obtaining Preferred Position scale. For Work,

those respondents with *work experience* had higher scores than those with *no experience* on the Exploration factor (comprising Intended-Systematic Exploration, Environment Exploration, and Career Decision-Making Instrumentality) and on the scales of Environment Exploration and Intended-Systematic Exploration. For Career Decision Status, *decided* respondents scored more highly than *avoiders* on the Importance factor and the Importance of Obtaining Preferred Position scale.

CDMSE scores were significantly different on Work, and Career Decision Status for both analyses, similarly, PSOP scores were non-significant.

When factor scores were used the greatest amount of information was lost regarding Career Decision Status (although several of the scales which had been used as dependent variables and were significant for this demographic variable were highly intercorrelated), and for the Satisfaction with Information scale, with the factor Satisfaction not differentiating between demographic variable groups. The factors Method and Outlook did not differentiate significantly between groups also. For Method, (comprised of Method Instrumentality and Career Decision-Making Instrumentality) items from the latter had also loaded onto Decision. For Outlook (comprised of Employment Outlook and Certainty of Career Exploration Outcome) when using scale scores, Employment Outlook had not been significant for any demographic variable, and Certainty of Career Exploration Outcome was only significant for Career Decision Status, the variable that had lost the greatest amount of information when factor scores were used.

### *Crosstabulation*

The characteristics of the individual undertaking exploration and decision-making and aspects of the context within which this was occurring, were also expected to be interrelated.

A series of two-way contingency table analyses were conducted to explore the relationships between the demographic variables themselves. The variables included were **Gender, Ethnicity, Information, Plans, Work and Career Decision Status.**

From the six variables three significant relationships were found. Firstly, work experience and ethnicity were found to be significantly related (Pearson  $\chi^2(8, N = 420) = 86.04, p = .000$ , Cramer's  $V = .45$ ). The proportions of students who had *work experience*

were for the New Zealand European and the New Zealand Maori groups .82 and .79 respectively, for the Pacific Island Polynesian and for the Indian groups .60 and .57 respectively, and for Asian students .28.

Secondly, a significant relationship was also found between ethnicity and plans (Pearson  $\chi^2(8, N = 415) = 22.75, p = .004$ , Cramer's  $V = .17$ ). For Asian, Indian, and New Zealand European students the proportions of those planning to *return* to school were .92, .86, and .86, respectively, while for Pacific Island Polynesian, .75 and for New Zealand Maori, .63 of students planned to return.

Thirdly, work experience and career decision status were significantly related (Pearson  $\chi^2(2, N = 441) = 21.19, p = .000$ , Cramer's  $V = .22$ ). The proportions of students with *work experience* who had *decided* on a career, who were still *undecided*, or were *avoiders* of decision-making were .73, .64, and .48 respectively.

Pairwise comparisons were conducted to evaluate the difference amongst these proportions, the results of which are shown in Table 16. The significance level was set at  $p \leq .05$  for all comparisons. Several pairwise comparisons were significant.

Regarding **Ethnicity** and **Work**, Asian students were less likely to have had *work experience* than all other students. The probability of Asian students having had *work experience* was 2.93 times (82/28) less likely as opposed to NZ European students, 2.82 times less likely as opposed to NZ Maori students, 2.14 times less likely as opposed to Pacific Island Polynesian students, 2.04 times (57/28) less likely as opposed to Indian students. The only other pairwise difference indicated the NZ Europeans were 1.37 times more likely to have *work experience* than Pacific Island Polynesians.

For **Plans** and **Ethnicity**, Asian students were 1.46 times more likely than NZ Maori students, and 1.23 times more likely than Pacific Island Polynesian students to *return* to school the following year, and NZ Europeans were 1.36 times more likely than NZ Maori to *return*.

**Work** and **Career Decision Status** were also significantly related when comparing *avoiders* with the other two groups. *Avoiders* were found to be 2.33 times less likely than *undecided* students, and 1.94 times less likely than *decided* students to have *work experience*.

Table 16

*Results of Pairwise Comparisons*

| Comparison                            | Pearson chi-square | p-value | Significance      | Cramer's V |
|---------------------------------------|--------------------|---------|-------------------|------------|
| <b>Ethnicity vs Work</b>              |                    |         | ( $p \leq .005$ ) |            |
| Asian vs Indian                       | 11.67              | .001    | *                 | .28        |
| Asian vs NZE                          | 8.66               | .000    | *                 | .53        |
| Asian vs NZM                          | 28.87              | .000    | *                 | .46        |
| Asian vs PIP                          | 13.20              | .000    | *                 | .30        |
| Indian vs NZE                         | 14.32              | .000    | *                 | .25        |
| Indian vs NZM                         | 4.75               | .029    | NS                | .23        |
| Indian vs PIP                         | .07                | .786    | NS                | .03        |
| NZE vs NZM                            | .26                | .641    | NS                | .03        |
| NZE vs PIP                            | 11.00              | .001    | NS                | .22        |
| NZM vs PIP                            | 3.64               | .056    | NS                | .21        |
| <b>Ethnicity vs Plans</b>             |                    |         | ( $p \leq .005$ ) |            |
| Asian vs Indian                       | 1.60               | .449    | NS                | .10        |
| Asian vs NZE                          | 3.01               | .222    | NS                | .10        |
| Asian vs NZM                          | 18.09              | .000    | *                 | .37        |
| Asian vs PIP                          | 10.60              | .005    | *                 | .27        |
| Indian vs NZE                         | .07                | .968    | NS                | .02        |
| Indian vs NZM                         | 6.84               | .033    | NS                | .28        |
| Indian vs PIP                         | 2.81               | .245    | NS                | .25        |
| NZE vs NZM                            | 10.96              | .004    | *                 | .23        |
| NZE vs PIP                            | 4.38               | .112    | NS                | .14        |
| NZM vs PIP                            | 1.64               | .441    | NS                | .14        |
| <b>Career Decision Status vs Work</b> |                    |         | ( $p \leq .02$ )  |            |
| Decided vs Undecided                  | 3.20               | .074    | NS                | .10        |
| Decided vs Avoider                    | 21.10              | .000    | *                 | .26        |
| Undecided vs Avoider                  | 6.81               | .009    | *                 | .16        |

\* $p <$  required  $p$ **Summary of Results**

Statistical analyses were in general conducted using large sample sizes and results reported at a high level of significance.

Adolescents who participated in this study appeared to be engaging in career exploration activities, had self-efficacy for career decision-making and felt supported by their families.

Correlations between the career development measures used were on the whole highly significant, positive, and moderately strong. Dimensions from the Exploration Process domain of the CES were particularly notable, as were the instrumentality scales from the Beliefs domain. CDMSE was most strongly predicted by the CES Focus scale, with a combination of other Exploration Process and Belief dimensions also being significant. None of the demographic variables predicted career exploration, self-efficacy for career decision-making.

Analyses of the demographic variables showed that there were a number of differences between categories of individuals. In particular, being decided on a career and having work experience differentiated between groups on several dimensions using two different sets of scores.

Using the data obtained for this study in factor analysis, the 16 dimensions of the CES were reduced to seven, which when used to re-analyse demographic effects, produced a result consistent with the original in many ways.

# **Chapter 5**

## **Discussion**

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This study was designed to examine career exploration and self-efficacy for career decision-making amongst adolescents at school-leaving age focusing on the process rather than the content of career choice. Attention was paid to both the individual characteristics and contextual elements of adolescent career development.

This group of adolescents could be described as being at the crystallisation stage of career development (Super, 1990). They were engaging in career exploration to a moderate degree, although their exploration was less environmental than self-exploration. They were positive in their beliefs regarding the value and outcome of career exploration. Less than half had decided on a career. They tended to believe more positively in general employment possibilities for themselves than they did in obtaining a specific position after completing their education, although the latter was quite important for them. Most participants indicated that they would be returning to school the following year, but they were taking labour market conditions into consideration. The reality of being in employment was still some time off and they were not strongly focused on knowing their specific preferences. Despite this they felt more stress over making a career decision than over career exploration itself, and were moderately satisfied with the information about careers that they had obtained so far.

Adolescents were confident in their ability to make a career decision and perceived their parents as being more supportive than not of their occupational preparation.

### ***Career Development Constructs***

#### ***Career Exploration***

Individual differences in career exploration reported in some studies have been fairly inconsistent. In this group, female students were exploring occupations and organisations and assessing themselves as individuals more than male students, but at the same time were experiencing more stress over having to make a career decision. Female

students believed more strongly that exploration would enable them to obtain their career goals and felt more strongly than male students that it was important for them to obtain the job they preferred. With studies using both graduate and undergraduate participants, gender differences ranged from being inconsistent to nonexistent, so that it is more useful to compare the results of this study with one using a more similar group of participants. The only research with adolescents using the Career Exploration Survey (CES; Stumpf, Colarelli, & Hartman, 1983) is that of Taveira, Silva, Rodriguez, and Maia (1998) conducted in Portugal therefore it is referred to frequently, and as in the present study multiple career exploration constructs were examined.

Adolescents in New Zealand were found to be both similar to and different from adolescents in Portugal in terms of career exploration. Adolescents in both New Zealand and Portugal held positive beliefs about the value of engaging in career exploration, however in the Portuguese study adolescents had explored the environment in a systematic way to a lesser extent. Both groups had taken time to reflect on themselves as individuals in terms of career options and both were experiencing more stress over making a career decision than over career exploration itself. Adolescents in New Zealand were more satisfied with the information about careers that they had received so far, while both groups regarded the labour market in a similar fashion, that is, they believed that employment possibilities looked generally positive, but were less certain that they would get the specific position which they most preferred. In both studies, females and males were positive about labour market opportunities suggesting that female adolescents in the late 1990's do not perceive the same barriers to their inclusion in the way that has been suggested earlier (e.g., Betz & Hackett, 1981).

Differences were found between ethnic groups on several career exploration constructs, the most consistent ones being between Pacific Island Polynesian and NZ European students. NZ Europeans did not engage in exploratory behaviours as systematically as Pacific Island Polynesian students, they believed less strongly in the value of exploring occupations and organisations and were less satisfied with the information they had obtained about jobs and work places. NZ Europeans were experiencing less stress over career exploration than both Pacific Island Polynesian and Asian students. This could be because NZ Europeans felt that there would be more employment opportunities awaiting them, knowing that for this group in the general population, there is less likelihood of unemployment. On the other hand, Pacific Island

Polynesian students may perceive more obstacles to their entering work or further education after leaving secondary school, and felt the necessity to make a greater effort to explore options. Asian students, when compared with all others except Indian students, felt that it was less important for them to obtain the job they preferred which may be because at this stage their priority is to pursue further education so that having strong job preferences was not of immediate relevance. This is further supported by the finding that Asian students were more likely than two other ethnic groups NZ Maori and PI Polynesian to be returning to school the following year, and from all the other students were the least likely to have work experience. For this group of students work in general appeared not to be salient at this point in time.

#### Relationships between the career exploration dimensions.

Adolescents who were frequently exploring occupations and organisations in a systematic way, exploring themselves as individuals, obtaining information, and becoming sure about what the best job for them would be, also believed that these activities would lead to obtaining career goals. This same group were experiencing low levels of stress over most aspects of the exploration process but were not concerned at all about whether they were sure of which job was best for them, or if it was important for them to obtain the job they preferred. They were also not concerned about labour market conditions even though they were aware of this factor. However, when they compared the stress they were experiencing in relation to career issues with other issues in their lives, those students who did feel stressed over exploration also felt stressed over making a career decision, these two constructs being strongly interrelated.

In this study all of the constructs related to engaging in exploratory behaviours were positively and significantly interrelated, as were all the constructs related to beliefs that this exploration was worthwhile. These two aspects of exploration were also interrelated but to a lesser extent. In particular, the strength of the interrelationships amongst exploratory behaviours themselves, and behaviours with exploration dimensions from other domains, stood out noticeably. Stumpf et al. (1983) found a similar pattern for both graduate and undergraduate students although overall, the relationships found in this study were generally far stronger than those reported by Stumpf et al.

As in this study, the two types of stress were interrelated for Stumpf et al.'s (1983) graduates, but whereas the adolescents in the present study were experiencing some stress over most aspects of career exploration, neither graduates nor undergraduates experienced stress in relation to any other aspect of career exploration (Stumpf et al.). This differed however for another group of undergraduates in that the two types of stress were moderately related to each other and to exploring occupations and organisations but not to engaging in self-assessment, and contrary to expectations, stress facilitated rather than inhibited exploratory behaviour (Blustein & Phillips, 1989).

Although in this study all CES dimensions were examined, in other studies where a narrower range of dimensions has been examined similar patterns of interrelationships between the various exploratory behaviours, and interrelationships between beliefs regarding the components of exploration have been found (Blustein, 1988; Blustein, Pauling, DeMania, & Faye, 1994; Stumpf & Lockhart, 1987).

Stumpf et al. (1983) suggested that the strong relationship found between Environment Exploration (exploring occupations and organisations) and other dimensions, as was found in the present study also, may be evidence of confounding constructs or method bias. Regarding collinearity, correlation coefficients are well below the .90 and above criterion for multicollinearity (Tabachnick & Fidell, 1989); subsequent research would not support that there was method bias as CES dimensions have most often been presented as independent measures rather than as the initial items in the survey and even in this study dimensions were presented in the questionnaire in a somewhat unordered way. However, this does suggest that the use of the entire set of CES dimensions to assess career exploration is unwarranted. In fact the use of the factor scores obtained in this study rather than scale scores to analyse the same set of variables did not substantially reduce the information obtained.

Although in this study no difference was found, for both graduate and undergraduate business students the importance of obtaining one's preferred position was more strongly related to engaging in exploratory behaviours than it was to believing in the value of doing so (Stumpf & Lockhart, 1987). Stumpf and Lockhart were also able to show that believing in the value of career exploration predicted engaging in exploratory behaviour at a later time. Adolescents who on the whole had no one career option in mind would be unlikely to feel that obtaining a particular job was important for them, compared with business students on the verge of job placement.

This range of findings serves to illustrate the complexity of describing career exploration in terms of a set of interrelated dimensions. Ample evidence also exists to support the contention of Stumpf et al. (1983) that exploration differs between groups. Adolescents in this study were both similar and different over career exploration dimensions from other groups of mainly older students. It is important to note that all of the studies referred to have taken place in educational environments so that comparisons with individuals already in work environments but exploring alternative options, could show quite different patterns. Most of the adolescents in this study still had at least one more year at school even though they were legally allowed to leave. It makes sense that awareness of a career decision to be made, resulted in some degree of stress, which fostered some exploratory behaviours. Nevertheless, the decision point was still some time off so students could afford to wait in the belief that exploration would in the end facilitate the identification of options. Actual engagement in exploratory behaviours, in particular finding out about occupations and organisations, appears to be pivotal in relation to the other aspects of adolescent exploration as this was the one factor related most strongly to all others. Being sure about what one wants to do, and obtaining enough information to be satisfied reduces the stress related to career decision-making in particular, and also relates positively to exploring and believing that this will be instrumental in obtaining career goals.

#### Underlying factor structure of the career exploration dimensions.

The factor structure underlying the data of this study differed considerably from that of Stumpf et al. (1983) with only seven independent factors being obtained. For the study with Portuguese adolescents the underlying factor structure also differed according to the age and grade level of participants and whether the CES was analysed in its entirety or by each domain separately (Taveira et al., 1998). Most research to date with the CES has used only some of the original dimensions to investigate aspects of career exploration in relation to selected variables. The present study used all dimensions.

The seven factors obtained contained scales from all three CES domains, namely exploration processes, reactions to the process, and beliefs regarding it, representing 13 of the 16 original CES dimensions, and using 32 of the original 59 items representing the dimensions. Following Blustein (1988), for this study 17 CES dimensions were used, and

with the addition of two stress items to the original scales, a total of 65 items were analysed. The multidimensionality of the CES was therefore supported, but over a reduced number of dimensions. Because the two CES dimensions containing only single-items had not been included in the analysis, this meant that all but two constructs, Amount of Information and Self-Exploration, were retained. For Stumpf et al. (1983) Amount of Information, Focus, and Satisfaction with Information all loaded onto the same factor, but in this study this occurred for only Satisfaction with Information and Focus, not Amount of Information. Stumpf et al. suggested from this that these scales may only be theoretically but not empirically independent of each other, and because in this study many of the Exploration Process dimensions were strongly interrelated it would appear that some of these dimensions could be reduced. As Taveira et al. (1998) did not describe their 7-factor model in detail it is not possible to compare it with the results of this study.

The factor structure underlying career exploration in this study also lends support to the addition of new items to the original CES. Both of the additional stress items appeared on the Stress factor, and two of the Career Decision-Making Instrumentality scale items (the scale added to the original 16 CES scales) appeared although on separate factors, supporting the appropriateness of their use with adolescents as suggested by Blustein (1988).

Although not all the factors were independent, when considering the placement of individual items there are logical connections. For example, factor two Exploration contained items pertaining to finding out about occupations and organisations in a systematic way plus one item regarding beliefs that this would lead to making a career decision. The factors Decision and Method each contained items from two different dimensions measuring beliefs that exploration would be instrumental in obtaining career goals. The concern was raised by Taveira et al. (1998) and supported by this study, that the differences between the items may be too subtle for adolescents at their stage of career development to discern, as these constructs also overlapped in their 12-factor structure.

Following this, factor scores were used to see whether the differences between groups categorised for demographic factors were the same when factor scores were substituted for scale scores. The similarities in the results appeared to outweigh differences. For example: gender differences for decision-making; career decision status differences for the importance of obtaining the desired job; both showing that on the whole, information was not being lost by using a reduced number of items. However, for

the one variable for which factor scores produced no significant differences, Plans, students had differed according to their level of satisfaction with the careers information they had obtained. It was surprising that this did not occur with factor scores because the Satisfaction factor was the first factor to load, and contained five of the six items from the Satisfaction with Information scale. On the other hand, the loading of the two scales Employment Outlook and Certainty of Career Exploration Outcome onto one independent factor (Outlook) may well indicate the concern which adolescents have with the labour market, their involvement in which lies ahead. This same loading occurred with data from a group of undergraduates (Stumpf et al., 1983).

Using the CES highlights the difficulties of using a measure developed for use with a particular population and adapting it for use with a younger one, and in this study from another culture. Modifications have been made to adapt the CES for use with a younger group (Blustein , 1988; Taveira et al., 1998) to which the results of this research have also made a contribution. However, although the underlying factor structure of this study appears to reflect an adequate summary of a large number of constructs, further testing with the factors obtained is required. This would serve to confirm the appropriateness of reducing the number of items needed to provide a sufficient amount of reliable information, aimed at capturing the nature of adolescent career exploration.

### *Career Decision-Making Self-Efficacy*

The secondary school students who participated in this study felt confident regarding their ability to make career decisions, with female and male students not differing in this thereby confirming previous studies (e.g., Betz & Taylor, 1983; Betz & Voyten 1997; Taylor & Popma, 1990). No differences were found on the basis of ethnicity in contrast to Peterson (1993) who reported differences amongst North American ethnic groups, most of which are not found in New Zealand.

#### **Measure of career decision-making self-efficacy.**

The internal consistency estimate of .94 for the CDMSE-SF scale (Betz, Klein, & Taylor, 1996) used with adolescents in this study, was almost identical to that obtained by Betz et al.. This indicates that it can be used reliably with students other than those from

the North American university population most often featured in research. Taylor & Betz (1983) suggested that modifications to item content for different populations might extend the utility of the CDMSE, which is what this study has confirmed. Minor wording changes to make the items more appropriate to adolescents in New Zealand have not reduced the reliability of the scale, which is important to note because in this case it was the shorter version containing only 25 of the original 50 items, which was used.

### *Career Decision-Making Self-Efficacy and Career Exploration*

Career exploration dimensions were investigated as possible sources of self-efficacy (Bandura, 1977) for career decision-making. All aspects of career exploration were positively and significantly related to career decision-making self-efficacy except for the two constructs of stress in relation to exploration and decision-making. In general, adolescents who perceived themselves as able to make career decisions also engaged in all the appropriate exploratory behaviours, believed that from this career goals would be obtained, and were not experiencing stress from the career exploration or decision-making process.

Career decision-making self-efficacy was related most strongly to the CES construct of Focus. A strongly focused individual is sure that he/she knows what the best job is for them is and exactly which position in which organisation they would prefer, so it is not unexpected that such a person also has the confidence to make a career decision. The adolescents who had the most confidence in their career decision-making abilities had also obtained more information about occupations and were highly satisfied with it. To a lesser extent beliefs that career exploration would enable them to obtain their goals, their awareness of the labour market, and actually finding out about occupations and organisations and about oneself as a person related to adolescents' self-efficacy for career decision-making. This differs from Blustein's (1989) undergraduates for whom a strong association between self-efficacy for career decision-making and exploring both oneself and occupations and organisations was found.

Having self-efficacy for career decision-making appears to be most strongly predicted by being sure about a job and obtaining information about it, and believing that it is both important to get the position most preferred and that by approaching career exploration with a systematic method this will be achieved. Amongst graduate and

undergraduate business students, believing that it was important to get the preferred position predicted engagement in exploratory behaviours at a later date (Stumpf & Lockhart, 1987). This implies that even if exploratory behaviours did not rate highly as predictors of CDMSE in this study they are fostered through in an individual's belief in the importance of acting to obtain what they have a strong preference for.

Distinguishing those exploration dimensions that have a more important association with self-efficacy from other dimensions, identifies areas which could be targeted for interventions to increase self-efficacy for career decision-making. By basing interventions on the four sources of efficacy information and focusing them on the aspects of career exploration most closely related to decision-making, assistance can be provided for students in the most useful way (Betz & Vuyten, 1997). The beliefs dimensions of the CES could in fact be regarded as outcome expectancies. These are the personal beliefs an individual holds regarding the results of performance (Bandura, 1986). Although less important determinants of behaviour than efficacy expectations, they are still one of the three sociocognitive factors (alongside personal goals and efficacy expectations) which are the key mechanisms by which people exercise personal agency (Bandura). It is surprising then that CDMSE was only moderately correlated with these dimensions, but this perhaps reflects the specificity of self-efficacy for career decision-making as opposed to self-efficacy as a global construct.

The outcome of investing in exploration, accumulating information, and being realistic about one's place in the labour market would be to narrow down options and focus on a specific one. On this basis the confidence to make a career decision emerges. The results of this study indicate that selected aspects of exploration (e.g., obtaining information and being sure about a job for the future) predict self-efficacy for decision-making. Self-efficacy for decision-making predicts environmental and self-exploration (Blustein, 1989) and career indecision (Betz & Vuyten, 1997) therefore a self-reinforcing, self-perpetuating cycle appears to exist between the three processes.

### *Career Decision Status*

Less than half of the participants in this study (42%) had decided on a job for when they left school, almost identical to the proportion of undergraduates Bloor and Brook (1993) reported to have decided to undertake university education without having also

decided on an occupation. At least in this study, most students were planning to return to school so that the opportunity still remained for them to clarify their options in their final school year. Whereas the undergraduates (Bloor & Brook) who were not decided were more likely to be undecided (having options in mind with no current first choice), in this study secondary school students were evenly divided between being undecided and avoiding decision-making (no options being considered). In terms of their career decision status, there were no significant differences between those who were planning to return to school, leave, or were undecided. So the 16% of participants who were either planning to leave school or were undecided could fall into any of the three decision status categories. When Bloor and Brook compared the three groups on measures of life satisfaction and self-esteem, undergraduates who had decided on a career also scored significantly more highly on these variables, implying that clarity of goals goes hand in hand with psychological well-being.

Students who were decided felt far more confident about making career decisions, than other students. Similarly, Bergeron, and Romano (1994) used a three level career decision status measure and found significant differences amongst all three, with individuals who were decided on a career having higher levels of CDMSE. However, only a weak relationship was found between CDMSE and occupational choice status measured on a 2-item index (Niles & Sowa, 1992). Niles and Sowa suggested that this may be because their measure reflected a different construct from career decidedness. This is important to note in relation to the interpretation of the results of this study and others where simplified measures are used to measure a construct such as decidedness. The question arises as to what extent it is possible to simplify a measure without losing essential information.

Based on the results of this study, if students had both self-efficacy for decision-making and had in fact made a decision, it could be inferred that decision-making skills were being used, which contrasts with Luzzo (1993) who found no relationship between CDMSE and career decision-making skills. Both the affective (CDMSE) and cognitive (decision-making skills) components appear to be needed for career decision-making. Because the relationship between the measures used in this study, one quantitative (CDMSE) and one categorical (Career Decision Status) was not analysed in the same way as two quantitative variables would be, the inverse relationship between CDMSE and indecision reported in several studies (e.g., Taylor & Betz, 1983; Taylor & Popma, 1990)

did not emerge. However, the finding of high levels of CDMSE for individuals who were decided on a career does add confirmation to this line of research.

Although the frequencies of females and males in each decision status category differed, female and male students did not differ in their self-efficacy for career decision-making. Females scored significantly higher than males on Career Decision-Making Instrumentality and the Decision factor (made up of the Career Decision-Making Instrumentality and the External Search Instrumentality scales of the CES) indicating that they held a stronger belief in the usefulness of engaging in activities that will foster decision-making. Examination of the items in this scale shows that they are similar to some of the CDMSE items and all focus on a person's beliefs in his/her ability to achieve a goal.

Career decision status was also significantly related to several career exploration dimensions. When compared with others, students who had decided on a career had more information about it and were more satisfied with the information, were more focused on the job they wanted, felt that it was important for them to obtain the job they preferred and were more certain that this would occur. Additionally, they had engaged in more environmental and self-exploration than students who were both undecided or avoiding decision making, who were no different from each other.

This study therefore provides more evidence to confirm the relationships between career decision-making self-efficacy and career decidedness and by examining the relationship between career exploration and career decidedness has begun to define elements of exploration which differentiate levels of decidedness. Of all the demographic variables measured, Career Decision Status differentiated between students on the widest range of exploratory dimensions.

### ***Individual Factors and Contextual Elements***

Rather than discussing the individual differences based on gender and ethnicity as separate factors these are discussed where they appear in relation to the career development constructs or the other individual and contextual elements. Additionally, in this study career decision status was measured as a categorical demographic variable and not as a quantitative scale, but it is in fact describing a career development construct and has been discussed primarily in relation to these.

## *Plans*

The vast majority of students planned to return to school the following year with slightly more males than females planning to leave or remaining undecided. When the three groups (return, leave, and undecided) were compared in relation to the career development constructs, there was only one significant difference between them. Students who had decided to return to school were less satisfied with the information they had received so far, than those who had decided to leave. Plans for the following year varied between ethnic groups, with Asian students more likely than Pacific Island Polynesian and NZ Maori students, and NZ European students more likely than NZ Maori, to be returning. Apart from ethnicity, students' plans for the following year had no relationship to any other factor, yet it would be hoped that it was the students who were satisfied with careers information who had made a career decision, and therefore had made the decision to leave school. The converse may also have applied, that students knowing they had another year at school had not yet explored career options sufficiently to be satisfied with the information they had and therefore were still undecided about the future.

Plans for the following year was included as an indicator of the imminence of students' career decision point, yet most students would only be facing this in a years time. Other studies have reported differences between students related to the proximity of career decision-making. For instance, undergraduates who expected to graduate in three months had been more engaged in the entire range of exploratory behaviours when compared with postgraduate students who did not expect to graduate for at least nine months (Stumpf et al., 1983). Amongst high school adolescents, in comparison with ninth graders, 12th graders engaged in more exploration, held stronger beliefs in its instrumentality and felt less stress over making a decision, while being satisfied with information had no relationship to grade level (Taveira et al., 1998).

On the basis of this, had a comparison been made of sixth and seventh formers, differences between the two groups may have emerged, because seventh formers would not have the option of returning to school. Despite this, students in the present study did report relatively high levels of career exploration. A large proportion of the students were returning to do a seventh form year. On average they were 17 years old, well above the minimum school leaving age, and had most likely completed their school certificate year successfully. This homogeneity could reflect the nature of the schools that participated in

the study, and also the demands of the labour market which students would be entering either directly or via further education.

### *Information*

Most students reported using school sources as their main means of acquiring careers help and information. Within school the various sources included senior and subject teachers, counsellors, and careers/transition advisers. Students reported using careers/transitions staff and subject teachers the most frequently. Students indicated that of all the school and non-school sources they had used, careers expos and workdays (non-school) had been the most helpful for them, followed by careers/transition advisers. However, it must be noted that fewer students responded to the second item than to the first therefore it can only be considered a rough estimation of students' views. It does seem logical that attending a work-oriented event such as a careers expo as an extension to the school careers programme would remain in students' minds as a source of large amounts of information available in one location. It became apparent in conducting this research that schools rank the importance of investing in the provision of careers/transition advice differently. In some ways it is surprising that despite this, the school as a source of information was so important amongst students, which also implies that if students have no access to careers information and guidance from school, they are unlikely to obtain this elsewhere. As well as reflecting the dominance of the school context in adolescents' lives (Vondracek & Skorikov, 1997) the importance of schools being supported in and supportive of the provision of resources for adolescent career development needs, is strongly reinforced. A bias in this study may well have been that schools providing this service were also supportive of research which may foster students' awareness of career issues in some way, which staff feedback indicated occurred. Therefore larger numbers of students from those particular schools became participants.

Subject teachers are also frequently used sources of careers information for students, which may have both positive and negative consequences. Self-efficacy which determines what we do with our skills comes from four interacting sources, performance accomplishments, observational learning, verbal persuasion, and emotional arousal (Bandura, 1986) all of which operate in the classroom. Therefore classroom experiences may either foster or impede the growth of efficacy for the skills required in particular

occupations. In addition to this unrealistic self-efficacy may also be fostered by making choices on the basis of school preferences, successes or failures, in isolation from engaging in real work activities (Vondracek & Skorikov, 1997).

Students who had used more school sources of information had also engaged in significantly higher levels of environmental exploration, implying that their interaction with school personnel regarding careers information, encouraged them to do so. These students also differed from others on the Decision factor, indicating that they believe more strongly that engaging in a variety of exploratory behaviours systematically, will result in decision-making.

### *Family Support*

Adolescents in this study feel that their families are supportive of the preparation that they are making towards finding an occupation. Family support is positively and significantly related to all the exploration dimensions and to CDMSE although the relationships were weak. There were no significant gender or ethnic differences in perceptions of family support. It seems therefore that it is important for adolescents that their families are positive towards their exploration of career options, but that this factor does not have a strong relationship with them actually engaging in exploratory activity or their beliefs about the value of this. For adolescents, it may be appropriate then, to perceive low-level support from parents rather than parental pressure to achieve career goals which are not of their own initiation. Because family support related to all the other dimensions equally, no evidence has been found to show that it relates more strongly to any one aspect of exploration than others. Furthermore, family support was not related to adolescents' plans for the following year, source of careers information, work experience, or career decision status. Therefore, while supporting the notion that family support is important in adolescents' career exploration (Kracke, 1997) the results of this study have not given a clear indication of where a specific relationship may lie.

This is in some ways surprising because in this study family support was examined in relation to a wide range of career constructs measured by psychometrically sound instruments, plus several demographic factors. This contrasts with Kracke's (1997) study, the source of the scale used in the present study, where family support was measured alongside three other parental behaviours in relation to career exploration, using scales

containing a maximum of six items which had been designed for use in that study only. Kracke reported that parental behaviours were not found to differ in their effects on career exploration

Establishing the family context most appropriate to fostering adolescent career development occurs amidst the host of other parent-adolescent issues which arise at this developmental stage, and while recent research has a renewed emphasis on family context, only generalised conclusions can be drawn regarding this parental role (Young, 1994). The results of this study confirm this and the fact that further research is needed to specify where family support might have its greatest impact.

### *Work Experience*

Students who had part-time work experience differed significantly from those with no experience by engaging to a greater extent in the exploration of occupations and organisations in a systematic way. These are behavioural dimensions of exploration indicating active, planned involvement on the part of students. For them it was more important to obtain their preferred jobs, reflecting perhaps the nature of adolescent work. These students also felt more confident about making career decisions. Therefore despite research findings which have been fairly inconclusive regarding the benefits of employment for adolescents (Mael, Morath, & McLellan, 1997), for students in this study work experience did have a positive relationship with one aspect of adolescent life, career development, and this also appeared to give students an awareness of how future employment opportunities looked for them.

Although more than half of the students surveyed (63%) had work experience, this varied by ethnic grouping. Compared with all other students, Asian students were less likely to have work experience, while NZ European students were more likely to have work experience than Pacific Island Polynesian students. Career decision status and work experience were also significantly related, with students who were avoiding career decision-making being less likely to have work experience than other students. As work experience was shown to be related to exploration, then students by having no experience and at the same time having no future career options in mind are putting themselves at a double disadvantage.

The relationship between work experience and career exploration found in this study supports the contention of Vondracek and Skorikov (1997) that despite the very strong relationship between the school, leisure, and work activity preferences of adolescents, and the way in which these facilitate vocational identity, there is no substitute for actual work experience. This is because for adolescents still at a stage where school dominates their lives, developing a sense of career preferences and possibilities through school experiences alone appears to foster an unrealistic sense of self-efficacy for future career options (Vondracek & Skorikov).

In the present study, not only was work experience and exploratory behaviour related, but also work experience and decision status. This differed from Skorikov and Vondracek (1997) who reported that part-time work affected work values but not indecision. The nature of part-time work for adolescents was felt to explain the lack of relationship between work experience and career decidedness, yet at the same time, strengthening of the central work values and intrinsic work motivation of adolescents occurred irrespective of its nature. Skorikov and Vondracek concluded from this, that part-time work had little exploratory value which would facilitate career choice, however no specific measure of exploration was taken as was done in the present study. Because few studies have examined the relationship of adolescent part-time work and career development variables it is of interest to try and unravel the complexity of this area. It would also be of value to understand the mechanisms by which work experience may foster career exploration for instance, leaving aside the long unresolved issues such as the impact of adolescent work on school performance.

### ***Limitations of this Research***

One limitation of the study arises from its being correlational and therefore no causal inferences can be drawn from the relationships described. Although the psychometric properties of the career development measures have been well established, the demographic measures used contained only generalised categories based on one or two items and must be regarded as only comparative indices. Data were based on self-report measures, which can affect the level of accuracy.

Regarding the questionnaire used to obtain data, because of its length questions placed at the end suffered from a lower response rate. Sample sizes for the different

analyses conducted therefore differed. The questions pertaining to demographic variables contained in some cases open items (e.g., names of occupations) which created too many variations to create sensible categories for analysis.

## ***Implications and Conclusions***

By addressing adolescent career development in relation to the broader context in which it occurs, many interrelationships have been identified, and facets of this process discussed.

This research has identified the aspects of career exploration which are most closely associated with self-efficacy for making career decisions, highlighting areas which adolescents could be encouraged to develop. To be sure of or focused on a specific occupation, represents a distant goal for a student who might be undertaking career exploration in a fairly limited unsystematic way. Therefore to look at these dimensions in a more sequential way would be of help for educators and parents who assist with the career development of adolescents, and for adolescents themselves. By formulating an approach that would enable adolescents to be confident about making career decisions, decision-making would be facilitated both at this transition point and during adulthood, as recycling through work roles occurs during the life-span (Super, 1990). The key factors in this process have been identified as obtaining the specific information that an individual feels he/she most requires, and believing in the effectiveness of taking a systematic approach to explore options, so that the certainty of having found the appropriate option emerges. Because this is a process these factors must be seen as self-reinforcing, rather than a means to an end. Exploration can also be regarded as a coping skill relevant to life-roles at any time during the life-span, so the importance of what may be learned through acquiring the skills appropriate to career exploration extends far beyond this domain.(Blustein, 1997)

Although students did generally feel confident about making a career decision, most had not yet done so, indicating perhaps that a higher level of efficacy is required for decision-making to take place. Interventions based on increasing self-efficacy for decision-making can be structured by focusing on these specific aspects of exploration in terms of the four sources of efficacy information (Bandura, 1977). Obtaining careers information from a wide range of sources including observing people in work roles, "vicarious learning", could be seen as a "performance accomplishment". If encouraged and supported

through “verbal persuasion”, students would feel both satisfied with their efforts and more strongly believe that exploration would enable them to obtain career goals experiencing “emotional arousal” which would serve as a catalyst for future exploration. A sense of purpose and commitment to career development may be developed if students are encouraged to be active participants in this process (Niles & Sowa, 1992). Most students reported using the school as their main source of careers information and all of these factors are compatible with the careers/transitions guidelines for schools (Ministry of Education, 1997a) the importance of which this research serves to reinforce.

Increasing self-efficacy for career decision-making can also be approached from the direction of increasing cognitive decision-making skills in general. The career counselling models of decision-making based on social-cognitive psychological theory are equally applicable to areas other than career decision-making (see Sharf, 1997) as general life skills. For young adults, although to be undecided is developmentally appropriate, problems arise from indecisiveness (Slaney, 1988). One reason for avoiding decision-making or being undecided may be a lack of decision-making skills. An important challenge for secondary schools would be to facilitate the development and use of decision-making skills amongst students. Efficacy for using these skills for career decision-making would then be fostered prior to students being faced with the complex task of deciding which direction to take on leaving school.

The value of work experience for career exploration and self-efficacy for career decision-making has also been clearly highlighted. It relates to the behavioural aspects of exploration and even though adolescent work has been criticised for lacking in qualities that would foster exploration (Vondracek & Skorikov, 1997) for this group of adolescents this is in fact happening. School transition programmes that include work experience should therefore be supported particularly as this avoids the additional load which part-time work may bring for adolescents. Those adolescents in this study who had no career options in mind (avoiders) were also the least likely to have work experience, so providing this opportunity would increase the salience of work for them. An area for additional research would be to specify more precisely the relationship between adolescent work experience and career exploration so that the aspects of part-time work that are most beneficial for adolescent career development are identified.

This study has extended research examining the career development constructs of career exploration and career decision-making self-efficacy by using measures that were developed for use with populations differing from adolescents in New Zealand. Both the CES and the CDMSE-SF scale were found to be reliable for this population. The results of this study suggest that it is possible to reduce the number of dependent variables to factors that identify the same significant differences. Reducing the number of CES factors to a group that alone also proved dependable, extends the utility of a fairly lengthy survey. It would be hoped that future research substantiates this finding. The Career Decision Status item (Bloor & Brook, 1995) used previously in New Zealand also proved to be a valid means of categorising this group of adolescents on the basis of differences in level of decidedness and the relationship of this to exploratory dimensions and CDMSE.

Because all sixth form students were invited to participate in this study, those who are bound for both professional and non-professional careers would have been surveyed. This extends the use of the measures used to “non-college-bound youth” who constitute a missing population in much career research (Worthington & Juntunen, 1997). Research settings beyond the boundaries of educational institutions in the workplaces of adolescents who have already left school would extend our knowledge of adolescent career development even further. Of even greater benefit would be the use of longitudinal research designs to capture changes in exploration and self-efficacy during this transition period, to measure the outcome of interventions designed to foster the development of the two, and to investigate subsequent influences on career decision status.

Many significant relationships were found between the demographic variables and the career development variables and amongst the demographic variables themselves. Each one suggests directions for future inquiry. Career exploration differs by ethnicity, an area which has been addressed only rarely, and requires further investigation. Plans for the following year, the index of proximity of career decision point may be more adequately measured through an index of work salience. If the school is the most important source of careers information for adolescents, the question is raised as to how the exploration dimensions associated with this context may become sources of efficacy information for decision-making.

Adolescent career development while occurring in a context containing many influential factors, also differs in complexity for each individual. Aspects of this have been

addressed through this research, which at the same time has made it evident that there are many more aspects to be examined.

### ***Summary of Research Findings***

Adolescents are engaging in exploration and have confidence in their ability to make career decisions.

Comparing female students with male students there are no differences in their perceived ability to make career decisions but they do differ on some career exploration dimensions. Female students were exploring occupations, organisations, and themselves as individuals, to a greater extent than males. Females believed more strongly that this would enable them to obtain their career goals, felt it was more important to obtain the job they preferred, and experienced more stress over making a career decision.

In comparison with Pacific Island Polynesian students, NZ Europeans did not engage in exploratory behaviours as systematically, believed less strongly in the value of exploring occupations and organisations, were less satisfied with the information they had obtained about jobs and work places, and experienced less stress over career exploration. Asian students were less likely to have work experience than other students.

Obtaining careers information, being satisfied with it, and being sure about a future occupation were the dimensions of career exploration most strongly related to having self-efficacy for career decision-making. Believing that exploring occupations and organisations would lead to the achievement of career goals and that it was important to get a preferred position most strongly predicted CDMSE in addition to being focused on a future occupation and obtaining careers information.

Career decision status was associated with career exploration, career decision-making self-efficacy, and having work experience. Students who had decided on a career had higher levels on seven dimensions of career exploration and on career decision-making self-efficacy.

All the individual and contextual elements investigated were associated with some dimensions of career exploration. Having work experience and using school sources of careers information had the greatest number of relationships with exploration dimensions. Career decision-making self-efficacy was only associated with having work experience.

# References

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- Arnold, J. (1990). From education to job markets. In S. Fisher & C. L. Cooper (Eds.), *On the move: the psychology of change and transition* (pp. 208-230). Chichester: Wiley.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*, 191-215.
- Bandura, A. (1986). *Social foundations of thought and action*. New York: Prentice-Hall.
- Bandura, A. (1997). *Self-efficacy: the exercise of control*. New York: W. H. Freeman & Co.
- Bergeron, L. M., & Romano, J. L. (1994). The relationships among career decision-making self-efficacy, educational indecision, vocational indecision, and gender. *Journal of College Student Development*, *35*, 19-24.
- Betz, N. E., & Hackett, G. (1981). The relationship of career-related self-efficacy expectations to perceived career options in college women and men. *Journal of Counseling Psychology*, *28*, 399-410.
- Betz, N. E., & Hackett, G. (1983). The relationship of mathematics self-efficacy expectations to the selection of science-based college majors. *Journal of Vocational Behavior*, *23*, 329-345.
- Betz, N.E., & Hackett, G. (1986). Applications of self-efficacy theory to understanding career choice behavior. *Journal of Social and Clinical Psychology*, *4*, 279-289.
- Betz, N. E., Klein, K. L., & Taylor, K. M. (1996). Evaluation of a short form of the career decision-making self-efficacy scale. *Journal of Career Assessment*, *4*, 47-57.
- Betz, N. E., & Luzzo, D. (1996). Career assessment and the Career Decision-Making Self-Efficacy Scale. *Journal of Career Assessment*, *4*, 413-428.
- Betz, N. E., & Voyten, K. K. (1997). Efficacy and outcome expectations influence career exploration and decidedness. *The Career Development Quarterly*, *46*, 179-189.

- Bloor, D., & Brook, J. (1993). Career development of students pursuing higher education. *New Zealand Journal of Educational Studies, 28*, 57-68.
- Blustein, D. L. (1988). The relationship between motivational processes and career exploration. *Journal of Vocational Behavior, 32*, 345-357.
- Blustein, D. L. (1989). The role of goal instability and career self-efficacy in the career exploration process. *Journal of Vocational Behavior, 35*, 194-203.
- Blustein, D. L. (1992). Applying current theory and research in career exploration to practice. *The Career Development Quarterly, 41*, 174-184.
- Blustein, D. L. (1997). A context-rich perspective of career exploration across the life roles. *The Career Development Quarterly, 45*, 260-274.
- Blustein, D. L., Devenis, L. E., & Kidney, B. A. (1989). Relationship between the identity formation process and career development. *Journal of Counseling Psychology, 36*, 196-202.
- Blustein, D. L., Pauling, M. L., DeMania, M. E., & Faye, M. (1994). Relation between exploratory and choice factors and decisional progress. *Journal of Vocational Behavior, 44*, 75-90.
- Blustein, D. L., & Phillips, S. D. (1988). Individual and contextual factors in career exploration. *Journal of Vocational Behavior, 33*, 203-216.
- Blustein, D. L., Phillips, S. D., Jobin-Davis, K., Finkelberg, S. L., & Roarke, A. E. (1997). A theory-building investigation of the school-to-work transition. *The Counseling Psychologist, 25*, 364-402.
- Blustein, D. L., Walbridge, M. M., Friedlander, M. L., & Palladino, D. E. (1991). Contributions of psychological separation and attachment to the career development process. *Journal of Counseling Psychology, 38*, 39-50.
- Borgen, W. A., Amundsen, N. E., & Tench, E. (1996). Psychological well-being throughout the transition from adolescence to adulthood. *The Career Development Quarterly, 45*, 189-199.
- Cohen, J. (1990). A power primer. *Psychological Bulletin, 112*, 155-159.

- Everitt, B. S. (1996). *Making sense of statistics in psychology*. Oxford: Oxford University Press.
- Foss, C. J., & Slaney, R. B. (1986). Increasing nontraditional career choices in women: Relation of attitudes towards women and responses to a career intervention. *Journal of Vocational Behavior, 28*, 191-202.
- Gianokos, I. (1995). The relation of sex role identity to career decision-making self-efficacy. *Journal of Vocational Behavior, 46*, 131-143.
- Gianokos, I. (1999). Patterns of career choice and career decision-making self-efficacy. *Journal of Vocational Behavior, 54*, 244-258.
- Gillespie, D., & Hillman, S. B. (1993, August). *Impact of self-efficacy expectations on adolescent career choice*. Paper presented at the Annual Meeting of the American Psychological Association, Toronto, Canada.
- Green, S. B., Salkind, N. J., & Akey, T. M. (1997). *Using SPSS for windows: Analyzing and understanding data*. New Jersey: Prentice Hall.
- Grotevant, H. D., Cooper, C. R., & Kramer, K. (1986). Exploration as a predictor of congruence in adolescents' career choices. *Journal of Vocational Behavior, 29*, 201-215.
- Hackett, G., & Betz, N. E. (1981). A self-efficacy approach to the career development of women. *Journal of Vocational Behavior, 18*, 326-336.
- Hackett, G., Betz, N. E., Casas, J. M., & Rocha-Singh, I. A. (1992). Gender, ethnicity, and social cognitive factors predicting the academic achievement of students in engineering. *Journal of Counseling Psychology, 39*, 527-538.
- Hannah, J. S., & Kahn, S. E. (1989). The relationship of socioeconomic status and gender to the occupational choices of grade 12 students. *Journal of Vocational Behavior, 34*, 161-178.
- Hesketh, B. (1998). Careers advice and tertiary decision-making "downunder" in Australia. *Journal of Vocational Behavior, 52*, 396-408.
- Kracke, B. (1997). Parental behaviors and adolescents' career exploration. *The Career Development Quarterly, 45*, 341-350.

- Lauver, P. J. & Jones, R. M. (1991). Factors associated with perceived career options in American Indian, White, and Hispanic rural high school students. *Journal of Counseling Psychology, 38*, 159-166.
- Lent, R. W., & Brown, S. D. (1996). Social cognitive approach to career development: An overview. *The Career Development Quarterly, 44*, 310-321.
- ✓Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitivetheory of career and academic interest, choice and performance. *Journal of Vocational Behavior, 45*, 79-122.
- ✓Lent, R. W., Brown, S. D., & Hackett, G. (1996). Career development from a social cognitive perspective. In D. Brown, L. Brooks & Associates, *Career choice and development* (3rd ed., pp. 373-421). San Francisco: Jossey-Bass.
- Lent, R. W., Brown, S. D., & Larkin, K. C. (1984). Relation of self-efficacy expectations to academic achievement and persistence. *Journal of Counseling Psychology, 31*, 356-363.
- Lent, R. W., Brown, S. D., & Larkin, K. C. (1986). Self-efficacy in the prediction of academic performance and perceived career options. *Journal of Counseling Psychology, 33*, 265-269.
- Lent, R. W., & Hackett, G. (1987). Career self-efficacy: Empirical status and future directions. *Journal of Vocational Behavior, 30*, 347-382.
- Lent, R. W., Lopez, F. G., & Bieschke, K. J. (1991). Mathematics self-efficacy: Sources and relation to science-based career choice. *Journal of Counseling Psychology, 38*, 424-430.
- Lucas, M. (1997). Identity development, career development, and psychological separation from parents: Similarities and differences between men and women. *Journal of Counseling Psychology, 44*, 123-132.
- Luzzo, D. A. (1993a). Reliability and validity testing of the Career Decision-Making Self-Efficacy Scale. *Measurement and Evaluation in Counseling and Development, 26*, 137-142.

- Luzzo, D. A. (1993b). Value of career-decision-making self-efficacy in predicting career-decision-making attitudes and skills. *Journal of Counseling Psychology, 40*, 194-199.
- Luzzo, D. A. (1996). A psychometric evaluation of the career decision-making self-efficacy scale. *Journal of Counseling and Development, 74*, 276-279.
- Mael, F. A., Morath, R. A., & McLellan, J. A. (1997). Dimensions of adolescent employment. *The Career Development Quarterly, 45*, 351-368.
- Matsui, T. (1994). Mechanisms underlying sex differences in career self-efficacy expectations of university students. *Journal of Vocational Behavior, 45*, 177-184.
- Matsui, T., Matsui, K., & Oshni, R. (1990). Mechanisms underlying math self-efficacy learning of college students. *Journal of Vocational Behavior, 37*, 225-238.
- Ministry of Education, (1997a). *Career Information and Guidance in New Zealand Schools*. Learning Media: Wellington, NZ.
- Ministry of Education, (1997b). *The 1997 TFEA Survey (for 1998 TFEA deciles): List of regular state, special, and independent schools surveyed, by territorial local authority - post review*. Ministry of Education Data Management Unit, Wellington, NZ.
- Niles, S. G., & Sowa, C. J. (1992). Mapping the nomological network of career self-efficacy. *The Career Development Quarterly, 41*, 13-21.
- Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.
- Poole, M. E., & Cooney, G. H. (1985). Careers: Adolescent awareness and exploration of possibilities for self. *Journal of Vocational Behavior, 26*, 251-263.
- Peterson, S. L. (1993). Career decision-making self-efficacy and social and academic integration of underprepared college students: Variations based on background characteristics. *Journal of Education Research, 18*, 77-115.
- Phillips, S. D., & Blustein, D. L. (1994). Readiness for career choices: Planning, exploring, and deciding. *The Career Development Quarterly, 43*, 63-73.
- Robbins, S. B. (1985). Validity estimates for the career decision-making self-efficacy scale. *Measurement and Evaluation in Counseling and Development, 18*, 64-71.

- Rotberg, H. L., Brown, D., & Ware, W. (1987). Career self-efficacy expectations and perceived range of career options in community college students. *Journal of Counseling Psychology, 34*, 164-170.
- Sharf, R. S. (1997). *Applying career development theory to counseling* (2nd ed.). Pacific Grove, CA: Brooks/Cole.
- Skorikov, V. B., & Vondracek, F. W. (1997). Longitudinal relationships between part-time work and career development in adolescents. *The Career Development Quarterly, 45*, 221-234.
- Slaney, R. B. (1988). The assessment of career decision making. In W. B. Walsh & S.H. Osipow (Eds.), *Career decision making* (pp. 33-76). New Jersey: Lawrence Erlbaum.
- Solberg, V. S., Good, G. E., Fischer, A. R., Brown, S. D., & Nord, D. (1995). Career decision-making and career search activities: Relative effects of career search self-efficacy and human agency. *Journal of Counseling Psychology, 42*, 448-455.
- Stumpf, S. A., & Colarelli, S. M. (1980). Career exploration: Development of dimensions and some preliminary findings. *Psychological Reports, 47*, 979-988.
- Stumpf, S. A., & Lockhart, M. C. (1987). Career exploration: Work-role salience, work preferences, beliefs, and behavior. *Journal of Vocational Behavior, 30*, 258-269.
- Stumpf, S. A., Colarelli, S. M., & Hartman, K. (1983). Development of the Career Exploration Survey (CES). *Journal of Vocational Behavior, 22*, 191-226.
- Super, D. E., & Hall, D. T. (1978). Career development: Exploration and planning. *Annual Review of Psychology, 29*, 333-372.
- Super, D. E. (1990). A life-span, life-space approach to career development. In D. Brown, L. Brooks, and Associates (Eds.), *Career Choice and Development* (2nd ed., pp.197-261). San Francisco: Jossey Bass.
- Super, D. E., Savickas, M. L., & Super, C. M. (1996). The life-span, life-space approach to careers. In D. Brown, L. Brooks, and Associates (Eds.), *Career Choice and Development* (3rd ed., pp.121- 178). San Francisco: Jossey Bass.
- Tabachnick, B. G., & Fidell, L. S. (1989). *Using multivariate statistics* (2nd ed.) New York: HarperCollins.

- \*Taylor, G. & Betz, N. E. (1983). Applications of self-efficacy theory to the understanding and treatment of career indecision. *Journal of Vocational Behavior*, 22, 63-81.
- Taylor, K. M., & Popma, J. (1990). An examination of the relationships among career decision-making self-efficacy, career salience, locus of control, and vocational indecision. *Journal of Vocational Behavior*, 37, 17-31.
- Taveira, M. C., Silva, M. C., Rodriguez, M. L., & Maia, J. (1998). Individual characteristics and career exploration in adolescence. *British Journal of Guidance and Counselling*, 26, 89-104.
- Vondracek, F. W., & Skorikov, V. B. (1997). Leisure, school, and work activity preferences and their role in vocational identity development. *The Career Development Quarterly*, 45, 322-340.
- Wheeler, K. G. (1983). Comparisons of self-efficacy and expectancy models of occupational preferences for college males and females. *Journal of Occupational Psychology*, 56, 73-78.
- Whiston, S. C. (1996). The relationship among family interaction patterns and career indecision and career decision-making self-efficacy. *Journal of Career Development*, 23, 137-149.
- Worthington, R. L., & Juntunen, C. L. (1997). The vocational development of non-college bound youth: Counseling psychology and the school-to-work transition movement. *The Counseling Psychologist*, 25, 323-363.
- Young, R. A. (1994). Helping adolescents with career development: The active role of parents. *The Career Development Quarterly*, 42, 195-203.

# ***Appendix A***

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MASSEY  
UNIVERSITY

# A L B A N Y

DEPARTMENT OF PSYCHOLOGY

June, 1998

The Principal

Dear

I am a postgraduate student completing a thesis for a Master of Arts (Psychology) degree and, as part of this, undertaking research on adolescent career development.

Although it is common knowledge that making the transition from school involves significant developmental tasks for adolescents, and the importance of career information and guidance is widely acknowledged, there has been little research conducted amongst New Zealand youth as regards career issues. This is despite the psychological well-being of young people being associated with successfully undertaking this transition, in recent times made more difficult by global trends and the rapid change occurring in the world of work.

I would therefore be grateful if Sixth Form students from your school could be invited to participate in a research project which investigates several factors integral to career exploration and the decision-making process. The overseas research suggesting that gender and ethnicity affect career choice outcomes is relevant both to Auckland's multicultural society and a workforce in which the women's participation is increasing. Students at school-leaving age face imminent career decisions so, by means of a survey, I wish to obtain the responses of this particular group of students to questions about career issues pertinent to them.

Your willingness to allow students to participate in this study would be greatly appreciated, and a step towards obtaining information which may have implications for the guidance given to our young people. The enclosed student Information Sheet describes the purpose of this study and the conditions under which students would participate. Information obtained from your students would be anonymous, therefore neither your school nor your students would be identified individually. At the conclusion of the study, a summary of the aggregated research findings would be sent to your school. This research has been approved by the Massey University Human Ethics Committee and is being supervised by Dr Philip Voss of Massey University at Albany, who can be contacted by phoning (09) 443-9663. I can be contacted by phoning (09) 638-6778.

I hope you are able to support my request and pass the information on to your Sixth Form Dean or Head of the Transition/Careers Department, whichever would deal with actioning the survey. I will shortly contact the school to discuss the matter.

Yours sincerely

Rae Henis



MASSEY  
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A L B A N Y

DEPARTMENT OF PSYCHOLOGY

***Career Development Amongst Adolescents In New Zealand:  
Exploring Options And Making Confident Decisions.***

**INFORMATION SHEET**

*My name is Rae Henis and I am researching aspects of career development amongst adolescents in New Zealand, as part of my MA(Psychology) degree. I can be contacted by phoning (09) 638-6778. This research is being supervised by Dr Philip Voss of the Department of Psychology, Massey University at Albany, who can be contacted by phoning (09) 443-9693. With your school's approval, you are part of a group of Form Six students invited to participate in this project.*

The time is approaching when you will be making the transition from school to work as part of the life-long process of career development. The world of work is changing rapidly as the 21st century approaches, and New Zealand is following the trends of other countries. This is likely to affect us all in ways which no one can yet predict. We are particularly interested in investigating how young people in New Zealand see themselves as being capable of exploring career options and making confident decisions.

Many studies have been carried out overseas looking at these issues, yet very little information is available about factors which may be unique to New Zealand youth. Therefore, your responses are a valuable source of such information and will in turn, help to ensure that the guidance given to young New Zealanders, meets their needs.

*You may decline to participate. If you agree to take part in this study, you will be asked to complete an anonymous questionnaire, taking about 30 minutes. This questionnaire will be collected and held securely by the researcher. Research material will be retained for a minimum period of five years. You will have the right to:*

- *Ask further questions at any time*
- *Refuse to answer particular questions*
- *Withdraw from the study at any time*
- *Provide information on the basis that it will remain completely confidential*
- *Have access to a summary of the research findings, which will be sent to your school once all the data have been collected and analysed.*



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DEPARTMENT OF PSYCHOLOGY

**Career Development Amongst Adolescents In New Zealand:  
Exploring Options And Making Confident Decisions.**

**CONSENT FORM**

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I understand I have the right to withdraw from the study at any time and to decline to answer any particular questions.

I agree to provide information to the researcher on the understanding that it is anonymous and completely confidential.

The information will be used only for this research and publications arising from this research project. A short summary will also be sent to my school.

I agree to participate in this study under the conditions set out in the Information Sheet.

**Signed:** .....

**Name:** .....

**Date:** .....

***It is important for us to know where we could make improvements to the questionnaire so please answer the following questions.***

*If you prefer to, please go back and make any specific comments on the questionnaire itself.*

How long did it take you to complete this questionnaire?

Did the instructions make it clear to you what was required?

Yes

No

If not, please comment:

Were you able to understand the way in which the questions were worded?

Yes

No

If no, what was difficult to understand and why?

Did you have any other difficulties answering the questions?

Yes

No

If yes, what was difficult for you and why?

Do you have any other comments to make about the questionnaire, or suggestions for improvement?

***Thanks for your feedback.***

The items in this questionnaire were presented to students without identifying the measurement scales that they represented. In order to make this information available item numbers for each segment have subsequently been bracketed, and the following list indicates the scale or variable represented. Note that the placement of CES scales in the questionnaire follows the questionnaire received from Dr D. L. Blustein, therefore the order differs from that of the original.

|   | <i>Item<br/>Numbers</i> | <i>Page</i> |
|---|-------------------------|-------------|
| <b>Career Exploration Survey</b>                    |                         |             |
| Exploration Process                                 |                         |             |
| Environment Exploration                             | 18 – 23                 | 121         |
| Self-Exploration                                    | 24 – 28                 | 121         |
| Intended-Systematic Exploration                     | 15 – 17                 | 121         |
| Frequency   | 35                      | 122         |
| Amount of Information                               | 1 – 3                   | 120         |
| Number of Occupations Considered                    | 65                      | 124         |
| Focus   | 10 – 14                 | 120         |
| Reactions to Exploration                            |                         |             |
| Satisfaction with Information                       | 4 – 9                   | 120         |
| Explorational Stress                                | 56 – 59                 | 124         |
| Decisional Stress                                   | 60 – 64                 | 124         |
| Beliefs   |                         |             |
| Employment Outlook                                  | 29 – 31                 | 122         |
| Certainty of Career Exploration Outcome             | 32 – 34                 | 122         |
| External Search Instrumentality                     | 40 – 42                 | 123         |
| Internal Search Instrumentality                     | 43 – 46                 | 123         |
| Career Decision-Making Instrumentality              | 36 – 39                 | 122         |
| Method Instrumentality                              | 47 – 50                 | 123         |
| Importance of Obtaining Preferred Position          | 51 – 55                 | 123         |
| <b>Career Decision-Making Self-efficacy</b>         | 66 – 99                 | 125         |
| <b>Parental Support Of Occupational Preparation</b> | 99 – 104                | 127         |
| <b>Demographic Variables</b>                        |                         |             |
| Gender  | 91                      | 126         |
| Ethnicity   | 93                      | 126         |
| Plans   | 96                      | 127         |
| Information   | 97                      | 127         |
| Work  | 105                     | 128         |
| Career Decision Status                              | 111                     | 128         |

## **Exploring Career Options and Making Confident Career Decisions**

*Thanks for agreeing to complete this questionnaire!*

*All of the questions which you will be answering are designed to find out just how much information you have about careers, how you have obtained it, and whether you feel confident about making career decisions at this stage. Please respond to each question or statement.*

- *For most questions you will only need to tick the box which best represents how you have behaved or how you feel. For example, you will be asked:*

*To what extent have you behaved in the following ways in the last 3 months?*

|  | <i>Little or none</i>    | <i>Somewhat</i>                     | <i>A moderate amount</i> | <i>A substantial amount</i> | <i>A great deal</i>                 |
|--|--------------------------|-------------------------------------|--------------------------|-----------------------------|-------------------------------------|
| Investigated career possibilities.             | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>    | <input checked="" type="checkbox"/> |
| Went to various career information programmes. | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>    | <input type="checkbox"/>            |

*If you had explored a great many career possibilities over the last 3 months, you would mark the final box on the scale "A great deal" ;*

*if you have been to one or two orientation programmes over the last 3 months, you would mark the second box "Somewhat" for the next question.*

- *Feel free to use any one of the available response boxes, whether labelled or not. The boxes represent a range of possible responses, in most cases on a 5-point scale.*
- *For a few questions, a brief written answer is needed.*
- *There are no "right" or "wrong" answers. Remember, your questionnaire is completely anonymous. The aim is to find out how young New Zealanders at your age are getting on with career issues.*



*You will see that the terms "job", "occupation", and "organisation" appear frequently. In this questionnaire:*

*"Occupation" refers to a person's regular work or profession such as banking, medicine, or retailing.*

*"Job" refers to the specific work tasks that a person performs such as loans advisor, heart surgeon, or computer salesperson;*

*An "organisation" is a firm, or workplace, such as the ASB Bank, a private hospital, or Microsoft.*

**How much information do you currently have? (1-3)**

|  | <i>Little or none</i>    | <i>Somewhat</i>          | <i>A moderate amount</i> | <i>A substantial amount</i> | <i>A great deal</i>      |
|--|--------------------------|--------------------------|--------------------------|-----------------------------|--------------------------|
| On what people do in the career areas you have investigated. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>    | <input type="checkbox"/> |
| On jobs, organisations, and job markets.                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>    | <input type="checkbox"/> |
| On how you'll fit into various career options and paths.     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>    | <input type="checkbox"/> |

**How satisfied are you with the amount of information you have on? (4 - 9)**

|   | <i>Not satisfied</i>     | <i>Somewhat satisfied</i> | <i>Moderately satisfied</i> | <i>Satisfied</i>         | <i>Very satisfied</i>    |
|---|--------------------------|---------------------------|-----------------------------|--------------------------|--------------------------|
| The <i>specific</i> job in which you are interested?                            | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>    | <input type="checkbox"/> | <input type="checkbox"/> |
| The types of organisations or work settings that will meet your personal needs? | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>    | <input type="checkbox"/> | <input type="checkbox"/> |
| The <i>specific</i> occupation in which you are interested?                     | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>    | <input type="checkbox"/> | <input type="checkbox"/> |
| Jobs that match your interests and abilities?                                   | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>    | <input type="checkbox"/> | <input type="checkbox"/> |
| The <i>specific</i> organisation or work setting in which you are interested?   | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>    | <input type="checkbox"/> | <input type="checkbox"/> |
| The occupations that are related to your interests and abilities?               | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>    | <input type="checkbox"/> | <input type="checkbox"/> |

**How sure are you? (10 - 14)**

|   | <i>Very unsure</i>       | <i>Moderately sure</i>   | <i>Very sure</i>         |
|---|--------------------------|--------------------------|--------------------------|
| That you know the type of job that is best for you?             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| That you know the type of organisation(s) you want to work for? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| That you know the exact occupation you want to enter?           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| In your preference for a specific organisation?                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| In your preference for a specific position?                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**To what extent have you behaved in the following ways over the last 3 months?**  
(15 – 28)

|   | <i>Little<br/>or none</i> | <i>Somewhat</i>          | <i>A moderate<br/>amount</i> | <i>A substantial<br/>amount</i> | <i>A great deal</i>      |
|---|---------------------------|--------------------------|------------------------------|---------------------------------|--------------------------|
| Taken part in different career activities (e.g., workplace visits, prepared a C.V.).                      | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/>        | <input type="checkbox"/> |
| Looked for opportunities to demonstrate skills (e.g., technology, leadership).                            | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/>        | <input type="checkbox"/> |
| Tried specific work roles to see if you like them (e.g., part-time work).                                 | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/>        | <input type="checkbox"/> |
| Investigated career possibilities.  | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/>        | <input type="checkbox"/> |
| Went to various career information programmes.  | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/>        | <input type="checkbox"/> |
| Obtained information on specific jobs or companies in a career area you might enter.                      | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/>        | <input type="checkbox"/> |
| Started up conversations with knowledgeable individuals in a career area you might enter.                 | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/>        | <input type="checkbox"/> |
| Obtained information on the labour market and general job opportunities in a career area you might enter. | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/>        | <input type="checkbox"/> |
| Researched information on specific areas of career interest.  | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/>        | <input type="checkbox"/> |
| Reflected on how past events in your life will affect your future career.                                 | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/>        | <input type="checkbox"/> |
| Focused your thoughts on the kind of person you are.  | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/>        | <input type="checkbox"/> |
| Thought about your educational background and career options.   | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/>        | <input type="checkbox"/> |
| Thought about your work experiences up till now.  | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/>        | <input type="checkbox"/> |
| Thought about your main strengths and weaknesses as they would affect your career.                        | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>     | <input type="checkbox"/>        | <input type="checkbox"/> |

**How do the employment possibilities look for: (29 – 31)**

|                                 | <i>Not good</i>          | <i>Adequate</i>          | <i>Very good</i>         | <i>Not applicable</i>    |
|---------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| The job(s) you prefer?          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| The organisation(s) you prefer? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| The occupation(s) you prefer?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**How certain are you that you will begin work when you leave school, or when you complete further education? (32 – 34)**

|  | <i>Not certain</i>       | <i>Moderately certain</i> | <i>Certain</i>           |
|--|--------------------------|---------------------------|--------------------------|
| At the specific job you prefer (e.g., primary school teacher, computer programmer, car salesperson). | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/> |
| For the specific company or organisation you prefer.   | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/> |
| In the specific occupation you prefer (e.g., teaching, computing, retailing).                        | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/> |

**On average, how many times per week have you specifically sought information on careers within the last few months? (35)**

None       1-2       3-4       5+

**How likely is it that each of the following activities will result in you achieving your career goals? (36 – 39)**

|  | <i>Very low</i>          | <i>Low</i>               | <i>Moderate</i>          | <i>High</i>              | <i>Very high</i>         |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Talking with individuals who have jobs in areas that you are considering to learn more about particular occupations. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Systematically determining the kinds of careers that various courses of study can lead to.                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Meeting with career counsellors to learn more about your career options.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Exploring various sources of occupational information (such as career resource libraries).                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**How likely is it that each of the following activities will result in you achieving your career goals? (40 – 50)**

|   | <i>Very low</i>          | <i>Low</i>               | <i>Moderate</i>          | <i>High</i>              | <i>Very high</i>         |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Obtaining information on the labour market and general job opportunities in your anticipated career area. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Asking friends and relatives about careers.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Asking other students about their career interviews.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Asking yourself what sort of job will meet your needs.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Learning more about yourself.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Thinking about how your past behaviour will relate to your future career.                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Thinking about the kind of person you are.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Planning your job search in detail.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Setting up a plan for investigating firms.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Developing questions to ask at interviews.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Systematically investigating the key firms in your career area.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**At the moment you are a 6th Form student. How important is it to you to? (51 – 54)**

|  | <i>Not important</i>     | <i>Somewhat important</i> | <i>Moderately important</i> | <i>Important</i>         | <i>Very important</i>    |
|--|--------------------------|---------------------------|-----------------------------|--------------------------|--------------------------|
| Work at the job you prefer?                    | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>    | <input type="checkbox"/> | <input type="checkbox"/> |
| Become established in a specific organisation? | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>    | <input type="checkbox"/> | <input type="checkbox"/> |
| Work in the occupation you prefer?             | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>    | <input type="checkbox"/> | <input type="checkbox"/> |
| Become established in a specific position?     | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>    | <input type="checkbox"/> | <input type="checkbox"/> |
| Work in the organisation you prefer?           | <input type="checkbox"/> | <input type="checkbox"/>  | <input type="checkbox"/>    | <input type="checkbox"/> | <input type="checkbox"/> |

***How much undesirable stress have the following caused you compared to other stresses which you experience? (56 – 64)***

|  | <i>In-significant</i>    |                          |                          | <i>About equal</i>       |                          |                          | <i>Most stressful</i>    |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Gathering information on specific jobs.                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Going for an interview with specific companies.                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Looking for a job.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Obtaining information about possibilities to further your education. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Deciding what you want to do.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Deciding on an occupation that would interest you.                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Deciding on a specific job within an organisation.                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Deciding on a specific organisation.                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Deciding on an academic major at polytech or university.             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

***How many occupational areas are you investigating? (65)***

**How much confidence do you have that you could:***(66 – 83)*

|  | <i>No confidence at all</i> | <i>Very little confidence</i> | <i>Moderate confidence</i> | <i>Much confidence</i>   | <i>Complete confidence</i> |
|--|-----------------------------|-------------------------------|----------------------------|--------------------------|----------------------------|
| Find information in the library about the occupation(s) that you are interested in.        | <input type="checkbox"/>    | <input type="checkbox"/>      | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>   |
| Select one major academic subject from all those you might be considering.                 | <input type="checkbox"/>    | <input type="checkbox"/>      | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>   |
| Make a plan of your goals for the next five years.   | <input type="checkbox"/>    | <input type="checkbox"/>      | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>   |
| Determine the steps to take if you are having trouble with an aspect of a course of study. | <input type="checkbox"/>    | <input type="checkbox"/>      | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>   |
| Accurately assess your abilities.  | <input type="checkbox"/>    | <input type="checkbox"/>      | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>   |
| Select one occupation from a list of occupations you are considering.                      | <input type="checkbox"/>    | <input type="checkbox"/>      | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>   |
| Determine the steps you need to take to successfully complete a tertiary study course.     | <input type="checkbox"/>    | <input type="checkbox"/>      | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>   |
| Persistently work at your studies or career goal even when you get frustrated.             | <input type="checkbox"/>    | <input type="checkbox"/>      | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>   |
| Determine what your ideal job would be.  | <input type="checkbox"/>    | <input type="checkbox"/>      | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>   |
| Find out about the employment trends for an occupation over the next ten years.            | <input type="checkbox"/>    | <input type="checkbox"/>      | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>   |
| Choose a career that will fit your preferred lifestyle.                                    | <input type="checkbox"/>    | <input type="checkbox"/>      | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>   |
| Prepare a good C.V.  | <input type="checkbox"/>    | <input type="checkbox"/>      | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>   |
| Change your course of study if you did not like your first choice.                         | <input type="checkbox"/>    | <input type="checkbox"/>      | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>   |
| Decide what you value most in a job.   | <input type="checkbox"/>    | <input type="checkbox"/>      | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>   |
| Find out about the average yearly earnings of people in a particular occupation.           | <input type="checkbox"/>    | <input type="checkbox"/>      | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>   |
| Make a career decision and then not worry about whether it was right or wrong.             | <input type="checkbox"/>    | <input type="checkbox"/>      | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>   |
| Change occupations if you are not satisfied with the one you enter.                        | <input type="checkbox"/>    | <input type="checkbox"/>      | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>   |
| Figure out how much you are prepared to sacrifice to achieve your career goals.            | <input type="checkbox"/>    | <input type="checkbox"/>      | <input type="checkbox"/>   | <input type="checkbox"/> | <input type="checkbox"/>   |

**How much confidence do you have that you could:** (84 – 90)

|  | No confidence at all     | Very little confidence   | Moderate confidence      | Much confidence          | Complete confidence      |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Talk to a person already employed in the field you are interested in.                                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Choose a major academic subject for tertiary study that will fit your interests.                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Identify employers, firms, institutions relevant to your career possibilities.                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Define the type of lifestyle you would like to live.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Find information about graduate or professional schools.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Successfully manage the job interview process.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Identify some other study courses or career alternatives if you are unable to get your first choice. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Your career choices will be influenced by factors unique to you. To give us some information about these, could you please answer the following questions by marking the spaces provided.**

Your age:                           Years                   Months  
 Your sex: (92)               Female               Male

**With which ethnic group do you most closely identify?** (94)

- Asian
- Indian
- New Zealander of European descent
- New Zealander of Maori descent
- Pacific Island Polynesian
- Other (please specify).....

**If you were not born in New Zealand, how many years have you been living here?**

- Less than 1 year
- 1-2 years
- 3-5 years
- 6-9 years
- 10 or more years

**What are your plans for next year?** (96)

- Return to school in 1999 and, when I do leave, go to:
- A job
  - A training course or work scheme
  - Polytech
  - University
- Leave school at the end of 1998 and go to:
- A job
  - A training course or work scheme
  - Polytech
  - University
- Undecided.

**From which sources have you received careers help or information?** (Please tick as many boxes as are relevant). (97)

- At school:  Senior teachers       Subject teachers       Counsellor  
 Transition/Careers adviser
- Home       Friends       Your own work experience  
 Career Expos/ Workdays       People in occupations  
 Other (please specify).....

Now, please circle which of the above has been most useful for you.

**To what extent do you involve your parents in your career exploration?** (99 – 104)

|  | Does not apply           |                          | Fully applies            |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| My parents often ask me about my vocational interests and plans.   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| My parents often draw my attention to various occupational options.  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| My parents try to point out advantages and disadvantages of a certain occupation.                                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| When considering a certain occupation, my parents point to the possibility of combining family and career in it. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| When considering a certain occupation, my parents point to future money-making or promotion opportunities.       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| My parents encourage me to seek information about as many occupations as possible.                               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**What work experience do you have? (105)**

During term time, do you have a paid job after school?

- Yes, I work for an average of \_\_\_\_\_ hours each week  
 No

Name your occupation(s).....

During vacation time, have you had a paid job?

- Yes →  Full-time, or  Part-time  
 No

Name your occupation(s).....

**Finally, do you have any jobs in mind for when you have completed your education? (111)**

- Yes

Please state below what types of jobs you are considering.

.....  
.....

Of the jobs you are considering, which job is your first choice? (if undecided, write "undecided")

.....

- No

***Thank you once again for taking the time to complete this survey;  
your participation is greatly appreciated.***

## ***Appendix B***

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Table B.1

Means and Standard Deviations for Significant ANOVAs by Ethnicity ( $p < .05$ )

| Ethnic Group  | Scale                                      |           | Ethnic Group  | Scale                           |           |  |  |           |
|---------------|--|-----------|---------------|---------------------------------|-----------|--|--|-----------|
|               | <i>M</i>                                   | <i>SD</i> |               | <i>M</i>                        | <i>SD</i> |  |  |           |
|               | Intended-Systematic Exploration            |           |               | Intended-Systematic Exploration |           |  | Importance of Obtaining Preferred Position |           |
|               | <i>M</i>                                   | <i>SD</i> |               | <i>M</i>                        | <i>SD</i> |  | <i>M</i>                                   | <i>SD</i> |
| Indian        | 2.18                                       | .86       | Asian         | 2.08                            | .89       |  | 3.18                                       | 1.01      |
| PI Polynesian | 2.85                                       | 1.07      | PI Polynesian | 2.85                            | 1.07      |  | 3.72                                       | .95       |
|               | Importance of Obtaining Preferred Position |           |               | Explorational Stress            |           |  | Importance of Obtaining Preferred Position |           |
|               | <i>M</i>                                   | <i>SD</i> |               | <i>M</i>                        | <i>SD</i> |  | <i>M</i>                                   | <i>SD</i> |
| Asian         | 3.18                                       | 1.01      | Asian         | 3.69                            | 1.22      |  | 3.18                                       | 1.01      |
| NZ Maori      | 3.77                                       | .92       | NZ European   | 3.03                            | 1.33      |  | 3.67                                       | .97       |
|               | Intended-Systematic Exploration            |           |               | Satisfaction with Information   |           |  | Explorational Stress                       |           |
|               | <i>M</i>                                   | <i>SD</i> |               | <i>M</i>                        | <i>SD</i> |  | <i>M</i>                                   | <i>SD</i> |
| NZ European   | 2.23                                       | .92       | NZ European   | 2.58                            | 1.973     |  | 3.03                                       | 1.33      |
| PI Polynesian | 2.84                                       | 1.07      | PI Polynesian | 3.04                            | 1.05      |  | 3.88                                       | 1.40      |
|               | External Search Instrumentality            |           |               |                                 |           |  |  |           |
|               | <i>M</i>                                   | <i>SD</i> |               |                                 |           |  |  |           |
|               | 2.63                                       | .63       |               |                                 |           |  |  |           |
|               | 3.04                                       | .82       |               |                                 |           |  |  |           |

Table B.2

Means and Standard Deviations for the Groups Within Each Demographic Variable for Post Hoc Analysis (Original Scale Scores)

| Demographic Variable | Dependent Variable              |                                      |                               |                         |  |           |                                      |           |
|----------------------|---------------------------------|--------------------------------------|-------------------------------|-------------------------|--|-----------|--------------------------------------|-----------|
|                      |                                 | Career Decision-making Instrumental. |                               | Environment Exploration |  |           |                                      |           |
| <b>Gender</b>        | <i>M</i>                        | <i>SD</i>                            | <i>M</i>                      | <i>SD</i>               |  |           |                                      |           |
| Female               | 3.32                            | .76                                  | 2.64                          | .98                     |  |           |                                      |           |
| Male                 | 2.96                            | .81                                  | 2.36                          | .86                     |  |           |                                      |           |
|                      | Intended-systematic Exploration |                                      | External Search Instrumental. |                         | Importance of Obtaining Preferred Position |           | Explorational Stress                 |           |
| <b>Ethnicity</b>     | <i>M</i>                        | <i>SD</i>                            | <i>M</i>                      | <i>SD</i>               | <i>M</i>                                   | <i>SD</i> | <i>M</i>                             | <i>SD</i> |
| Asian                | 2.06                            | .90                                  | 2.81                          | .76                     | 3.18                                       | 1.02      | 3.69                                 | 1.22      |
| Indian               | 2.18                            | .85                                  | 2.95                          | .83                     | 3.71                                       | .97       | 3.37                                 | 1.41      |
| NZE                  | 2.25                            | .94                                  | 2.62                          | .64                     | 3.71                                       | .95       | 3.04                                 | 1.38      |
| NZM                  | 2.64                            | 1.00                                 | 2.96                          | .66                     | 3.91                                       | .80       | 3.16                                 | 1.12      |
| PIP                  | 2.83                            | 1.09                                 | 3.01                          | .81                     | 3.80                                       | .84       | 3.84                                 | 1.31      |
|                      | Intended-Systematic Exploration |                                      | Environment Exploration       |                         | Importance of Obtaining Preferred Position |           | Career Decision-Making Self-efficacy |           |
| <b>Work</b>          | <i>M</i>                        | <i>SD</i>                            | <i>M</i>                      | <i>SD</i>               | <i>M</i>                                   | <i>SD</i> | <i>M</i>                             | <i>SD</i> |
| Experience           | 2.47                            | .98                                  | 2.61                          | .97                     | 3.84                                       | .95       | 3.24                                 | .63       |
| No exp.              | 2.00                            | .90                                  | 2.31                          | .85                     | 3.25                                       | .97       | 3.02                                 | .60       |
|                      | Environment Exploration         |                                      | Frequency                     |                         | Career Decision-making Instrumental.       |           | Method Instrumental.                 |           |
| <b>Information</b>   | <i>M</i>                        | <i>SD</i>                            | <i>M</i>                      | <i>SD</i>               | <i>M</i>                                   | <i>SD</i> | <i>M</i>                             | <i>SD</i> |
| School               | 2.61                            | .94                                  | 1.93                          | .73                     | 3.26                                       | .77       | 3.14                                 | .89       |
| Non-school           | 2.27                            | .90                                  | 1.64                          | .70                     | 2.89                                       | .82       | 2.79                                 | .91       |

| Demographic Variable | Dependent Variable            |           |                         |           |                                      |           |
|----------------------|-------------------------------|-----------|-------------------------|-----------|--------------------------------------|-----------|
|                      | Satisfaction with Information |           | Environment Exploration |           | Career Decision-Making Self-efficacy |           |
| Plans                | <i>M</i>                      | <i>SD</i> | <i>M</i>                | <i>SD</i> | <i>M</i>                             | <i>SD</i> |
| Return               | 2.62                          | .97       | 2.42                    | .91       | 3.11                                 | .63       |
| Leave                | 3.29                          | .92       | 3.00                    | .92       | 3.51                                 | .54       |
| Undecided            | 3.00                          | 1.04      | 2.91                    | 1.03      | 3.29                                 | .65       |

  

| Career Decision Status | Amount of Information |           | Satisfaction With Information |           | Focus    |           | Certainty of Career Exploration Outcome |           |
|------------------------|-----------------------|-----------|-------------------------------|-----------|----------|-----------|---|-----------|
|                        | <i>M</i>              | <i>SD</i> | <i>M</i>                      | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i>                                | <i>SD</i> |
| Decided                | 2.81                  | .81       | 2.96                          | 1.00      | 3.14     | 1.01      | 3.05                                    | 1.10      |
| Undecided              | 2.40                  | .74       | 2.56                          | .90       | 2.50     | .81       | 2.50                                    | 1.05      |
| Avoider                | 2.29                  | .86       | 2.50                          | .97       | 2.34     | .85       | 2.40                                    | 1.03      |

  

| Career Decision Status | Environment Exploration |           | Self-Exploration |           | Importance of Obtaining Preferred Position |           | Career Decision-Making Self-efficacy |           |
|------------------------|-------------------------|-----------|------------------|-----------|--|-----------|--------------------------------------|-----------|
|                        | <i>M</i>                | <i>SD</i> | <i>M</i>         | <i>SD</i> | <i>M</i>                                   | <i>SD</i> | <i>M</i>                             | <i>SD</i> |
| Decided                | 2.72                    | .96       | 3.21             | .97       | 3.84                                       | .96       | 3.32                                 | .62       |
| Undecided              | 2.40                    | .89       | 2.92             | .87       | 3.69                                       | .89       | 3.14                                 | .59       |
| Avoider                | 2.29                    | .90       | 2.68             | .90       | 3.29                                       | 1.02      | 2.96                                 | .59       |

  

| Career Decision Status | Frequency |           | Intended-Systematic Exploration |           | Internal Search Instrumental. |           |
|------------------------|-----------|-----------|---------------------------------|-----------|-------------------------------|-----------|
|                        | <i>M</i>  | <i>SD</i> | <i>M</i>                        | <i>SD</i> | <i>M</i>                      | <i>SD</i> |
| Decided                | 1.99      | .73       | 2.51                            | 1.00      | 3.34                          | .90       |
| Undecided              | 1.78      | .68       | 2.24                            | .96       | 3.32                          | .80       |
| Avoider                | 1.70      | .73       | 2.10                            | .92       | 2.97                          | .89       |

Table B.3

Means and Standard Deviations for the Groups Within Each Demographic Variable for Post Hoc Analyses (Factor Scores)

| Demographic Variable          | Factor   |           |          |           |             |           |
|-------------------------------|----------|-----------|----------|-----------|-------------|-----------|
|                               | Decision |           | Stress   |           | Exploration |           |
|                               | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i>    | <i>SD</i> |
| <b>Gender</b>                 |          |           |          |           |             |           |
| Female                        | -.18     | .99       |          |           |             |           |
| Male                          | -.22     | .99       |          |           |             |           |
| <b>Ethnicity</b>              |          |           |          |           |             |           |
| Asian                         | -.38     | .99       | .14      | .87       | -.22        | .87       |
| Indian                        | -.11     | 1.19      | .15      | 1.03      | -.24        | .86       |
| NZ E                          | .15      | .91       | -.31     | 1.03      | 1.06        | .96       |
| NZM                           | .31      | .78       | 9.85     | .77       | .31         | 1.05      |
| PIP                           | .10      | .83       | .48      | .89       | .27         | 1.12      |
|                               |          |           | E-02     |           |             |           |
| <b>Plans</b>                  |          |           |          |           |             |           |
| Return                        | -9.7     | .99       | -8.5     | .97       |             |           |
| Leave                         | .46      | .94       | .42      | 1.02      |             |           |
| Undecided                     | .32      | 1.04      | .28      | 1.04      |             |           |
|                               |          |           |          |           |             |           |
|                               |          |           |          |           |             |           |
| <b>Information</b>            |          |           |          |           |             |           |
| School                        | .13      | .97       |          |           |             |           |
| Non School                    | -.36     | 1.03      |          |           |             |           |
| <b>Work</b>                   |          |           |          |           |             |           |
| Experience                    | .14      | 1.02      | .21      | .91       | 3.23        | .63       |
| No Experience                 | -.30     | .85       | -.35     | 1.03      | 3.03        | .64       |
| <b>Career Decision Status</b> |          |           |          |           |             |           |
| Decided                       | .19      | .93       | 3.33     | .64       | .11         | .93       |
| Undecided                     | 7.59     | .96       | 3.18     | .58       | 4.06        | .94       |
| Avoider                       | -.28     | 1.04      | 2.19     | .60       | -.28        | 1.15      |