University Teachers' Attitudes Towards Giftedness, Gifted Students and Special Provision for the Gifted

S. M. Cooper

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UNIVERSITY TEACHERS' ATTITUDES TOWARDS GIFTEDNESS, GIFTED STUDENTS AND SPECIAL PROVISION FOR THE GIFTED

S.M. COOPER

1999

BEd (Hons)
USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.
ABSTRACT

What are the attitudes of university teachers towards giftedness, gifted and talented students and special provision for the gifted?

The present study explored the attitudes towards gifted and talented students by two cohorts of university teachers. Both cohorts, one from 1996 and the other from 1997, were third year, secondary Bachelor of Arts in Education students, both participating in a university module related to catering for the high ability student in the regular classroom. The 1997 cohort's attitudes were measured before and after the module. Subsequently, some willing participants from the 1997 cohort were followed through to ascertain whether their attitude has changed now that they are practicing teachers in high school classrooms in 1998.

Each cohort's attitudes were assessed on a series of attitudinal items related to gifted education using a 5-point Likert scale (5 = strongly agree to 1 = strongly disagree) using the Gagné and Nadeau (1991) attitudinal questionnaire. Additional demographic information complemented the findings.

The present study had particular implications in the short term, identifying that university teachers had preconceived ideas about the gifted and one cohort's attitudes adversely changed after participating in the tertiary module. That university teachers have these
attitudes prior to graduating has implications for the provision of gifted students in schools: are the needs of the gifted really being met if teachers have ambivalent to negative attitudes towards them? However, practising teachers who had previously participated in the tertiary module improved in their attitudes towards the gifted in the medium term.

In addition, the researcher was able to determine factors towards, and the overall effectiveness of, the tertiary module that affected attitudes towards gifted and talented students and their special needs by using both qualitative and quantitative measures.

Despite extensive reviews that teachers need to be trained in gifted education to adequately meet the needs of their gifted students in their classrooms, this study reports the need for more quality and more effective training at the tertiary level. This study also suggests the need for significant further research as there are limited studies in measuring attitudes towards the gifted by university teachers.
Declaration

I certify that this thesis does not, to the best of my knowledge and belief:

(i) incorporate without acknowledgement any material previously submitted for a degree or diploma in any institution of higher education;

(ii) contain any material previously published or written by another author person except where due reference is made in the text; or

(iii) contain any defamatory material

Signature: ____________________________
Date: 03/03/00
Acknowledgement

I would like to acknowledge the help given by my supervisor, Mrs Lesley Newhouse-Maiden.

Most importantly I would also like to acknowledge my family and friends for their ongoing support.

This thesis is dedicated to my father.
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CHAPTER ONE
INTRODUCTION

Background to the Study

As the millennium is rapidly approaching and causing societal changes such as the Y2K bug, it also brings reviews and changes in education. Various educational institutions are banding together for the first time in Western Australia, through the Curriculum Council, to address the needs of students in the new millennium. One such education institution, the Education Department of Western Australia (EDWA), has formulated policies to address these changes in a range of primary areas such as students at educational risk and the introduction of an outcomes focussed curriculum.

As schools head towards a new outcomes focussed education, the generational change, educators are required more than ever to cater for individual differences within the classroom and in particular, students at educational risk.

Students at educational risk are defined as “those students who may be at risk of not achieving the major learning outcomes of schooling to levels which enable them to achieve their potential” (EDWA, 1998a). Gifted students are often at risk of not achieving their full potential, and thus, are students at educational risk.
Gifted education is penetrating across the different educational levels to different degrees. Due to the Education Department of Western Australia's strategic plan in gifted education "more government schools are aware of the needs of the gifted" (D. Wood, personal communication, May 1997). For example, one government education district, the Swan Education District, is implementing gifted and talented programs for students in the early years of school to secondary schooling (Cooper, 1999a).

University institutions in Western Australia are also examining the recent policy and guidelines (EDWA, 1996) and the Talented and Gifted Students (TAGS) file (EDWA, 1995) to better equip university students with skills to cater for higher ability students in their classrooms. For example, since 1984 The Western Australian College of Advanced Education and known currently as Edith Cowan University, have run a module, Catering for High Ability (Gifted and Talented) Students. In 1996/7, besides studying a variety of content and researching a number of issues related to gifted education, the students were encouraged to study EDWA's gifted and talented policy. In 1997, the students also focussed on professional development materials produced by EDWA (e.g., the TAGS File), to enable university students to experience first hand strategies to cater for students in their future classrooms. These university students were also administered a questionnaire on their attitudes to gifted students (Gagné & Nadeau, 1994).

The key question the researcher posed as a practitioner with responsibilities in gifted education was: "Is there a significant change in attitudes from
university students participating in a university module on gifted education in the short and medium term?” There have been a limited number of studies carried out in this area. Therefore, to establish the significance of this present study, a literature review of the overall effect of gifted education attitudes and programs was undertaken.

Significance of the Study

Policy makers at government levels (Federal and State), are constantly faced with decisions of funding and resource allocation (Harslett, 1994). In 1995, The Western Australian Education Department completed a thorough review of policy and guidelines for gifted and talented students (EDWA, 1996), in line with Eastern States and international counterparts. These policy initiatives provide some of the necessary support especially for the classroom teacher in government schools. As more classroom teachers become aware of the needs of the gifted, they will hopefully influence these decision-makers to provide more resources to implement policies. But regardless of policy, as the literature review suggested, without positive attitudes by the teacher and proper education in gifted education the needs of these students are not adequately met (Beazley 1984; Guskin, Peng, & Majd-Jabbari, 1988; Hansen & Feldhusen, 1994; Tomlinson et al. 1994).

Acceptance of, and provision for, the gifted in schools basically relies on the qualified teacher. Yet a variety of research indicates qualified teachers continue to have little education in gifted education, (e.g., Hansen & Feldhusen, 1994 and Newhouse-Maiden & Williams, 1994). Minimal
research, particularly in Western Australia, has been conducted to study university students’ attitudes and ability to cater for gifted and talented students, once they have completed some initial education at the university level (see Chapter 2).

Therefore, there is a need to investigate the attitudes of university students. As the literature review reveals, this is especially important because establishing and maintaining a healthy attitude towards the gifted can lead to effective implementation of EDWA’s policy on gifted and talented education. Thus ensuring that teachers can be more accountable for their students academic well being. The willingness and competence of university students will help with the coordination and planning of services for gifted and talented students such as the Plan for Government School Education 1998-2000 (Students at Educational Risk Policy, 1998) into their curriculum planning. With the continued emphasis on social equity now through an outcomes focused education (Curriculum Council, 1998), teachers more than ever are compelled to cater for the individual needs of students. Hence, the importance of both healthy teacher attitudes and participation by teachers in university education modules relating to gifted education.

Attitudes of teachers toward gifted students can affect not only the students and their performance, but also the acceptance and effectiveness of the gifted program and the morale of the school as a whole (Clark, 1992). Failure to recognise and deal with attitudes resulted in the failure of some
gifted programs (Newland, 1976). Therefore, it was important to the present study to determine the attitudes of both qualified and university students, and historically, the impact of gifted educational programs.

Many decisions regarding provision for the gifted in schools are not based on considering the intellectual and affective development of the gifted. A major factor to be examined is the attitude of university students, so that appropriate educational strategies in schools can be more effectively implemented. This is important as the literature review reveals that teacher attitudes can effect the gifted students and the gifted program effectiveness (Clark, 1992 and Newland, 1976). It became clear that further studies should examine the attitudes of teachers, qualified and novice, towards the gifted and their needs. The significance of this research, as stated, lies in the fact the research about attitudes towards the gifted by university students was limited.

The Purpose of the Study

Methodologically, the purpose of the present study was to capture as accurately as possible university students' attitudes towards the gifted, in regard to their perceived value of students as individuals, and their contribution to society. Both qualitative and quantitative methods were utilised to enhance the use of the Gagné-Nadeau (1994) attitude questionnaire (see Appendix A). Substantively, the study attempted to clarify some general assumptions held about the education of gifted children in relation to teacher attitudes as final year students and as first year
teachers. Themes that emerged from the study are used to identify directions for further research on these teachers' attitudes and practices for the gifted.

Research Questions

From the researcher's key question, "Is there a significant change in attitudes of university students participating in a university module on gifted education in the short and medium term?", the following five research questions and structure (see Appendix B) were formulated to guide the study:

1. **Novice Teacher Attitudes - attitudes towards the gifted, and gifted provision, using Gagné-Nadeau Attitude Questionnaire.**

Did students from Edith Cowan University in 1996 and 1997, react positively, negatively or were in an ambivalent way towards the gifted in the following sections as identified by Gagné-Nadeau (1994):

A. Needs of gifted children and support for special services;

B. Objections based on ideology and priorities;

C. Social usefulness of gifted persons in society;

D. Isolation of gifted persons by others in the immediate environment;

E. Attitudes towards special homogenous groups, classes, schools; and

F. Attitudes towards accelerative enrichment? (see Appendix H).
2. **The Comparison of attitudes of the 1996/97 cohorts as university students.**

2a. Was there a difference in attitudes towards the gifted between the two cohorts overall and between each section (as listed in Q1)?

2b. If so, what could be some possible factors contributing towards this?

3. **Social factors affecting university students' attitudes towards the gifted**

   Within each cohort, did the university students' gender, age and/or teaching area play a common, significant factor in their attitudinal responses towards the gifted?

4. **Attitudes of pre and post module for students in the 1997 cohort.**

   Was there a change in attitudes from those that were held at the beginning of the module by university students in the 1997 cohort and at its completion?

5. **Change of attitudes of beginning teachers from the 1997 cohort in 1998**

5a. Have their attitudes towards the gifted changed (for better or worse) since graduating?

5b. If so, what factors might have contributed in bringing about these attitudinal changes?

Methodologically, the researcher was interested in how accurately the quantitative and qualitative data measured student attitudes before university
(i.e., their own experience), during university (i.e., long term practical and participation in university module on gifted education), and after university (i.e., as practising teachers). Response to this question was synthesized in the discussions of the findings (see Chapter 7).

**Operational definitions and abbreviations**

The two essential terms that required a clear definition was firstly, giftedness, to clearly differentiate this concept from talent; and secondly, a general definition of attitudes.

**Giftedness**

A review of the relevant literature suggested that few of the surveys on perception studies seemed to examine an initial common definition of “who are the gifted?” and “how do you define giftedness?” When teachers conceptualise the term ‘gifted’, one teacher’s criteria for being gifted could be different from another (Schack & Starko, 1990). With a multiplicity of definitions of what giftedness is, the university students and graduate teachers participating in the present study were encouraged to use Gagné’s (1994) definition and theoretical model of giftedness, which had been adopted by The Education Department of Western Australia:

“Giftedness” is conceptualised as outstanding ability in a number of domains and “talent” as exceptional performance in various domain-related fields (Gagné, F., 1985, cited in EDWA TAGS File, 1995, p.ID.3).
The model (see Figure 1.1) included the intrapersonal and environmental catalysts that represented the factors needed to effect the transformation of gifts to talents.

**Figure 1.1.** Gagné's differentiated model of giftedness and talent.

This definition and model of giftedness and talent (see Figure 1.1) was selected because it clearly differentiated giftedness from talent. Hence the
model highlighted both intrapersonal catalysts and the environmental catalysts, which play a significant role in determining an individual’s change from giftedness (or potential) to a manifested talent. One of the major determinants in this model of talent development are attitudes towards giftedness, talent and the gifted. This key catalyst is both reflected in the attitudes of gifted students (as part of personality) and an environmental catalyst reflected in the personality and behaviours of teachers and significant others towards the gifted (see Figure 1.1).

Attitudes

For the purpose of in the present research the following general definition of attitudes was used:

Attitudes are enduring mental representations of various features of the social or physical world. They are acquired through experience and exert a directive influence on subsequent behaviour (Breckler & Wiggins cited in Baron & Byrne, 1991, p.138).

Attitudes then are tendencies to evaluate objects, events and people in certain ways. The three main components of an attitude are cognitive, affective and behavioural (Burns, 1991; Baron & Byrne, 1991). However, if the affective component is too strong and it determines the behaviour towards the person or what they stand for and do, then this often results in prejudicial and discriminating behaviours. The literature revealed that attitudes are learned and that each of these three components of attitude is to some degree dependent upon the other in terms of resulting behaviour (Baron & Byrne, 1991; Newland, 1976). Hence, it was anticipated that
participation in a module on gifted education at university level would exert a positive influence on future teacher behaviour, and temper the affective component resulting in more rational decisions being made in classrooms towards the gifted and provision for special needs.

Environmental catalysts such as the intervention of prior experience of participating in a gifted program and the participants' (i.e., the university students) intrapersonal catalysts, such as willingness to self-report (i.e., in a questionnaire) were monitored to find out whether university students’ attitudes were affected positively towards the gifted (see Figure 1.1). The researcher hypothesised that both intrapersonal catalysts and environmental catalysts (i.e., lecturers’ program) would play a significant part in forming teacher attitudes towards gifted students in the short term, and lead them to want to develop their own students' gifts in the future. Hence, both intrapersonal and the environmental catalysts (i.e., the teacher, and the module) were investigated. This established how significant a role these catalysts played in forming university students' attitudes towards gifted students.

Abbreviations

The major abbreviations (many of which are labels used in WA), which are used within the body of the present research, are defined below:

- **E.D.W.A** – The Education Department of Western Australia.
- **T.A.G.S** – Talented and Gifted Students
- **S.A.E.R** – Students at Educational Risk.
CHAPTER TWO
REVIEW OF LITERATURE

Introduction
Research in the area of attitudes towards the gifted, focuses mainly on qualified teachers. In view of the fact that the attitudes of university students towards the gifted, particularly in an Australian context, was very limited, a general literature review was undertaken.

Wherever possible the researcher contextualised the literature review within the institutions of education in Western Australia, in particular, the Education Department of Western Australia, whose historical stance towards gifted education had been mandated by policies and guidelines since the late 1970’s (Beazley, 1984; Mossenson, 1981; Ministry of Education, 1992).

The purpose of the historical review (and the content of the sections in the literature review) was to highlight the need for teacher education and the impact of teachers’ positive attitudes towards the successful implementation of programs for the gifted.
Review of General Literature on Attitudes towards the Gifted

A historical overview of gifted programs in Western Australia

Historically, in one form or another, civilisations have valued the talents and gifts of humankind: whether being the artistic in Neolithic times, the physically astute in the classical world, or the privileged few educated in the Middle Ages. However, increasingly throughout the twentieth century, an egalitarian society and education for all has emerged. Momentum for gifted education arose with other educational needs (Marland Report, 1972), yet it is one of the few fields of education that has not progressed and been successfully implemented to promote both equity and excellence and is still dubbed elitist (Newland, 1976 and Boag, 1990). However, as various disciplines in education (such as philosophy, sociology and psychology) have developed, so have educators' views towards the gifted and the need for gifted education provision (Davis & Rimm, 1994).

In Western Australia, provision for gifted and talented children in government schools can be identified back to 1911, when Perth Modern School began its approach to promoting excellence in education until the 1960's.

The Dettman Report (EDWA, 1969) was the first official report with recommendations for gifted students. A member of this committee, Dr David Mossenson, (EDWA, 1978), former Director General of Education, challenged the ambivalence towards the legitimisation and provision of
gifted education. He allowed acceleration programs for Year 7 students into high schools and subsequently, various specialist schools arose (Nash, 1995). These programs took the form of either school based or supplementary programs. A special task force, the Gifted and Talented Children’s Program Project Group, was formed by Mossenson (EDWA, 1981) to promote adequate provision for the gifted. Many schools were also adequately addressing the needs of gifted and talented students. Examples included the school-based program at Rossmoyne Senior High School (Newhouse & Jones, 1983) and, EPIC (Extension Program through Individualised Curriculum) established in 1981. The first official system level program in Western Australia was at Girrawheen SHS, which was the pilot school for the state’s Special Secondary Placement Program (Honeyman, 1983). This program is still operating in 1999.

In the 1980’s the Labor Government initiated two reviews, the Kelly Review (EDWA, 1983) and the Beazley Report (1984), which saw the replacement of a number of earlier system programs. For example, Special Interest Centres (S.P.I.C.E) for Year 5 students and Full-time Extension Classes (F.U.T.E.C) for Years 6-7 students in primary schools were replaced with Primary Extension and Challenge (P.E.A.C), a part time withdrawal program for Years 5-7 (Peters, 1993). As primary and secondary schools were now deemed responsible for the education of academically talented students, the emphasis was placed on school-based programs supported by system-level programs. System level programs included the Secondary Extension and Challenge (S.E.A.C), Special Focus
Programs (S.F.P), Mentor programs (EDWA, 1985), Special Secondary Placement Program (S.S.P.P) and Primary Extension and Challenge (P.E.A.C). The later two programs have continued into 1999.

Over a decade later, the Education Department of Western Australian undertook its own reviews. Policy for gifted education that was formerly required by accountability and devolution reforms (EDWA, 1978, 1981 & 1986) was revamped. The 1994 policy was revitalised and realigned with current gifted and talented research, printed and distributed to all government schools in Western Australia in 1996. The policy revamp was part of the Department of Employment, Education and Education (DEET) funded Strategic Plan for Gifted Education from 1994 to 1996. The strategic plan included other initiatives such as the production of the TAGS professional development file, Tagging TAGS CDROM and TAGS coordinators, education for secondary and primary school teachers; a review of PEAC and recommendations (Cook, 1995); a telematics program and an early childhood booklet for parents and teachers of young gifted children (Wood, 1997). As part of this Strategic Plan a conference with international educator, Professor Francoys Gagné from the University of Montreal, Canada in 1996, was arranged by the researcher. This was an appropriate professional development strategy for teachers, as the Education Department’s policy and TAGS file are based on Gagné’s model and definition of giftedness and talent (see Figure 1.1).
Theoretically and practically, EDWA schools were prepared to implement the policy and practices planned for the education of the gifted by the mid 1990's. However, as findings later revealed, effective policy implementation by teachers in government schools was not evident even in the late 1990's. Therefore, it was important to determine the attitudes of both qualified and university students, and historically, the impact of gifted educational programs.

Support for teacher training in gifted education

Generally, the literature reviewed indicated a need for improved pre-service education of teachers in the field of gifted education (Begin and Gagné, 1994a & 1994b; Copenhaver & McIntyre 1992; Gallagher, Coleman & Nelson 1995, and Schack & Starko 1990). It was recognised that specific education in the area could also help to eliminate some of the myths, (Silverman, 1992; Gross, 1994c) held by many teachers, such as special provision for the gifted creates elitism, and their ability to identify accurately gifted and talented students (Shore, Cornell, Robinson, & Ward, 1991).

Hansen & Feldhusen (1994) found that teachers who had specialised in pre-service/graduate programs in gifted education demonstrated greater teaching skills and provided a more positive learning environment in gifted education. Martinson's research showed (McLeod & Cropley, 1989) teachers generally displayed a more favourable attitude towards the gifted and provision for their education.
The effects of lack of involvement in gifted education by teachers and their lack of tolerance for the gifted students have also been studied (Schack & Starko 1990; Copenhaver & McIntyre 1992). These researchers examined the differences between pre-service, experienced teachers (without experience teaching gifted students) and qualified teachers of the gifted. They concluded there was a need for improved pre-service education of teachers in the field of gifted education.

Robinson (1994) suggested that the needs of pre-service teachers be best met at an undergraduate level. He found that moving from pre-service to inserviced teachers that "trained teachers were more likely to emphasise higher level thinking and to de-emphasise grades than untrained teachers" (p.113). Livingstone & Borko (1989) also found that teachers do begin to learn during pre-service programs, and that there is a need to structure such programs at the novices' level of readiness in order to maximise cognitive development. Starko & Schack (1989) also emphasised the need to provide pre-service teachers not only with the knowledge, but the experience to help raise the self-efficacy of their gifted students, and to use desired teaching strategies for the gifted as identified by Coil, 1996; Dalton & Smith, 1986 and Maker, 1982. If training is at the university students' required cognitive level and practical experiences are given then a more sound knowledge base evolves and positive attitudes develop. in order to produce their best results for gifted students.
Overall, Guskin et al (1988) suggest further investigations are required to determine how much learning is transferred into actual practice. As Lindsey (1980) concluded:

> These developments are important but the sum of them all [teacher education, research, and funding in gifted education] can be only as effective as the teacher makes them in daily regular classroom or in special classes (p.7).

These findings were further justifications for the present study.

**Attitudes towards special homogenous groups, classes, and schools for the gifted**

There is a lack of consensus regarding the best type of provision for the gifted. Roberts, Ingram & Harris (1992) found gifted students left in a regular school program made less progress in developing higher thinking skills than those involved in withdrawal programs. Feldhusen and Kroll (1991) found gifted students in a regular classroom started with a positive attitude but this soon declined and they became bored through lack of challenges. Burton-Szabo (1996) suggested that the gifted cannot develop their talents ("unique characteristics") if placed in the mainstream and if their talents are not developed they can academically fall below average, a finding also supported by Monsson in Roberts, Ingram & Harris, (1992). To address this problem, a variety of special programs such as withdrawal or pullout programs, full time self-contained classes, acceleration, cluster grouping, specific participant groupings and mentoring programs. All such programs have evolved to recognise and develop the special needs of gifted
students. For example, each endeavors to assist the gifted to progress at his/her own pace with similar ability peers, and to provide a challenging and stimulating curriculum at the student's appropriate ability level (Feldhusen, 1991; Gross, 1994a).

Observation by the researcher of gifted students at a primary (Opportunity 'C' class) and secondary fulltime self-contained class (selective high school) in the Eastern states revealed the need for special programs in their schools so they can attain self-actualisation and not be bored (Cooper, 1999a). In the Western Australian context, a Senate Select Committee Report (1988) found when gifted and talented students were withdrawn from the regular class to attend their special classes, the regular students developed greater confidence in their abilities.

Kulik and Kulik (1984, 1987) have conducted comprehensive studies in favour of special provision for the gifted. Their various studies also affirmed that gifted students do better in special ability grouping classes than in the regular classroom.

In contrast, Slavin (1986, 1987, 1990) and Oakes (1985) advocate heterogeneous grouping. They believe ability grouping provides no real benefits to the gifted or any child in the education system. However, Kulik and Kulik (1992) argue that Slavin and Oakes's work is not supported by evidence and that the studies they reviewed were outdated.
When applied to the Western Australian context for example, Oakes's research (1985) states, "...new school organizational schemes [need to be sought] that support efforts to provide equal classroom opportunities...more limited reforms should be attempted to equalize the effects of schooling" (pp.110-11). This clearly is outdated as Western Australian government educational policies and frameworks, such as the Social Justice policy (1992), the Students at Educational Risk policy (EDWA, 1998a), the Policy and Guidelines for the Education of Gifted and Talented Students (EDWA, 1996) and the Curriculum Framework (Curriculum Council, 1998). These policies reflect unequal treatment of all students, that is, each student is an individual and has their own needs. Through these current policies and frameworks students have the opportunity to achieve excellence, or at least their potential regardless of funding, and ideologies in basic equity.

In relation to Gagné's Differentiated Model of Giftedness and Talent (see Figure 1.1), general attitudes towards ability grouping necessitate an examination of intrapersonal catalysts such as motivation and self-esteem. Motivation and self-esteem can affect gifted students' ability to achieve their potential. For example, gifted children (as do all children) need to be given appropriate challenges or needs to be in a state of 'task-involvement' (Czikszentmihalyi, 1975), particularly in a heterogeneous setting. If not, they can find the task slow and unstimulating, their motivation can suffer and consequently, they may even be overlooked for selection into a gifted program (Clinkenbeard, 1994; Gross, 1994d). Additionally, another issue arising from both sides of the ability grouping debate is that of the self-
esteem of students in ability groups, whether gifted or lower achievers. Allen (1991) analysed this issue when reviewing research by Kulik & Kulik (1984), Slavin (1986) and Oates (1985), and concluded that there was only a small effect of grouping on self-esteem. Feldhusen & Hoover (1986) concluded gifted students self concept (correlated with self esteem) may be influenced positively by participation in homogeneously grouped gifted programs.

Furthermore, Allan (1991) identified other issues in response to ability grouping that ought to be considered: “issues such as the impact of adult attitudes towards grouping...are crucial...neither of the two studies discusses the importance of teacher and parent attitudes...”(p.64). Gamoran (1987), Allen (1991), and Van Tassel-Baska (1992), suggests that the overall management structure (i.e., instructional strategies, students’ attitudes, and school decision making processes) need to be examined, not just grouping practices.

*Levels of attitudes affecting type of provision*

On the basis of attitudes towards special provision for gifted students, McLeod & Cropley (1989) identify four groups that members of society can be divided into:

1. those who care and are passionate about the needs and special provision for the gifted;
2. those who do not want extra resources spent on already 'over endowed' children;
3. those who believe society has a responsibility to help all students reach their own potential,
4. and those who are totally indifferent towards the gifted (pp.1/2).

An attitude linked with Group 2, which often prevails when mentioning the need for special programs and/or classes for the gifted, is 'elitism'. Many researchers (Newland, 1976; Boag, 1990 and Gross, 1994c) reject this level of opposition and clearly articulates the contradictions of elitism, with comparisons to the money and resources spent on training an athletic elite.

Another level of opposition is the separation of students into gifted and other groups, is seen by some as increasing use of labelling. Research (Geffen, 1991; and Kolb & Jussim, 1994) indicated that teachers' perceptions of the label "gifted" became more positive as they had opportunities to interact with gifted and talented students and participate in gifted training (see also pp. 16-17 of the literature reviewed that supported this view).

Although the majority of gifted education writers and researchers support ability grouping, many decisions regarding provision of the gifted in our schools are not based on considering the effects on the gifted. The attitudes of the novice and practising teachers needed to be examined so that
appropriate educational strategies at school levels could be more effectively implemented.

Attitudes towards acceleration

A nativist approach to education assumes the intellectual development and emotional growth proceeds in a fixed pattern (i.e., tend to have a chronological age as a predictor of readiness). “However, forty years of empirical research on student development and learning has shown us that chronological age is not a reliable indicator of the level at which a child can, and should, be working” (Gross, 1995, p.295). Schools that adopt an environmentalist approach examine both the intellectual and socio-emotional development and accommodate provision in regard to individual differences and prior learning, as aligned with Gagné’s Differentiated Model of Giftedness and Talent (see Figure 1.1).

Acceleration of gifted students is one such method in catering for individual learning rates. Acceleration is simply defined as “any strategy which allows students to progress more quickly than their age peers” (NSW Department of School Education, 1991, p.14). Acceleration can adopt the form of subject acceleration, whole grade skipping, early entry, or whole-class acceleration such as University High School in Melbourne, Victoria (Cooper, 1998).

There is again the debate on the merits of acceleration compared to enrichment/extension. Diffusing gifted education instructional strategies
(i.e., as in the TAGS file) into a heterogeneous environment is one strategy, but research (referred to earlier in this study) suggested that it does not truly cater for the specific needs of the gifted, as acceleration or ability grouping does. Elkind (1988) found students who skip a grade or enter school early are provided with developmentally appropriate education. However, other factors such as the social and emotional needs, socio-economic status, and developmental level need to be carefully examined (Southern & Jones, 1991). However, most research on acceleration indicates that gifted students, in particular the extremely gifted, are not harmed intellectually or psycho-socially by this experience (Gross, 1992; Rogers & Kimpton, 1992; Sayler & Brookshire, 1993).

However, one of the problems with this approach is the lack of understanding, and poor conception of what acceleration means. Despite the strong positive research that has occurred over a long period, in support of its effectiveness (Borland, 1989 and Van Tassel-Baska, 1986, 1992), many educators do not deem it a relevant, viable option. “Probably no educational strategy developed to respond to the academic and social needs of gifted students is hedged about and clouded with so many myths and misconceptions as is acceleration” (Gross, 1994c, p12).

Southern & Jones (1991), Braga (1971) and Rogers & Kimpton (1992) found that practitioners generally had a negative attitude towards acceleration, particularly when considering early entry and the socio-emotional factor, despite the literature revealing positive benefits. The
practitioners in Southern & Jones's and Braga's studies, based their attitudes from personal experiences. Generally, those who had themselves been accelerated as students had a more favourable attitude than those whom had not and/or who had little experience with gifted students and/or gifted training. As Van Tassel-Baska (1992) observed:

Kulik & Kulik (1984) in their recent meta-analysis of the effects of acceleration note that when convincing research evidence collides with prevailing social values, social values will out. Most research reviews that have been conducted on acceleration ... have shown it to be a highly effective intervention technique with intellectually gifted learners Goldberg, 1958; Reynolds, Birch, & Tushet, 1962; Begle, 1976; Gallagher, 1969; Daurio, 1980; Kulik & Kulik, 1984. (cited in Maker, 1986, pl79).

This had implications for the present study. Intervention strategies, particularly early intervention strategies, are highly supported by the SAER policy (EDWA, 1998a). Early intervention strategies are suggested for implementation in the classroom in order to assist the gifted to reach their potential at any age. However, from the literature review, it is evident many positive attitudes are only fostered towards the gifted when teachers have had the experience of working with gifted students, thus having the opportunities and experiences to implement intervention strategies.

The degree to which excellence and equity are fostered in education and the zeitgeist towards the gifted may differ from one societal context to another (Newhouse-Maiden & Williams, 1996). Newland (1976) suggested it is important for positive action, for both society and the gifted, to develop attitudes that will be socially contributive.
Negative teacher attitudes towards the gifted

Rejection may in part be due to the actions and attitudes adopted by the gifted themselves. Clark (1992) suggested these attitudes maybe the result of other people's and society's attitudes and prejudices towards gifted children.

The literature reviewed has suggested that the attitudes towards the gifted, throughout time, within different societal contexts, have generally been negative or dealt with suspicion (Clark, 1992; Marland, 1972).

In America in the 1960's and 70's, Newland (1976) and the Marland Report (1972) described negative attitudes towards the gifted predominantly coming from those teachers not trained in gifted education. Rosenthal and Jacobsen (1968 cited in Barry and King, 1993) and Clark (1992) focussed research on student self-fulfilling prophecy (known also as the 'Pygmalion effect'), and demonstrated how important teacher attitudes were for student learning. Terrassier (1981) extended this concept further and explained how gifted children suffer what he called:

...the Negative Pygmalion Effect: a teacher, unaware of the intellectual precocity of a pupil, expects from him a normal, average school efficiency and encourages him to achieve at a level very far behind his capabilities. In this case, the preconceived idea of the teacher acts as a major impediment to the expression of the potential of the gifted child. Most gifted children are in such a situation (p.83).

Some of these negative attitudes held by teachers prevail because gifted students may be a perceived threat by the teacher, and hence, the teacher
may be unable to maintain a personal control over ‘their’ classroom (Cooper, 1979). For example, catering for the gifted may require changes in the classroom routine causing some teachers to feel threatened and resentful (Wallace, 1983). As stated earlier (see p17), there was a need to review the effectiveness of teacher education so educators do not see gifted children as nuisances or threat (Worchester, 1956), thus, diminishing later negative attitudes, through the behavioural component.

In Western Australia, it was documented in 1978 and 1980 with Dr Miriam Goldberg’s visits, that the general lack of special programs for the gifted in independent schools was due to its low priority on the independent schools agenda (Goldberg, 1981). Twenty years on it appears the central bodies are still not “striving for excellence” in the way the Education Department of Western Australia has mandated for this field of education.

The Catholic Education Office of Western Australia does not have a policy for gifted and talented education. Some schools offer enrichment programs and/or participate in national competitions such as ‘Tournament of Minds’, but there is no centrally coordinated or funded effort in the form of policy or support materials (G. Mitchell, personal communication, Nov. 1998).

Although the Catholic Education Journal has a motto “striving for excellence”, the efforts to date are placed “in the curriculum areas such as the Curriculum Framework and collaborative learning” (G. Mitchell, personal communication, Nov. 1998).
Many government schools in Western Australia are catering for the needs of the gifted, as stated in Chapter 1. One such government education district, the Swan Education District, is in an educational metropolitan region where the 'blending of ideas' between mainstream teachers and teachers of the gifted are being developed. For example, the researcher initiated and coordinated a supplementary gifted program for junior primary students (titled, Growing Poppies) in the Swan Education district; schools participating are required to send a mainstream teacher representative to attend professional development organised by specialist teachers of the gifted (Cooper, 1998, 1999). Such requirements have been influenced by research such as that by Gallagher, Coleman and Nelson (1995). They compared the perceptions of educators of gifted students with mainstream education teachers in middle school, and those specialising in cooperative learning situations. Their data analysis revealed a larger effect size, where results suggested a major gulf existed between the perceptions of the key groups of educators. They concluded that there was a need for more communication and blending of ideas between specialist teachers of the gifted and mainstream teachers.

Overall, there is a need for the present study to examine the effectiveness of a university module on gifted education and the attitudes preconceived and conceived before and after such training.
Attitudinal perspective of university students towards the gifted

There were very few specific studies focussing on university students' attitudes. Clark (1992) and Weiner and O'Shea (1963) found that university students who had attended lectures on the gifted displayed more favourable attitudes towards the gifted child. This was supported by a small study by Newhouse-Maiden and Williams (1994), in a Western Australian university, and highlighted some of the positive effects a university module can have on changing student attitudes.

Other than these small studies, the literature review revealed no other major studies that examined the attitudes of university students towards the gifted.

The present study was opportune as it addressed the key issue regarding teacher attitudes towards gifted education and the gifted student.
CHAPTER THREE
LITERATURE ON METHODOLOGY

In the present research, there was a need to measure quantitatively the attitudes towards gifted and talented students by university students, and later as graduate teachers. In order to measure attitudes, a clear definition was provided (see p. 10). Next, as attitudes are difficult to observe these needed to be measured as effectively as possible by some form of indirect means. A number of instruments for measuring attitudes were identified for possible selection.

The Q-sort technique, the paired comparisons method, interviews, attitude scales, rank order scales, sociometric procedures, the semantic differential technique, behavioural observations and projective methods are specific instruments to measure attitudes (Burns, 1991). Most of these methods were deemed inappropriate because they were considered too time-consuming for use in university classes. The justification for selecting one of these instruments, an attitude questionnaire by Gagné-Nadeau (1991), was also examined.

A summated rating scale, also known as a Likert scale, was chosen because this measured the empirical data that was based on the participant’s attitudes. As a number of cohorts of university students were surveyed, a questionnaire was considered advantageous because it would have been impractical to attempt to see each participant personally. A questionnaire
was also cost efficient, assisted with anonymity and minimised possible bias due to the presence of the researcher, and generally the validity and reliability of such scales are high (Burns, 1991). An already prepared attitude inventory was chosen “as with all tests one should not spend time constructing an attitude test, if one adequate for one’s purpose already exists” (Burroughs, 1971, p127).

Identifying predictors and attitudes of teachers towards gifted education had been limited until Begin and Gagné (1994) had carried out a comprehensive review of more than 30 studies examining the variables concerning people’s attitudes towards gifted education. They found a lack of significant results and no consensus among the findings of these studies. Begin and Gagné (1994) grouped the methodological deficiencies they identified into four conditions (measure of attitude, predictors, samples, and method of analysis), and found that none of the studies reviewed met all four conditions.

Begin and Gagné (1994) also found due to measurement error the measures of attitude adopted by many studies were neither reliable nor valid. They argued that the ideal instrument ought to be like a scale, including, if possible, psychometric qualities which could be analysed and measured accurately, to explain the variance amongst attitudes. They offered eight recommendations regarding the more accurate measurement of teachers’ attitudes towards the gifted:
A psychometric attitude scale should be used. Gagné-Nadeau attitude questionnaire was appropriate and so selected for the present research.

The instrument's psychometric qualities should continue to be tested (Nadeau, 1994). Hence, in the present research, which is in the new societal context of Western Australia, should contribute to theory building on attitude measurement.

The instrument should expose a large number of explanatory factors, such as the educational level of the participants. In the present research, other personal and professional antecedents are included to gain a fuller profile of each novice teacher.

A study of attitudes should measure the independent variables as reliably and validly as the dependent variables. Inferential statistics to the attitude scale analysis of both cohorts were applied in the present study, namely means, range, and standard deviations.

A large sample or target population should be taken. Most of the literature reviewed had samples greater than one hundred (Begin & Gagné, 1994; Gallagher, Coleman & Nelson, 1995; Justman & Wrightstone, 1960). Hence the attitudes of two cohorts (1996 and 1997) of novice teacher were obtained to help minimise measurement error in the present study.

A study should be representative of an appropriate target population. In the present research used two cohorts of students, both had participated in the same university module on gifted education. This targeted an appropriate population and provided the opportunities to
examine different gender, age, teaching major, and the denomination of schools (i.e., government or non-government).

- It was recommended that a more parsimonious interpretation of a study's results will be achieved by grouping the independent variables into more general categories, as outlined and used in the present research.

- Finally, Begin and Gagné (1994) recommended using a univariate technique to explain the overall effect and variance of the predictors. Their technique was adopted in the present research (as explained in Chapter 5).

Gagné-Nadeau attitude questionnaire

As a result of their analysis, Gagné-Nadeau (1994) produced an attitude questionnaire, 'Opinions about the gifted and talented and their education', which was utilised for the present study (see Appendix A). It used a 5-point Likert scale, of strongly agree to strongly disagree. It consisted of 34 items, indicators of attitudes towards gifted education, and were followed by a rating scale. The instrument was originally developed to determine French-speaking teachers' opinion about the gifted, and their education in Canada. The authors have encouraged the validation of this instrument in English speaking countries. The different items in the questionnaire were grouped, analysed and interpreted according to attitudes relating to the needs and support of gifted students, level of opposition, social value, rejection of gifted students, ability grouping, and school acceleration.
Concluding comments on the literature review

In summary, the study helped build theory, through adopting a mainly quantitative approach to data gathering in a different societal context. Using the Gagné-Nadeau instrument, this study complemented and added support to findings by Gagné with French speaking teachers, however the researcher's analysis revealed the need for further examination in the Australian context (see Chapter 5 and 6).
CHAPTER FOUR
THEORETICAL FRAMEWORK

The major purpose of this empirical research is to describe accurately what occurs in a specific situation. Educational research has two methods, quantitative and qualitative, which the researcher did not perceive as mutually exclusive.

The prevalent philosophical perspective for many years had been positivism. Positivism is a realist, objective way of observing something that exists, and therefore can be defined, measured and tested. In gifted education:

The interest of the Englishman, Sir Francis Galton, in the study of mental inheritance led to the first systematic study of giftedness. Moreover, the statistical correlation procedure proposed by Galton and derived by Karl Pearson contributed significantly to the basic statistical used today to analyse most of the behavioural and social science data that are necessary for used in gifted identification. (Linden and Hoover, 1994, p.44).

The traditional scientific method, had been debated by modern philosophers like Karl Popper, stating theories can not be proved to be rational, but that we can rationally criticise them (Popper, 1976). So, since the 1960’s a strong movement towards qualitative research has developed (Burns, 1991). This naturalistic, ideological approach allows for methodological eclecticism. Generally, the research is presented from the insider’s view of the particular field, generalisations are context-dependent and this makes the research easier for teachers to read (Burns, 1991).
Based on the literature review and Gagné's contextualised model of giftedness (see Figure 1.1, Chapter 1, p. 9), another conceptual framework was developed. Such a model helped promote a better understanding of the integrated nature of the factors affecting the education of the gifted, especially attitudes towards the gifted in a particular social context (see Figure 4.1, p. 37). Variables, both intra personal and environmental, that might affect perceptions of university students, were identified.

The researcher developed this conceptual model (see Figure 4.1) to examine the macro and micro variables related to attitudes towards gifted education by university students in Western Australia. Attitudes relating to behaviour can be acquired through indirect processes of social learning, and through direct, personal experience (Baron & Byrne, 1991). Subsequently, university students brought to the gifted module, personal and professional experience, their preconceived feelings and attitudes about the gifted (the affective stage of attitude development). Once the content of the module was introduced and examined at a cognitive level, it was assumed that university students would interpret and process new information in helping them to consolidate and/or realign their opinions/attitudes.
Interesting New Information

Men!ual Behavioural Cognitive Affective

UNIVERSITY LEVEL EDUCATIONAL Module 1996/7

Past Experiences

Processing Complex Information

Personal Experience (Past, Present)

PRE-MODULE ATTITUDE 1996 and 1997 cohort

EDUCATIONAL INSTITUTION 1998 cohort - practicing teachers
Post-post attitude - new graduates
Formal experiences

Figure 4.1. The conceptual framework for university students’ attitudes.
Having processed more complex information from the module, the university students graduated as practising teachers in 1998. It was the purpose of the present study to find out if both knowledge and attitudes about the gifted was manifested in their own classrooms. Providing them with an opportunity to re-evaluate their attitudes at this time has provided information about the persistence of those attitudes and/or change in practice a year on.

Hence, the researcher's conceptual model was attempting to show the tension between environmental catalysts that continue to influence attitude change of teachers towards the gifted, and the strength of attitudes held within them (intrapersonal catalysts).

The inner circle then reflected the university module, because the literature relating to attitudes towards the gifted highlighted the need for education/training (cognitive stage). Particularly at a university level, the influence of the indirect process of social learning and the power of direct, personal experience (behavioural stage) would have helped form an attitude (Baron & Byrne, 1991).

Intrapersonal (such as motivation, self concept) and environmental catalysts, as well as previous experience with a gifted program (either as a participant and/or on practice), would be likely to affect an individual’s perception towards the gifted at any given stage within the researcher’s conceptual framework model (Figure 4.1). These and other variables such
as age of the novice teacher, and school commitment towards the gifted (i.e., policy in action) were recognised, but are not feasible to control in this present study.

Concerning intrapersonal catalysts, the researcher briefly acknowledged the responses from the 1997 cohort's response to Q17 of the questionnaire (I would very much like to be considered a gifted person) because it is related to self-concept (see Appendix A). As attitudes are triggered responses that have been aroused by past experiences, it was important to acknowledge the combination of this, and what Ajzen & Fishbein (1977) referred to as the "subjective norm" in these university students. The "subjective norm" is when attitudes may have been influenced by the perceived attitudes of others, and have a positive or negative affect upon a person's decision making (e.g., you may be considered a 'nerd' to be a part of a gifted program, therefore you do not acknowledge your participation).

Theoretical assumptions underlying the present study.

The contextualised present study was based on the research described in the literature review and the two conceptual frameworks (Figure 1.1 and Figure 4.1), and was founded upon the following assumptions:

1. Teachers' attitudes towards the gifted are affected by their level of gifted education training.

2. Factors, both environmental and intrapersonal, play a part in forming and shaping attitudes of university students and "first year out" teachers.
3. Attitudes are learned, and the three components (affective, cognitive, behaviour) of an attitude are learned and semi dependent upon each other. The "subjective norm" would also influence their expression.
CHAPTER FIVE

METHOD

Participants

The participants represented two cohorts of secondary university students from Edith Cowan University, Western Australia and were in their final year of completing a Bachelor of Arts in Education in secondary teaching. All students were enrolled in the module, *EDU 3600 Catering for High Ability (Gifted and Talented) Students*.

The number of participants in each cohort was as follows:

- 108 university students from a 1996 cohort;
- 63 university students from a 1997 pre cohort (completed the questionnaire prior to the commencement of the module) and 58 students in the 1997 post questionnaire (completed the same questionnaire at the end of the module with a summative evaluation form); and
- 17 graduate teachers from the 1997 cohort who reassessed their attitudes in 1998.

Before the module, university students in both cohorts had just completed either a major long-term (10-week duration) or some type of teaching practice (e.g., 2-week duration).
The 1997 cohort were sent a letter of consent to be willing participants in the present research in 1998. The participants' addresses were obtained from the university. A total number of 90 student names were listed from the 1997 cohort. This did not correspond with the 63 university students' questionnaires received for analysis from the lecturers (in the pre stage and 58 collected from the post 1997 stage). This was due to two classes running within the one module. The 63 questionnaires received came from one class (cohort) and it is this class that the present research was based upon. The university students who, once graduated, were willing to be followed through as practising teachers were named as the 1998 cohort (n=17) throughout this study. Within the time frame it was not possible to trace the 1996 cohort.

**Lecturers in module – planning and implementation.**

Lecturers, Mrs Lesley Newhouse-Maiden, in conjunction with her colleague Mrs Janet Williams, had developed and modified this module since 1984. The teaching and learning adopted in the module, *Catering for High Ability (Gifted and Talented) Students*, was based on the Renzulli Enrichment Triad (Renzulli, 1977); Adams & Wallace's (1990) research based on Vygotskian principles and Maker's (1982) conception of differentiating curriculum for the gifted (see Appendix C). Overall the module “evolved from the ‘collective wisdom’ of experts in gifted education; and from the lecturers’ extensive practical and academic involvement in the field since the late 1970’s” (Newhouse-Maiden & Williams, 1994, p.109).
Instruments

The summary of the type of information gathered from the two cohorts from 1996 to 1998 is summarised in Table 5.1.

Table 5.1.


<table>
<thead>
<tr>
<th>1996 COHORT</th>
<th>1997 COHORT</th>
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<tbody>
<tr>
<td>Demographic information sheet (consisting of 4 questions)</td>
<td>Post module: Gagné and Nadeau (1991) questionnaire</td>
</tr>
<tr>
<td></td>
<td>Demographic information sheet (consisting of 5 questions)</td>
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<tr>
<td></td>
<td>Course summative evaluation form (consisting of 22 questions)</td>
</tr>
<tr>
<td></td>
<td>1998 Post: Gagné and Nadeau (1991) questionnaire from willing participants as graduate teachers in 1998</td>
</tr>
</tbody>
</table>

Attitude Questionnaire

The instrument used to measure attitudes was the 34-item questionnaire developed by Gagné and Nadeau (1991), as described earlier in Chapter 3 and subsequently referred to in the data interpretation in Chapter 6 and in the final discussion, Chapter 7.
It was also important to define the societal context in which the present study took place, as the chosen questionnaire required careful interpretations from one societal context to another (Newhouse-Maiden & Williams, 1996).

In the present research in the context of Western Australia, the university students' attitudes, as measured by the questionnaire, were gathered, clustered and analysed. They were organised as participants in a pre (named 1997 pre cohort) and post module (named 1997 post cohort) on gifted education and as practising teachers (1998 cohort). This follow up for the 1997 cohort helped contribute to the verification and validation of consistency of the findings obtained from the pre attitude scale.

Data then was gathered using the Gagné-Nadeau inventory as a pre (1997 pre cohort), post (1997 post cohort), and 1998 cohorts' attitudes questionnaire. The questionnaire administered during the module at the university for the 1997 cohort had a summative module evaluation attached.

Some important demographic information was also outlined in the present research to support the questionnaire findings (see Table 5.1).

Demographic Information Gathering

The 1996 cohort completed a demographic sheet consisting of 4 questions (see Appendix D) and the 1997 cohort completed a demographic sheet consisting of 5 questions attached to the pre module attitude questionnaire (see Appendix E).
Summative evaluation form

In addition to the demographic information collected and analysed, a summative evaluation form (see Appendix F) provided further important qualitative data. The summative evaluation form consisted of 22 questions, attached to the post module attitude questionnaire, was given to the 1997 cohort. Questions 1 to 16 of the summative evaluation form used a 4-point Likert Scale, of “strongly agree” to “strongly disagree”. Questions 17 to 22 required short written answers.

Design of present study in the Western Australian context (1996-1998)

The Gagné-Nadeau attitude questionnaire (see Appendix A), as a quantitative form of evaluation, was introduced to the lecturers by the researcher, through her training with Professor Gross and Professor Gagné at The University of New South Wales. The questionnaire was administered to university students and a comparison of both the 1996 and 1997 cohort’s range and means was tabled and summarised. Relevance to age, gender, school type, and other demographic data collected is outlined for the purpose of future research directions.

Students also completed a demographic information (see Appendices D and E) and the 1997 cohort completed a summative evaluation form as a qualitative form of evaluation (See Appendix F). By invitation from the lecturers, the researcher refined and analysed the demographic form in 1997, as she was deemed to have considerable practical experience with gifted students (see Appendix E). Due to the researcher’s fulltime, working
commitments, the university lecturers, Mrs Lesley Newhouse Maiden, and Mrs Janet Williams administered the evaluation sheet and questionnaires to the university students in 1996 and 1997. As with the questionnaires, the university module's summative evaluations were scored and analysed comparatively and collectively by the researcher and were subject to strict confidentiality. Analysis of both cohorts' quantitative and qualitative responses enriched the data, its validity and interpretive power.

Amendment to summative evaluation form

Demographic and personal questions preceding the Gagne-Nadeau questionnaire, were added for the 1997 cohort to contextualise it for the Australian situation, in particular, Western Australia, and to gain an overall antecedent that might have affected the attitude of the 1997 cohort of participants towards the gifted (see Appendix E). The researcher amended the summative evaluation form by inclusion of additional questions so that it was aligned more closely with the Education Department's most recent directions regarding policy and practice in gifted education:

(a) Are you aware of gifted and talented state policy?
(b) Did your school have a policy on gifted and talented students?
(c) Did you see or use a TAGS professional development file on gifted and talented students.
Procedure

As stated, the researcher initially introduced the lecturers to the attitude questionnaire in 1996 (from her experience completing a Certificate of Gifted Education at The University of New South Wales) and she also refined the 1997 summative evaluation form. Next, the literature was reviewed in regards to the attitudes of teachers towards the education of gifted and talented students, using the Gagné-Nadeau’s type of attitudes as a focus. An historical overview of EDWA in particular was examined in regards to the policies and practices of the Education Department of Western Australia. This helped to identify the role EDWA has played in providing for gifted and talented students.

Collectively, these reviews provided an overview of current research in teacher attitudes and the context in which the data of the present study was presented and analysed. Consequently, this enabled the relationship between theory, current research, policy, and practice to be described in context.

The 1997 cohort, who in 1998 were practising teachers (new graduates), were sent the Gagné-Nadeau questionnaire in a self-addressed stamp envelope. Ethical clearance was obtained prior to posting; an explanatory covering letter had been included (See Appendix G).
Once all data was collected and most recent data returned by mail in 1998-1999, the data was analysed descriptively to identify overall trends and attitudinal changes.

The steps in the data analysis were:

a) Each cohort was scored according to the attitudinal items in each section of the questionnaire. The sections were:

A  Needs and Support (Needs of gifted children and support for special services).
B  Level of Opposition (Objections based on ideology and priorities).
C  Social value (Social usefulness of gifted persons in society).
D  Rejection (Isolation of gifted persons by others in the immediate environment).
E  Ability Grouping (Attitudes towards special homogenous groups, classes, schools).
F  School Acceleration (Attitudes toward accelerative enrichment).

b) Each statement was read to see if the attitudes were positive, negative or ambivalent. The authors of the questionnaire, Gagné-Nadeau (1994), suggested the use of mean scores instead of totals because of their direct relationship with the Likert Scale descriptors and because there were no norms. This study followed the authors’ guidelines i.e., means of 4.00 and above indicate a very positive attitude.
while means 2.00 and below usually indicate a very negative attitude.

Scores between 2.75 and 3.25 indicate an ambivalent attitude.

c). To ascertain pre and post changes in attitudes for the 1997 cohort, the data was analysed using repeated measures t-tests (dependent t-tests) to determine if there was a difference between pre and post attitudes of the 1997 cohort. T-tests are considered robust, especially when n is large (30+). The present study had robust groups (n>50). T-tests were conducted with a 95% confidence interval

Before conducting t-tests, the assumptions of normality and homogeneity of variance were tested respectively, for mean scores in the 1997, pre and post cohorts. The Lilliefors statistic (Bryman & Cramer, 1996) had a level of significance greater than 0.05 in all sections therefore normality was assumed for all groups. The Levene Test for Equality of Variances was calculated and also had significance levels greater than 0.05, therefore all groups were assumed to have equal variances.

Gagné and Nadeau prevented acquiescence by ordering positive and negative items in their attitudinal questionnaire. Answers to certain items in section B, C, E, and F were inverted. The total of section B was also inverted for the total score to be correctly interpreted (Gagné, 1991). Overall, the measures of central tendency were demonstrated in tables with reference to means, standard deviations, and t-tests that allowed for relationships between a selection of variables to be identified.
All the means could take values from 1.00 to 5.00. Similarly, the researcher calculated the total sums of all sections (with a possible range from 34 to 170). Missing case/values were assigned zero as supported by Bryman and Cramer (1996). The 1996 and 1998 cohorts were more diligent in completing the questionnaire than the 1997 cohort as there were no missing case/values that were assigned zero.

(d) Cronbach’s Alpha was used to analyse the reliability of the instrument (questionnaire). The results from 1996 were used as this cohort had the highest number of respondents, thus the most information. The SPSS statistical package was used to calculate the quantitative statistics.

(e) Quantitative and qualitative analysis of the demographic information and the summative evaluation form was analysed in relation to the research questions. Demographic information and summative evaluation forms were measured quantitatively and qualitatively. The demographic questions allowed for the identification of the possible interrelationship between theory and attitudes.

The independent variables, age, gender and school type, were analysed to see whether there were any significant differences. The variable groups were:
• Age, (1) 19-25 years of age versus (2) 26 years – and over

• Gender, (1) male versus (2) female

• School type, practicum placement at a (1) government school versus (2) non government school.

Each variable had only 2 groups/levels, therefore, independent t-tests were run. With the exception of school type, where a non parametric equivalent of a t-test, the Mann-Whitney U Test, was used.

(d) The summative evaluation responses were used to ascertain further indicators of attitudes towards the gifted and the need for education. Both were used in conjunction with the Gagné-Nadeau questionnaire.
CHAPTER SIX
DATA ANALYSIS OF UNIVERSITY STUDENTS' ATTITUDES TOWARDS THE GIFTED AND THEIR EDUCATION

Outline of this Chapter

This chapter describes the analysis of the 246 questionnaire responses pertaining to the attitudinal items in each of the six sections of the Gagne-Nadeau questionnaire. It also considers the research questions and the use of qualitative data as corroborating evidence.

The researcher began with a quantitative analysis of items in the Gagne & Nadeau (1991) attitude questionnaire to interpret the strength of university students' attitudes towards the gifted and their education.

Next the researcher analysed the demographic and the summative evaluation information, quantitatively and qualitatively, to ascertain further indicators of attitudes towards the gifted and the need for education. Both were used in conjunction with the Gagne-Nadeau questionnaire.

Participants' attitudes, in accordance with the Gagné-Nadeau Questionnaire

The participants' attitudes towards the gifted, and gifted provision, using the attitudes identified in the Gagné-Nadeau Questionnaire were next analysed. Their attitudes to each statement were clustered according to the Gagné-Nadeau questionnaire which were as follows:
A Needs and Support (Needs of gifted children and support for special services).

B Level of Opposition (Objections based on ideology and priorities).

C Social value (Social usefulness of gifted persons in society).

D Rejection (Isolation of gifted persons by others in the immediate environment).

E Ability Grouping (Attitudes towards special homogenous groups, classes, schools).

F School Acceleration (Attitudes toward accelerative enrichment).

("Titles of Sections" as found on the scoring sheet, see Appendix H).

Table 6.1 highlights the grouped mean responses and standard deviations for each section of the questionnaire.
Table 6.1

**Mean Scores and Standard Deviations for the 1996, Pre and Post 1997, and 1998 Cohorts in Each Section of the Gagné-Nadeau Attitude Questionnaire.**

<table>
<thead>
<tr>
<th>Sections</th>
<th>1996</th>
<th>SD</th>
<th>1997 Pre</th>
<th>SD</th>
<th>1997 Post</th>
<th>SD</th>
<th>1998 Post</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3.83</td>
<td>.60</td>
<td>3.53</td>
<td>1.05</td>
<td>3.02</td>
<td>1.65</td>
<td>3.62</td>
<td>.62</td>
</tr>
<tr>
<td>B</td>
<td>3.32</td>
<td>.55</td>
<td>2.98</td>
<td>.84</td>
<td>2.46</td>
<td>1.32</td>
<td>3.24</td>
<td>.65</td>
</tr>
<tr>
<td>C</td>
<td>3.44</td>
<td>.58</td>
<td>3.18</td>
<td>.92</td>
<td>2.75</td>
<td>1.49</td>
<td>3.37</td>
<td>.45</td>
</tr>
<tr>
<td>D</td>
<td>3.01</td>
<td>.80</td>
<td>2.99</td>
<td>1.04</td>
<td>2.48</td>
<td>1.43</td>
<td>2.56</td>
<td>.60</td>
</tr>
<tr>
<td>E</td>
<td>2.80</td>
<td>.74</td>
<td>2.46</td>
<td>.76</td>
<td>2.07</td>
<td>1.27</td>
<td>2.91</td>
<td>.76</td>
</tr>
<tr>
<td>F</td>
<td>3.09</td>
<td>.62</td>
<td>2.77</td>
<td>.86</td>
<td>2.34</td>
<td>1.38</td>
<td>3.08</td>
<td>.64</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3.33</td>
<td>.34</td>
<td>3.03</td>
<td>.65</td>
<td>2.52</td>
<td>1.40</td>
<td>3.22</td>
<td>.39</td>
</tr>
</tbody>
</table>

For analysis and interpretation of Table 6.1, the strengths of the students' responses for each section (as identified by section A, B, C, D, E, and F) were analysed separately, and for each cohort.

**A. Needs and Support (needs of gifted children and support for special services).**

The items in Section A dealt with attitudes towards the needs of the gifted (i.e., item 32), and the level of support for special provision for the gifted (i.e., item 1). See also the literature review, Chapter 2, for research on the needs and support for the gifted.
This section pertained to items 1, 9, 11, 14, 15, 24, 30, and 32 of the questionnaire. Specifically:

- **Item 1**: Our schools should offer special educational services for the gifted.
- **Item 9**: Gifted children are often bored in school.
- **Item 11**: The gifted waste their time in regular classes.
- **Item 14**: The specific educational needs of the gifted are too often ignored in our schools.
- **Item 15**: The gifted need special attention in order to fully develop their talents.
- **Item 24**: In order to progress, a society must develop the talents of gifted individuals to a maximum.
- **Item 30**: Since we invest supplementary funds for children with difficulties, we should do the same for the gifted.
- **Item 32**: The regular school program stifles the intellectual curiosity of gifted children.

The majority of university students responses indicated that gifted students 'gifts' are often not maximised to their full potential (1996 cohort, $X = 3.83$, $SD = .60$ and the 1998 cohort, $X = 3.62$, $SD = .62$).

However, the university students in the 1997 post cohort when re-administered the attitude questionnaire, did not demonstrate the same positive attitudes. Their attitudes towards the needs of gifted children and the support for special services changed from positive ($X = 3.53$, $SD = 1.05$) to ambivalent ($X = 3.02$, $SD = 1.65$). Analysis of this change using a dependent t-test indicated there was not a significant difference between pre and post attitudes, $t(58)=1.77$, $p>0.05$.

**B. Levels of opposition (objections based on ideology and priorities).**

This section focussed upon the level of opposition based on ideologies and priorities, e.g., elitist attitudes towards the gifted (see Chapter 2).
This section pertained to items 3, 4, 5, 12, 16, 18, 23, 26, 27, and 28 of the questionnaire which specifically were:

Item 3: Children with difficulties have the most need of special educational services.
Item 4: Special programs for gifted children have the drawback of creating elitism.
Item 5: Special educational services for the gifted are mark of privilege.
Item 12. We have a greater moral responsibility to give special help to children with difficulties than to gifted children.
Item 16. Our schools are already adequate in meeting the needs of the gifted.
Item 18. It is parents who have the major responsibility for helping gifted children develop their talents.
Item 23. The gifted are already favoured in our schools.
Item 26. Tax-payers should not have to pay for special education for the minority of children who are gifted.
Item 27. Average children are the major resource of our society; so they should be the focus of our attention.
Item 28. Gifted children might become vain or egotistical if they are given special attention.

The student teacher responses to all of these items were inverted.

The 1996 cohort's mean (see Table 6.1) suggested a slightly positive attitude overall ($X = 3.32$, $SD = .55$). The 1998 cohort attitudes were similar and indicated an overall ambivalent (to slightly positive) attitude ($M = 3.24$, $SD = .65$) towards ideologies and priorities for the gifted.

The 1997 pre and post cohorts' means were analysed to ascertain if there was a difference between attitudes from the beginning of the module and at the end. A dependent $t$ test was computed and the analysis indicated a significant difference between the pre and post attitudes, $t(58) = 2.33$, $p < .05$. Attitudes changed from ambivalent ($X = 2.98$, $SD = .84$) to negative ($X = 2.46$, $SD = 1.32$).
C. Social value (social usefulness of gifted persons in society)

These attitudes focused on the social value of the gifted (e.g., that the gifted are the leaders of tomorrow and are a valuable resource for our society. See also Chapter 2.

Section C pertained to items 13, 17, 25 and 33 of the questionnaire. Item 25 was the only item inverted. The specific questions were:

- Item 13. Gifted persons are a valuable resource for our society.
- Item 17. I would very much like to be considered a gifted person.
- Item 25. By offering special educational services to the gifted we prepare the future members of a dominant class.
- Item 33. The leaders of tomorrow's society will come mostly from the gifted of today.

The 1996 cohort held the most positive attitudes towards acknowledging the gifted of today are perhaps the leaders of tomorrow and that they are a valuable, societal resource (X= 3.44, SD = .58). The 1998 cohort (n=17), now as practising teachers, held positive attitudes towards the social value of the gifted (X= 3.37, SD = .45).

At the commencement of the university module, the 1997 pre cohort's attitudes overall were ambivalent (X= 3.18, SD = .92). At the completion of the module the attitudes had changed (X=2.75, SD=1.49). A dependent t test was computed, however this change was not significant, t(58)=1.72, p>.05.

Further analysis of Section C included the breakdown of item 17 to ascertain if participants in each cohort would like to be considered a gifted
person. Table 6.2 indicated most participants responded in the affirmative (see Chapter 6), though the 1998 cohort were ambivalent. This analysis of this item outlined the tension between the environmental and intrapersonal catalysts of Gagne's model (see Chapter 1) and the researcher's theoretical framework (see Chapter 4). The analysis of this item is discussed in Chapter 7.

Table 6.2

Mean Responses to Considering Themselves as a Gifted Person (Item 17)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>3.44</td>
<td>3.43</td>
<td>3.36</td>
<td>3.05</td>
</tr>
</tbody>
</table>

N=171

D. Rejection (isolation of gifted persons by others in the immediate environment).

The issue of rejection of the gifted by other students, teachers and the envy of others was examined in this section (see Chapter 2). This section pertained to items 19, 22, and 31 of the questionnaire; no items were inverted. The three items for Section D were specifically:

Item 19. A child who had been identified as gifted has more difficulty in making friends.
Item 22. Some teachers feel their authority threatened by gifted individuals.
Item 31. Often, gifted children are rejected because people are envious of them.
The overall 1996 cohort's attitudes were ambivalent \( (X=3.01, SD=.80) \) towards the issue of rejection.

At the commencement of the university module, the 1997 pre cohort like the 1996 cohort, held ambivalent attitudes towards the rejection and isolation of the gifted by others and the school program \( (X=2.99, SD=1.04) \). However, the 1997 post cohort's attitudes changed by the completion of the university module. A dependent \( t \) test indicated this change was significant, \( t(58)=2.31, p=0.025 \). The attitude for the 1997 post cohort decreased from ambivalent at the start of the module to negatively held attitudes \( (X=2.48, SD=1.43) \) by the end of the module.

Furthermore, similar to the 1997 cohort, the 1998 cohort, now as practising teachers, also did not support the attitudes that gifted children have more difficulty in making friends, that some teachers feel their authority is threatened by gifted children, and that the gifted are rejected because people are envious of them \( (X=2.56, SD=.60) \).

E. Ability grouping (attitudes toward special provision, homogenous groups, classes, and schools).

Attitudes towards ability grouping of students, maintaining gifted students in the regular classroom or providing special classes or schools, were explored in this section (see Chapter 2).

This section specifically pertained to items 2, 6, 20, and 21 of the questionnaire which were:

Item 2. *The best way to meet the needs of the gifted is to put them in special classes.*
Item 6. When the gifted are put in special classes, the other children feel devalued.
Item 20. Gifted children should be left in regular classes, since they serve as an intellectual stimulant for the other children.
Item 21. By separating students into gifted and other groups, we increase the labelling of children as strong-weak, good-less good, etc.

Responses to items 6, 20, and 21 were inverted.

Overall, the 1996 cohort (X= 2.80, SD = .74) and the 1998 cohorts’ (X= 2.91, SD = .76) reacted ambivalently towards special provision, such as ability grouping, for the gifted.

From the 1997 cohort, this section elicited negative attitudes towards the value of separating gifted students from the mainstream. The findings indicated the university students maintained negative attitudes towards support for placing the gifted in special classes as the best way to meet their needs (pre, X= 2.46, SD = .76 and post, X= 2.07, SD = 1.27). There was not a significant difference between the pre and post university students’ attitudes, t(58)=1.74, p>.05.

F. School acceleration (attitudes towards accelerative enrichment).

The attitudinal responses towards the effects of acceleration (such as social adjustment of the gifted, and parent pressure when a child may be child accelerated) were examined in Section F. Acceleration was defined in Chapter 2.

This section pertained to items 7, 8, 10, 29 and 34 of the questionnaire, namely:
Item 7. Most gifted children who skip a grade have difficulties in their social adjustment to a group of older students.
Item 8. It is more damaging for a gifted child to waste time in class than to adapt to skipping a grade.
Item 10. Children who skip a grade are usually pressured to do so by their parents.
Item 29. When skipping a grade, gifted students miss important ideas (they have "holes" in their knowledge).
Item 34. A greater number of gifted children should be allowed to skip a grade.

Items 7, 10, and 29 were inverted.

Overall, the 1996 cohort attitudes were ambivalent ($X=3.09$, $SD=.62$) towards acceleration as a method of catering for gifted students.

The attitudes towards acceleration were ambivalent at the commencement of the module ($X=2.77$, $SD=.86$) for the 1997 cohort. However, negative attitudes were held towards acceleration when the university students had completed the module on gifted education ($X=2.34$, $SD=1.38$). A t-test indicated this change was not significant change, $t(58)=1.90$, $p>.05$.

The attitudes of the now practising teachers in the 1998 cohort remained ambivalent ($X=3.08$, $SD=.64$) towards accelerative enrichment.

Summary of questionnaire findings: The collective attitudes towards the needs of and provision for the gifted by university students from the 1996, 1997 and 1998 cohorts.

The means of responses to all items in sections A, B, C, D, E and F of the questionnaire for each cohort were analysed to ascertain a collective,
general attitude towards the needs of and provision for the gifted by the university students and the now practising teachers (n=17).

The attitudes of university students were compared, as Table 6.1 demonstrated. There was some evidence of a short-term effect of the university module influencing some cohorts' attitudes (particularly in Sections A, C, E and F of the attitude questionnaire), although was not an overall positive effect. The pre and post 1997 cohort declined significantly in their attitudes towards the gifted in Section B and D. The other sections (A, C, E and F) of the questionnaire indicated a decline in attitudes but it was not significant.

Specifically, the overall attitudes (total) about the needs of the gifted and the provision for the gifted were ambivalent at the commencement of the module (X= 3.03, SD = .65) compared to an overall negative attitude held by the university students at the completion of the module on gifted education (X= 2.52, SD = 1.40). This change was significant between the pre and post attitudes, t(58)=2.31, p<.05.

The 1998 cohort effect was more positive as was the collective attitude of the 1996 cohort attitudes’ (X= 3.33, SD = .34).

The reliability of the instrument

The reliability of the instrument was analysed using Cronbach's alpha. The results from 1996 were used as this had the highest number of respondents, thus more information.
Results indicated that all items have low corrected item-total correlation and squared multiple correlations. The Cronbach's alpha for the overall scale was only .3846.

**Analysis of the qualitative data**

Data was analysed in relation to the demographic information and the students' summative evaluation of the gifted module.

**Demographic Information: Factors contributing to university students' attitudes towards the gifted.**

The 1996 and 1997 (pre) cohorts had completed a teaching practice before commencing the university module on gifted education. After completing their practice, both cohorts were administered the Gagné-Nadeau questionnaire during the university module and completed some demographic information. Additionally, the 1997 cohort also completed a summative evaluation form (see Table 5.1 and appendices D, E, and F). This additional information allowed for more powerful interpretations to be made.

Additional quantitative and qualitative demographic data were analysed in order to ascertain whether other factors contributed to shaping university students' attitudes towards the gifted. A number of common factors were identified. These factors included:

1. gender
2. age
3. major subject teaching area
Findings of these factors are presented in Tables 6.3 and 6.4.

**Gender**

The participants in the present study were predominately female ($n=110$) from both the 1996 and 1997 cohorts. In the 1996 cohort ($n=108$), the frequency of males ($n=40$) was less than the females ($n=68$). In the 1997 cohort the frequency of males ($n=18$) was also considerably less than the females ($n=42$). Table 6.3 highlights the distribution of gender between the 1996 and 1997 cohorts.

Table 6.3

<table>
<thead>
<tr>
<th>Gender and Age Distribution of the 1996 and 1997* cohorts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohort</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>1996</td>
</tr>
<tr>
<td>1997*</td>
</tr>
</tbody>
</table>

* data taken from the 1997 pre cohort

**Note:**

Demographic information was not gathered for the 1998 cohort. The purpose of the present research was to ascertain whether any attitudinal
changes occurred with the university students due to their participation in a university module on gifted education.

An independent t-test was computed on the mean responses between males and females for the 1996 cohort. Assumptions of homogeneity of variance were met. There was no significant difference, $t(70) = .605, p > .05$.

An independent t-test was computed on the mean responses for the 1997 pre cohort. Assumptions of homogeneity of variance were met, however, assumptions of normality were violated due to an outlying case. This case was recoded with the group mean and normality tests repeated. The data was found to be normally distributed. No significant difference between males and females was found, $t(53) = 1.40, p > .05$.

An independent t-test was computed on the mean responses for the 1997 post cohort. Assumptions of homogeneity of variance and normality were met. There was no significant difference between males and females, $t(58) = 1.51, p > .05$.

**Age**

The participants for the present study were in two age groups: group one, 19-25 years of age and group two, 25+ years of age. Both the 1996 cohort (n=108) and 1997 cohort (n=63) consisted of more university students in group one age range, 19-25 years of age (65% for each cohort). Additionally, the 1996 cohort had more students from the over 25 years of age group (n=35), compared to the 1997 cohort (n=20).
An independent t-test was computed on the mean responses for age for the 1996 post cohort. Assumptions of homogeneity of variance and normality were met. There was no significant difference between males and females, $t(100)=1.47, p>.05$.

An independent t-test was computed on the mean responses for age for the 1997 pre cohort. Assumptions of homogeneity of variance were met, however, assumptions of normality were violated due to an outlying case. This case was recoded with the group mean and normality tests repeated. The data was found to be normally distributed. No significant difference between the age groups was found, $t(53)=.27, p>.05$.

An independent t-test was computed on the mean responses for age for the 1997 post cohort. Assumptions of homogeneity of variance and normality were met. There was no significant difference between males and females, $t(56)=1.37, p>.05$.

Table 6.4 shows the attitudes of females decreased, whereas males did not. A t-test examined the difference between the female pre and post groups and found no significant difference, $t(57)=1.78, p>.05$. 
Table 6.4
Means and Standard Deviations for the Variable Age

<table>
<thead>
<tr>
<th>Age</th>
<th>19-25</th>
<th>26+</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>SD</td>
<td>X</td>
</tr>
<tr>
<td>1996 Post</td>
<td>3.37</td>
<td>.35</td>
</tr>
<tr>
<td>1997 Pre</td>
<td>3.18</td>
<td>.31</td>
</tr>
<tr>
<td>Post</td>
<td>3.17</td>
<td>.30</td>
</tr>
</tbody>
</table>

Major Subject Teaching Areas.

The university students specialised in a variety of learning/subject areas at university (see Appendix 1). Health and Physical Education was the most common teaching area for both the 1996 cohort (16.6%) and the 1997 cohort (22.2%). Due to inadequate and incomplete data collected no quantitative analysis was conducted in this area.

However, the qualitative data suggested the Drama students performed 'differently' to other university students. For example other students commented that, "The groups that spent every week talking up the back or among themselves (particularly Drama Majors) should have marks taken off their final assignment for being completely rude over this semester".

Another student teacher observed: "A large no. of presentations were a display of ‘wayout’ behaviours that would be unrealistic in a c/room application. C/room std’s [sic] would be uncooperative with some of the Drama type presentation methods.”
The researcher analysed specifically the university students from the 1997 cohort whom indicated Drama was a major or minor subject area at university. The Drama students consisted of 12 students, 10 female, and 2 males all in the 19 to 25 age group. The collective attitude of all Drama major/minor students highlighted an overall positive attitude (1996 cohort, \(\bar{X} = 3.37\); 1997 cohort, \(\bar{X} = 3.32\)) towards the gifted and their education.

**Analysis of professional practice and personal involvement in a gifted program**

The two common demographic questions common to both cohorts were:

1. Did your ATP school make any form of provision for the bright students? Please specify. (Q1 1996 see Appendix D; Q2 1997, see Appendix E)

2. [As a student] Were you involved in any form of special program to develop your personal talents/gifts? Please specify. [1997 cohort addition only] (Q2 1996 see Appendix D; Q3 1997, see Appendix E).

Table 6.5 highlights the percentage findings of each question. There was a notable difference in question one between the cohorts. More university students from the 1996 cohort (50%) noted their practice school did provide for the gifted compared to the 1997 post cohort (28.5%). Both the 1996 and 1997 post cohorts specified a variety of forms of provision. The 1996 cohort identified many more types of provision for the gifted such as the
Advanced Education Program (A.E.P), music camps, streaming/ability grouping, sponsorship of a gifted program, special support teacher programs, Academic Achievers Club, Secondary Extension and Challenge (S.E.A.C) groups, and competitions outside of school.

Table 6.5

<table>
<thead>
<tr>
<th>Response</th>
<th>Q1</th>
<th>Q2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>1996</td>
<td>50%</td>
<td>30%</td>
</tr>
<tr>
<td>1997</td>
<td>28.5%</td>
<td>71.5%</td>
</tr>
</tbody>
</table>

The majority of university students had not been involved in any form of special provision themselves for the gifted as younger students, the 1996 (50%) and 1997 (68%) cohorts respectively. Those that were involved in a gifted program as a younger student mentioned types of provision as P.E.A.C (see Chapter 1) and many music and/or physical education type programs. Interestingly, even though the majority of university students were not identified as gifted when they were young or participated in any gifted program, now as adults, they would like to be considered as a gifted person (see also Table 6.2). This is in relation to item 17 of the questionnaire, *I would very much like to be considered a gifted person* (see p 59-60).
School type

The 1997 cohort was asked additional demographic information about the type of practice that they had just completed and the system in which they were involved (i.e., government or non-government school). 82.5% university students in 1997 cohort had just completed an advanced teaching practice (10 weeks); 9.5% university students had completed another type of practice (i.e., 2 week x 2) and 8% of the university students did not state in which type of practice they were involved.

In view of the unequal sample sizes with the variable ‘school type’ (a majority of students participated at Government schools), a Mann-Whitney non-parametric test was conducted on the mean responses. With correction for ties and z-scores conversion, the results indicate no significant difference in attitudes between Government and Non Government school groups for the 1997 pre cohort, \( z=0.50, p>0.05 \), and the 1997 post cohort, \( z=0.25, p>0.05 \).

In addition, the 1997 cohort were asked the following demographic questions (see Appendix E and Table 6.6):

A) Are you aware of gifted and talented state policy?
   Yes No

B) Did your school have a policy on gifted and talented students?
   Yes No
Did you see or use a TAGS professional development file on gifted or talented students?

Yes  No

Table 6.6

Additional Demographic Information from the 1997 Cohort

<table>
<thead>
<tr>
<th>Question</th>
<th>A%</th>
<th>B%</th>
<th>C%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>16</td>
<td>30</td>
<td>87</td>
</tr>
<tr>
<td>No</td>
<td>84</td>
<td>49</td>
<td>11</td>
</tr>
<tr>
<td>Did no state</td>
<td>0</td>
<td>21</td>
<td>2</td>
</tr>
</tbody>
</table>

The majority of students from the 1997 cohort were not aware of EDWA’s gifted and talented policy even though they had just completed a university module on gifted education. However, EDWA’s professional development resource, Teaching TAGS File, was sighted and/or used on their practice by the majority of the 1997 cohort. This resource was used in the university module and cited in their research assignments. Additionally, whilst on practice, nearly half of the 1997 cohort (49%) did not sight a gifted and talented school-based policy at their practice school.

Summative evaluation: Analysis of the summative evaluation response to the gifted education module at the university

The 1997 post cohort also submitted a summative evaluation form of the university module, EDU 3600, Catering for High Ability (Gifted and Talented) Students (see Appendix C). 58 summative evaluations were
received out of the 63 possible returns. The summative evaluation form consisted of a Likert Scale for 16 questions (see responses in Figure 6.1) and 5 short answer questions.

The lecturers prevented acquiescence by ordering positive and negative items. Question 8 (58.5%), 9 (64%) and 14 (82%) were the negative items and it was anticipated the responses would be in the disagree or strongly disagree categories if the module was deemed to be effective by students.

Figure 6.1

Percentage of Responses from Q1 to Q16 from the Summative Evaluation

<table>
<thead>
<tr>
<th>Question</th>
<th>SA</th>
<th>Strongly Agree</th>
<th>A</th>
<th>Agree</th>
<th>D</th>
<th>Disagree</th>
<th>SD</th>
<th>Strongly Disagree</th>
<th>NR</th>
<th>No Response</th>
</tr>
</thead>
</table>
Some of the findings of the summative evaluation form were quantified:

- 52% agreed that the knowledge and examination of the TAGS File contributed to their learning. 5% did not state an opinion, leaving 43% who did not believe the TAGS file contributed to their learning.

- 93% of the university students agreed the module content was consistent with their prior knowledge.

- 95% agreed or strongly agreed that the module’s objectives were met and that the module had increased the university students’ interest in catering for high ability students.

Overall, the university students answered all questions with a positive response. Their self-evaluation contradicts the quantitative information that indicated the module was not effective in changing attitudes positively towards the gifted and their education.

The short written questions, Questions 17 to 22, from the summative evaluation form were also analysed. Overall, favourable attitudes were indicated from their responses that the 1997 post cohort completed. Qualitative findings are analysed and interpreted under each pertinent summative question.
Question 17. Which aspects of the module did you find most useful?

Based on the collation and analysis of the university students' responses to Question 17 (see Appendix F), the researcher organised the information into four common categories:

1. Presentations,
2. Readings (articles),
3. TAGS and other strategies, and
4. Awareness.

These categories were the main aspects university students found useful in the module. The students found the most useful section of the module were small group presentations (28). One student teacher commented, "the small group tutorials gave information in interesting ways" and another said "the research assignment and presenting the tutorial (learning about Renzulli)," was the main aspect of the module the student teacher found useful.

Other university students found the TAGS File and other classroom strategies (15) most useful. This was corroborated by student teacher comments such as: "looking at the TAGS file," and "discussions about teaching strategies to cater for giftedness," as the aspect of the module they found most useful.

Five other university students found the readings most useful. For example, one student commented "The texts and handouts. They dealt with the subject specifically. This helped due to not having to 'wade' thru [sic]
books of unrelated info [sic]”. Six other university students were generally made more aware of the needs of the gifted. For example, one student found that “it provided information on a topic which isn’t highly recognised in schools. Gave us an insight on what to look for” and they found this aspect the most useful part of the university module.

Question 18. Please comment on the Group Assignment.

A variety of attitudes were evident in the responses about the effectiveness and usefulness of the group assignment. One university student’s negative comment was “I hate working in groups – other members don’t always work up to my expectations, only one person in my three years of experience in group work was satisfactory”. Perfectionism is one common trait of giftedness, so the researcher linked this particular student’s response to Question 17, to ascertain whether he considered himself gifted. The student held a ambivalent to negative attitude towards himself ($X=2.64$).

Another student’s response was less negative: “Presentations would have been more beneficial if assigned & presented individually, but still very worthwhile.” This student was undecided about item 17 from the attitude questionnaire and scored an overall ambivalent attitude towards herself ($X=2.76$).

However, many found the group assignment a positive experience. For example, one student commented: “Having group assignments are really good, they allow us to do the work in a good enviromit [sic] – not boring”.
Another student stated "It was very effective and helped me to undertake deeper investigation into the gifted."

Due to these varying attitudes, the researcher analyzed their responses to Question 18 into two main categories for further clarification:

1. worthwhile experience/ effective group work – positive attitude
2. reservations to negative attitude about being a worthwhile experience/ about the group work

These categories were chosen as students either stated clearly a comment, negative or positive, about the group work and or whether it was a worthwhile experience. Overall, the university students found the group work effective and worthwhile with 42 positive comments stated (e.g., "Very worthwhile and fun activity. Choosing your own members means that you can keep to your own participant area and relate back to your major" and "very effective in helping us to generate creative thinking").

In comparison to the positive responses, 17 responses were recorded as negative responses or indication of some reservation about the group activity. Comments from students included: "It is hard working in a group in which one of the group members demands everything their way" and from the same student, "Do not do group assignments/presentations. After the first three you tune out!!").
The 16 Likert type questions (that was also part of the summative evaluation form) also supported this qualitative feedback (see Figure 6.1, Q12). 91% of the 1997 post cohort either agreed or strongly agreed with the use of small group assignments. This collaborative attitude also supported the principles of the Curriculum Framework (Curriculum Council, 1998).

Question 19. List some strategies you would employ to cater for high ability children in your classroom.

A number of teaching strategies the university students could employ in their future classroom to cater for the gifted were collated and recorded. However, the frequency rate for identifying a variety of strategies was low as indicated in Figure 6.2.

Figure 6.2

Frequency of Responses by 1997 Cohort to Identifying Different Classroom Strategies (Question 19)
Figure 6.2 indicated that most students recorded only an average of two strategies. However, the university students collectively identified a number of different strategies (see below), the most salient being creativity, problem solving and group work. Some patterns emerged which the researcher sorted into ten main categories, linking where possible to the content of the module (see Appendix C):

1  Creativity  12
2  Problem Solving (including real life situations)  14
3  Group work (including ability grouping)  17
4  Open ended tasks  6
5  Compacted Curriculum  6
6  Specifically stated models/programs  6
7  Individual work  5
8  Awareness raising  3
9  Presentations (including environment)  6
10 Other strategies  19

**Question 20. How could the module be improved?**

A variety of suggestions were given by the university students on how the university module could be improved (see Appendix F). For easier reference, six main categories were used, with the number of responses indicated in the brackets:
1. Theory. Two university students wanted more theory in the module and one novice wanted “less theory and more applications”.

2. Exam Conditions. Six university students were concerned in some way about the exam. One such comment that reflects this concern was: “Let students know the unit is examinable from the start.”

3. Lecturers. Two university students commented on the level of input from the lecturers, i.e., “More input from lecturers” and three “would have liked a smaller class size with the lecturer as a facilitator”.

4. Time. Twelve university students were concerned about some aspect of time to do with the module, in particular, the timing of the presentations and commented such as “Should be longer than 8 weeks? Too many presentations in one lecture. Time limits for each presentation should be adhered to”.

5. Presentations. Eight university students wanted some change in the presentations, with comments such as, “Less talks – some were mentally draining and boring”.

6. Other. Three university students gave additional areas of improvement: more classroom examples; focus on student outcome
items and not to change the module at all: "It was a good unit it works well. Why change it"

**Question 21. Are you willing to be included in a follow-up study next year?**
*If yes, please provide name and a contact telephone number.*

The majority of university students were not willing to participate in this follow-up study or did not state a response. 58.6% did not complete this question i.e., left blank or dash; 29.3% stated 'no' and 12% said 'yes' and/or wrote contact details.

**Question 22. Any other comments?**

Majority of students (n=40) left this question blank; seven said 'no' or 'no thanks' and eleven provided mostly positive responses (see Appendix F), such as, "The unit has motivated me to assist those gifted students that I will come across" and "I have enjoyed this unit and have found it a good balance between practical and theory."

Further analysis of question 20 and 22 from the summative evaluation forms revealed some students (n=5) felt that many students were disruptive throughout the course. One student commented: "More discipline needed for noisy students – constant mumbles and chatter are incredibly annoying (and infuriating!). Stress to these people that if they’re not interested they should get out! A much higher level of professionalism is required!"

The discussion of the qualitative and quantitative findings and how they affect attitudes towards the gifted are discussed in Chapter Seven.
CHAPTER SEVEN
DISCUSSION OF FINDINGS

Outline of this chapter
The Gagné-Nadeau attitudinal questionnaire, along with the demographic and summative evaluation findings, are used as the foci of evidence in establishing and/or maintaining attitudes towards the gifted. This evidence is used in answering the research questions. A review of the methodology was also examined. Limitations about this present study and future research recommendations conclude this chapter.

Discussion of methodology
In review of the methodology, Begin and Gagné’s (1994) eight recommendations for future studies were applied to this present research (as discussed in Chapter 3). A psychometrically proven attitude scale was used (i.e., Gagné-Nadeau attitude questionnaire, Appendix A). Nadeau had tested the instrument's psychometric qualities so this was deemed adequate. However, analysing the reliability of this instrument by using Cronbach’s Alpha, the results suggested that more research is needed for further development of this instrument in the Australian context.

The use of the Gagné-Nadeau attitude questionnaire (1991) provided an opportunity to evaluate the attitudes of university students towards the gifted, provision for the gifted and their perceived value and contribution to society. As the data analysis chapter (Chapter 6) highlighted, both
qualitative and quantitative methods were utilised to enhance the use of the Gagné-Nadeau questionnaire.

Discussion of present study
The data collected and analysed confirmed the assumption (see Chapter 4) that both intrapersonal and environmental catalysts (i.e., lecturers' program) played a significant part in forming attitudes, negative and positive, towards gifted students in the short term, and lead a small group of university students to want to develop their own students gifts in the future (medium term).

Discussion on attitudes identified using the Gagné-Nadeau questionnaire.
Overall, university students (N=171) reported in the present study, held a range of attitudes (negative and positive) towards the needs of the gifted and their education. Specifically, the 1996 and 1998 cohorts reacted more positively in attitudes overall than the 1997 cohort. The data analysis indicated that the university students' attitudes varied between sections of the Gagné-Nadeau questionnaire and between cohorts.

Section A of the questionnaire explored the needs of gifted children and the support for special services. The majority of responses (1996, 1998, 1997 pre cohorts) indicated that gifted children's 'gifts' are often not maximised to their full potential. This can be due to boredom in the regular classroom,
and a lack of special educational services for the gifted as suggested by the literature review (see Chapter 2). Although the university students attitudes at the completion of the module declined, this change was not significant.

Section B examined objections based on ideology and priorities. The findings suggested the module had a negative effect in changing attitudes towards the support for the gifted, with more support favoured towards the average children and/or children with learning difficulties. The 1996 and 1998 cohort were similar and generally ambivalent in nature.

The attitudes towards the social value of the gifted as analysed in Section C (see Chapter 6) ranged from ambivalent (1997 cohort) to slightly positive (1996 and 1998 cohorts). The module was less positive in forming attitudes that favoured the gifted and their social value, however, this decline in attitude was not significant. Once the university students graduated, as practising teachers (1998 cohort), their attitudes changed and were more positive towards the social value of the gifted in our society.

Section D of the questionnaire examined the isolation of the gifted by others in the immediate environment. The findings suggested the module did not have a positive influence in shaping attitudes as the attitude of the 1997 cohort declined. This decline was significant and these findings did not seem to support the literature reviewed (see Chapter 2) which suggested negative attitudes towards the gifted were predominately from educators not trained in gifted education (Newland, 1976; Marland Report, 1972).
Attitudes towards ability grouping (Section E of the questionnaire) and acceleration (Section F) were ambivalent (1996 and 1998 cohorts) to negative (1997 cohort). Separating gifted students from the mainstream and/or using acceleration as a method of catering for the gifted, was not valued. Although negative attitudes were held by the university students at the completion of the module, the changes were not significant.

Overall, the findings from the five sections of the questionnaire by the 1997 cohort decreased in all five sections, with two of these sections were significant. This could imply that the module was not as effective in positively changing attitudes towards the gifted.

Therefore, this study demonstrates the continued need for effective university training for future teachers so that negative attitudes and misconceptions about the gifted are dispelled to allow the gifted the opportunity to achieve to their true potential in school.

Many of the participants’ in this study will enter schools with negatively held attitudes towards the gifted and their special educational needs. This will have consequences for gifted students as “attitudes of teachers toward gifted students affect not only the students and their performance but also the acceptance and effectiveness of the gifted program and the morale of the school as a whole” (Clark, 1992). Additionally, “failure to recognise and deal with attitudes resulted in the failure of some gifted programs” (Newland, 1976). Gifted students are at educational risk when they are
declined the opportunity to reach their potential through negative attitudes held by their classroom teachers.

**Discussion on the qualitative findings (demographic information and summative evaluation evidence)**

"The pressure of unused potential is a tragedy at both the personal and political level of a society" (Gallagher, 1991).

Gifted students need special educational services (as supported by the literature reviewed and the 1996 and 1997 pre cohorts findings). They are often bored, intellectually stifled and waste their time in the regular classroom. However, these issues can be addressed if the gifted have the opportunity to achieve to their true potential by schools’ providing challenging and rigorous curriculum using appropriate classroom strategies (see Chapter 2). This was also supported by Feldhusen & Kroll (1991).

However, 71.5% of the 1997 cohort did not sight any form of provision for the gifted whilst on a 10 week practice. This is especially concerning since EDWA’s had just completed in 1997 its Strategic Plan 1994-1996 for gifted students.

Half of the 1996 cohort (50%) however did sight some form of provision for bright students whilst on their long-term practice. As EDWA’s Strategic Plan for Gifted Students was in full momentum at this period, this is a possible positive influence in the 1996 cohort’s attitudes. Through this
Plan, educators, student teachers and practising teachers, had the opportunity to participate in professional development (e.g., state conference with Professor Gagné in 1996), policy and TAGS File launches. The module can not be cited as a factor in influencing these attitudes with this particular cohort, as the attitudes were not measured from the commencement to the conclusion of the module.

In contrast, the lack of experiencing 'policy in action' for the 1997 cohort may have helped shaped the change in attitudes from positive to ambivalent towards the needs and support of the gifted. This practicum was just prior to the commencement of the university module and this may have lead to commencing the module with preconceived ideas that gifted students do not have special needs.

Furthermore, the majority of 1997 cohort (84%) were not aware of the EDWA’s policy and 49% did not see a school-based gifted and talented policy. This may have influenced the attitude findings in Section B of the questionnaire where the 1997 cohort agreed that schools are already adequately meeting the needs of the gifted.

This also indicated a mismatch between policy knowledge and policy in action within their teaching practice schools.

After participating in a university module on gifted education, a large percentage (43%) of the 1997 cohort did not feel the resources in action (i.e.
TAGS File) contributed to their learning. However, many of the 1997 cohort saw or used the professional development package, the TAGS File, whilst on their practice (87%). If this was deemed by them to be 'adequate in meeting the needs of the gifted', then the university module failed to adequately help them to make the connection between the current research, current policy, and the resources provided to implement the policy and research.

The two cohorts of university students were introduced to a number of strategies suitable for gifted students in the regular classroom as opposed to how to establish special classes, ability grouping and acceleration procedures. Therefore, the university students formed the attitude that they could adequately meet the needs of the gifted using predominately classroom strategies rather than ability grouping, special classes or acceleration, which is not supported by the literature that some grouping (i.e. ability) is essential. It is suggested this attitude was formed because of the lecturer's bias (L. Newhouse-Maiden, personal communication, Aug. 1999).

The qualitative evidence shed further contradiction towards this attitude as the findings revealed most of the university students from the 1997 cohort could only identify on average two suitable classroom strategies learnt from the module (see Figure 6.2). Therefore it may suggest the module was not as effective in training university students to a variety of provision for the gifted and thus, shaping attitudes about provision for the gifted.
Consequences of such ineffective teacher training can lead to university students taking negative attitudes toward the gifted and their education into their classroom. As supported by the literature reviewed (see Chapter 2), this can lead to failure of school programs and can affect school morale. The effect on their students could lead to academic underachievement (cognitive) and unfulfilled individuals, hence, low self-esteem and self-concept (affective) which does not benefit society for our potential, future leaders. This corresponds to the researcher's theoretical framework of developing the affective, cognitive and behavioural side to form attitudes.

Additionally, attitudes towards the support of special services for the gifted significantly declined by the end of the module by the 1997 cohort. This indicated the module was not effective in changing attitudes. Other environmental factors such as previous personal experience and a lack of experiencing 'policy in action' may also have contributed to the decline in attitudes.

For example, previous personal experience in a gifted program (as the literature reviewed revealed), can also have helped to mould positive pre-attitudes towards the needs and support of the gifted. Evidence in this study indicated that nearly a third of the university students from both cohorts (1996 and 1997) were involved in some form of special provision to develop their own talents. This impact of previous experience is also aligned with the researcher's theoretical framework (see Chapter 4) that past experiences help shape attitudes.
University students were asked if they were involved in any form of special provision to develop their own gifts/talents. This demographic information was important to analyse because the definition of attitudes states “they [attitudes] are acquired through experience and exert a directive influence on subsequent behaviour” (Breckler & Wiggins cited in Baron & Byrne, 1991, p. 138). The findings in this study did not support the research that those who had themselves been accelerated as a student generally had a more favourable attitude than those whom had not and/or who had little experience with gifted students and/or gifted training (Southern & Jones 1991 and Braga, 1971) as the 1997 cohort held negative attitudes. From the qualitative information gathered, many participants cited a non-academic gifted program (i.e. music or sport) as their gifted education experience, and the module emphasised more provision models and strategies suitable for more academic disciplines.

Interestingly, as the quantitative information indicated (item 17), a large portion of the university students from both cohorts would like to be considered themselves gifted (X=3.41). However, as the findings revealed, many were not identified nor did they participate in a gifted program when they were younger (1996 cohort-50%; 1997 cohort-68%). This attitude is indicative of Gagné’s Model of Giftedness and Talent (see Figure 1.1) as 15% in any particular field may be considered talented. Traditionally, the threshold was considered a lot smaller, normally 1-3% of the population only was considered gifted, hence, identification may have been an issue.
Lack of identification or personal experience in a gifted program themselves as students could have shaped attitudes negatively. This could be explored further in future research. This is also supported by the collective demographic information analysis (e.g., age factor and those who considered themselves gifted and/or participated in a gifted program and the literature research (e.g., Southern & Jones, 1991) that revealed positive personal or family experience beforehand normally resulted in positive attitudes and general support towards the gifted in the immediate environment and in particular, towards ability grouping.

With mismatch of policy in action and the negative attitudes the 1997 cohort will take with them to schools, further effective teacher training is required to refute the myth that gifted students are not at educational risk. However, the 1996 cohort differed from the 1997 cohort as they supported the needs of the gifted, their ideologies and priorities for the gifted.

Although 95% of the university students from the 1997 cohort agreed the module met their expectations, the quantitative information did not support this finding until the medium term, when the attitudes of the 1997 cohort improved once they became practising teachers (1998 cohort).

The lecturers' favoured extension within the classroom rather than acceleration or ability grouping, although exceptions in some linear disciplines such as Mathematics were suggested (L. Newhouse-Maiden, personal communication, 1999). This provides a clear factor in determining
the negative to ambivalent attitudes formed towards ability grouping (by the 1997 post and 1996 cohorts respectively). This also opposed EDWA's gifted and talented policy and guidelines (EDWA, 1996). The policy states two types of provision are required for the gifted (e.g., school/classroom based and supplementary), yet, the university module's emphasis was placed on one, the classroom based provisional strategies.

Additionally, classroom strategies for the gifted that were examined in the module were viable time wise within the secondary classroom context (i.e., the value of curriculum compacting) and emphasis was placed on focusing on the process and real life problem solving (L. Newhouse-Maiden, personal communication, 1999). This does not compliment the principles of the Curriculum Framework and best practice as defined by literature reviewed, where individuals should need to be examined, regardless of time, and if ability grouping or acceleration is the most appropriate provision it should be articulated and actioned.

“Treat people as if they were what they ought to be and you help them to become what they are capable of being” (Goethe, 1999).

A further factor that may have influenced the ambivalent to negative attitudes (1996 and 1997 cohorts) towards accelerative enrichment, is the mismatch between definition and the questionnaire items in Section F (see findings Section F, Chapter 6 and Chapter 2).
Gagné-Nadeau’s questionnaire itemised grade acceleration only. The researcher defined acceleration as “any strategy which allows students to progress more quickly than their age peers” (NSW Education Department, 1991, as stated p23, Chapter 2). This definition could include grade acceleration and subject acceleration and as well as early entry.

In highlighting the effectiveness of the module, the university module’s content was based on “the collective wisdom of experts in gifted education and from the lecturers’ extensive practical and academic involvement in the field since the late 1970’s” (see Chapter 5 and Appendix C). Therefore, factors other than the lecturers and the content appeared to have effected the overall effectiveness of the module in shaping attitudes towards the gifted. These ‘other’ possible factors could include the following:

- the program delivery (as supported by the qualitative findings that some students did not enjoy the presentations);
- preconceived attitudes formed from prior experience in the realm of the environmental catalysts (as supported by research);
- disruptive students affecting other university students’ concentration and module outcomes (as supported by the qualitative findings and elaborated further in this discussion on page 103) and,
- intrapersonal catalysts such as lack of interest in the module and emphasis on grades rather than high cognitive activity by the university students (as supported by research).
Overall, the practising teachers (1998 cohort), held attitudes that are more positive in every section of the Gagné-Nadeau (1991) attitude questionnaire than when they were at university (as participants of the 1997 cohort). Therefore, their attitudes have changed for the better since graduating. No particular factor was evident in contributing to these attitudinal changes as no other information (qualitative or quantitative) was submitted other than the same attitude questionnaire. However, the factor of experience with a real classroom and putting theory into practice is deemed the likely cause in attitudinal change. As they were introduced to some desired teaching strategies for the gifted (Coil, 1996; Dalton & Smith, 1986 and Maker, 1982), it is anticipated they were then put into practice (Starko & Schack, 1989). This is the most likely factor to have contributed to the ambivalent to slightly positive overall attitudes towards the gifted and the incline in attitudes (since completing their university module) towards ability grouping and acceleration.

Demographic information collated and analysed, such as gender, age and school type, did not play a significant factor with any cohort, in influencing their attitudes.

The demographic factor of major subject/teaching area, also did not reveal any direct influences in forming attitudes, however, as stated some disruption by the "Drama students’ was collated. Succinct and empirical research incorporating demographic information is recommended for future research.
In highlighting the improvements for the module, the university students identified the exam conditions and the presentations as the main aspects to improve the future implementation of the module.

The qualitative findings did also suggest many students enjoyed the module and this reflected some of their changing behaviour and values. This also highlights the importance of both quantitative and qualitative data collection.

The summative evaluation findings indicated a number of disruptive students may have influenced their own and others' attitudes (this is also aligned with the researcher's theoretical framework, the behavioural component). This could indicate two direct influences. One, many students already held negative or ambivalent attitudes before the courses and hence were not interested in the content and became disruptive. Secondly, some students indirectly acquired attitudes through social learning, whether negative, positive or ambivalent. That is the disruptive students may have influenced them and the group assignment may have helped mould attitudes in one way or another as stated any social learning experience can affect attitudes.

An important follow up to in the present research would be to follow these graduates through their teaching careers to determine how they cater for the gifted and their attitudes towards the gifted in their classrooms as research suggests that teachers trained in gifted education demonstrated greater
teaching skills and provided a more positive learning environment (Hansen & Feldhusen, 1994).

Overall, the findings indicated that the university students developed an environmentalist approach to education in alignment with Gagné's Differentiated Model of Giftedness and Talent (see Figure 1.1) by supporting intrapersonal and environmental catalysts in forming attitudes. However, these attitudes were not always supportive of the gifted and their education.

The significance of this present study lies in the fact the review of attitudes towards the gifted by university students is limited, and that this study did not always support the literature reviewed. Additionally the university module was not effective in exerting a positive behaviour and did not temper the affective component so that more rational decisions are made towards the gifted and their provisions for special needs.

Furthermore this study supported the literature reviewed, as stated in Chapter 1, which indicated a need for improved pre-service education of teachers in the field of gifted education (Begin and Gagné, 1994; Copenhaver & McIntyre 1992; Gallagher, Coleman & Nelson 1995, and Schack & Starko 1990).
Limitations and future research recommendations

There were a number of limitations in this present study. One of the key concerns related to pre-test and post-test comparison on the attitudes inventory was external validity. For example, exposure to the pre-test questionnaire may have aroused responses to the treatment in a particular way (e.g., arouse interest or sensitise participants to the gifted issues).

Validity refers to whether an instrument measures what it is designed to measure (Buchanan & Feldhusen, 1991, p286). This questionnaire does ask questions which do not influence the participant. It is important participants have similar understandings of meanings. Although there are a plethora of definitions for giftedness, consistency was substantiated by using Gagné's definition of gifted and talented throughout the module. Gagné, Belanger and Motard (1993) also discovered in their study on the perceptions of prevalence the conception of giftedness can differ significantly and this may have affected the findings with item 17.

Reliability was ensured that by administering the questionnaire in a consistent way i.e., the procedures and data analysis were consistent. This questionnaire helped eliminate the influence of the researcher's biases as a researcher when she collected and analysed the data. The overall reliability of the questionnaire needs further examination in an Australian and English speaking countries.
Closed-form questions were used in a Likert scale where participants assessed their attitudes along a continuum. The number of favourable and unfavourable choices is equal (i.e., five point Likert – strongly agree, agree, neutral, disagree, strongly disagree). However, future research may examine a cluster analysis to provide dichotomous data so that clusters can be generated (an example of cluster analysis of Likert-type responses is described by Peng, Frank, & McFarland, 1984).

As stated in Chapter One, the environmental catalysts such as the intervention of prior experience of participating in a gifted program and the participants' (i.e., the university students) interpersonal catalysts, such as willingness to self-report (i.e., in a questionnaire) may have affected their attitudes towards the gifted.

The disadvantage of a self-report like a questionnaire is that they do not allow for clarification of items or further probing of answers and even one cannot control any fake answers. This can be further exacerbated in responses to 'neutral' position on the Likert scale that may encourage laziness or 'fence sitting'.

A poor return rate (28.5%) was experienced in 1998. Accompanying the questionnaire was a typed letter on university letterhead and a stamped return envelope. Another questionnaire and/or reminder could have been sent to improve the low return rate.
Other possible factors could have included apathy, as 87.9% from the 1997 cohort had stated they did not want to be a part of the present study for 1998-9, or they did not state anything on their summative evaluation form. Timing and incorrect addresses may have been other factors leading to the poor response rate. For example, the participants only had three and a half weeks to respond to the letter of invitation. The graduates’ addresses were obtained from the university when they were enrolled as university students. The chances that all graduates are at the same address are slim particularly with most graduates required to commence their country practice in 1998. This may put in question the reliability of the part of the research analysing 1998 Post cohort data as all the participants may be the graduates with the already established positive views towards the gifted. There is a need for further research with a larger sample.

The demographic information could lead to further studies. For example, a comparison of attitudes of university students that have completed a module in gifted education with those who have not received any training.

Of a minor note, one question in particular given to the 1997 cohort was poorly constructed and could have led to ambiguity, and confusion in answering. For example, the question: “Are you aware of gifted and talented state policy?” should have read “Are you aware of the Education Department’s state policy, Policy and Guidelines for the Education of Gifted and Talented Students?”, as not all university students work in government schools.
Overall, the limitations of the Gagné-Nadeau (1991) attitude questionnaire, identified prior to the use of Cronbach’s Alpha, were:

1. There were varied number of items per section/factor.
2. Some sections only had 3 to 4 items (statements) therefore, the findings should be interpreted with caution.
3. Item 17 open to differing interpretations.
4. Careful interpretation is required from one context (i.e., country) to another.
5. Factor 5, ability grouping, may be contrary to EDWA’s ethos in secondary schools for all learning areas.
6. Could add another factor/section to succinctly differentiate provision in the regular classroom compared to special types of provision for the gifted (i.e., withdrawal programs).
CHAPTER EIGHT

CONCLUSION

Although attitudes are not observable, they can be measured using reliable instruments such as the attitude questionnaire used in this present study, ‘Opinions about the gifted and talented and their education’ (Gagné-Nadeau, 1991). Powerful results were obtained using this instrument and supporting qualitative information to determine if participation in a university module on gifted education had a short and medium term effect in shaping attitudes towards the gifted. As the research in attitude instruments declared, “don’t expect dramatic results in either a positive or in a negative direction when analysing attitudinal and opinion data” (Buchanan & Feldhusen, 1991, p304). However, this present study’s findings produced some ‘dramatic’ attitudinal results.

The university module was not as effective in changing attitudes of the 1997 cohort positively towards the gifted and their education. Clearly there was no short-term effect and this questioned the overall effectiveness of the module. However limited evidence suggested there was a medium, positive, attitudinal effect once the cohort became practising teachers and put policy/theory into action, as their attitudes were more positive towards the gifted. This result was anticipated (see Chapter 1) and was also aligned with the researcher’s conceptual framework (Figure 4.1). However, the effect was limited due to the sample size and further research needs to address a larger population.
Current education reform in Western Australia, suggested all schools, government and non-government, are to be guided by an environmentalist approach and by using the document based on sound teaching and learning principles of the *Curriculum Framework* (Curriculum Council, 1998). This framework advocates a developmental approach, rather than age related classes. Although this will mean a philosophical shift for some schools, it is suggested that this will allow for greater flexibility and work towards satisfying student needs, by catering for individual differences, rather than using administrative or age related practices that often occurs. If these principles of teaching and learning are recognised, namely that: learning is developmental; that there is a need to cater for different learning rates and to identify current student status to provide the appropriate and challenging curriculum (Gross, 1994b), then the needs of the gifted must also be met within this new *Curriculum Framework*. To cater for individual learning rates and to provide a challenging and stimulating curriculum, it is important then that teachers become more aware of the needs of the gifted and the attitudes they themselves portray towards them, as they would do for any other group of children.

It cannot be ignored that gifted children, like the learning disabled children, have special requirements. Gifted children require a differentiated curriculum.

"...it would be expected that students with significantly higher ability would achieve at a different rate that the student population as a whole. The objective for these students would be individually based and focused on fully developing their potential. Monitoring
achievement for these students would need to be against individual potential. Much information abounds in the literature on this and stresses the need for a range of strategies which involve teachers and other school personnel, the students themselves, their peers and parents." (EDWA, 1998b, p11).

However, this study revealed university students, once they had participated in a university module on gifted education, could not identify a large range of classroom strategies for the gifted. This also indicated they were not supportive of some of the strategies, such as ability grouping and acceleration, as supported by research. Therefore, it could be suggested, they are not supporting social equity policies and providing adequate opportunities for the gifted to reach their true potential.

Gifted children do require trained teachers in gifted education with positive attitudes to help cater for their needs. The new millennium should see positive attitudes and good teaching practice in action if university and other educational institutions provide appropriate training in gifted education for all classroom teachers, university students, and teachers of the gifted.

Historically, as the literature reviewed suggested, the momentum for gifted education is rising even though some old attitudes, such as elitism, prevail. It is hoped that these issues and attitudes are finally and effectively implemented into the twenty first century.

Presently, as one student teacher commented on the summative evaluation form: "That it [the module] provided information on a topic which isn’t highly recognised in schools..." The fact that some university educational
institutions still do not recognise the needs of the gifted is a concern as we head towards the millennium with greater accountability requirements for individual students.

With greater accountability, it is hoped that the gap between policy for the gifted and policy in action in schools will be closed. Likewise, that universities will be more conscious of the need to provide university modules that are more effective in changing university students attitudes towards the gifted and their special educational needs in the twenty-first century.
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teachers related to gifted and other academically diverse learners. 


Appendix A  Gagné-Nadeau (1994) ‘Opinions about the gifted and talented and their education’ attitude questionnaire

Opinions about the gifted and their education

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The following statements concern gifted children and their education; they were taken from newspaper articles, books, and other sources. We would like to know the extent of your agreement or disagreement with each of them. There are no correct or incorrect answers. Please, feel free to express your personal opinion.

1. Use the scale below to give your opinion.
2. Circle beside each statement the number which best represents your opinion.
3. Answer as spontaneously as possible.
4. Please answer all questions.
5. Use answer 3 as little as possible.

**SCALE: 1 = totally disagree; 2 = partially disagree; 3 = undecided; 4 = partially agree; 5 = totally agree**

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<th>Statement</th>
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<th>2</th>
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<tbody>
<tr>
<td>01. Our schools should offer special educational services for the gifted.</td>
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<td>02. The best way to meet the needs of the gifted is to put them in special classes.</td>
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<td>03. Children with difficulties have the most need of special educational services.</td>
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<td>04. Special programs for gifted children have the drawback of creating elitism.</td>
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<td>05. Special educational services for the gifted are a mark of privilege.</td>
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<td>06. When the gifted are put in special classes, the other children feel devalued.</td>
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<td>07. Most gifted children who skip a grade have difficulties in their social adjustment to a group of older students.</td>
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<tr>
<td>08. It is more damaging for a gifted child to waste time in class than to adapt to skipping a grade.</td>
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<tr>
<td>09. Gifted children are often bored in school.</td>
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<tr>
<td>10. Children who skip a grade are usually pressured to do so by their parents.</td>
<td></td>
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<tr>
<td>11. The gifted waste their time in regular classes.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>12. We have a greater moral responsibility to give special help to children with difficulties than to gifted children.</td>
<td></td>
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</tr>
<tr>
<td>13. Gifted persons are a valuable resource for our society.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>14. The specific educational needs of the gifted are too often ignored in our schools.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>15. The gifted need special attention in order to fully develop their talents.</td>
<td></td>
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</tr>
<tr>
<td>16. Our schools are already adequate in meeting the needs of the gifted.</td>
<td></td>
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</tr>
<tr>
<td>17. I would very much like to be considered a gifted person.</td>
<td></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>
Appendix A

Opinions toward the gifted

SCALE: 1 = totally disagree; 2 = partially disagree; 3 = undecided; 4 = partially agree; 5 = totally agree.

1. It is parents who have the major responsibility for helping gifted children develop their talents. (482)

2. A child who has been identified as gifted has more difficulty in making friends. (554)

3. Gifted children should be left in regular classes, since they serve as an intellectual stimulant for the other children. (835)

4. By separating students into gifted and other groups, we increase the labelling of children as strong-weak, good- less good, etc. (275)

5. Some teachers feel their authority threatened by gifted children. (674)

6. The gifted are already favoured in our schools. (122)

7. In order to progress, a society must develop the talents of gifted individuals to a maximum. (451)

8. By offering special educational services to the gifted we prepare the future members of a dominant class. (823)

9. Tax-payers should not have to pay for special education for the minority of children who are gifted. (732)

10. Average children are the major resource of our society; so, they should be the focus of our attention. (342)

11. Gifted children might become vain or egotistical if they are given special attention. (312)

12. When skipping a grade, gifted students miss important ideas (they have "holes" in their knowledge). (866)

13. Since we invest supplementary funds for children with difficulties, we should do the same for the gifted. (961)

14. Often, gifted children are rejected because people are envious of them. (304)

15. The regular school program stifles the intellectual curiosity of gifted children. (431)

16. The leaders of tomorrow's society will come mostly from the gifted of today. (653)

17. A greater number of gifted children should be allowed to skip a grade. (206)

Thank you very much for your help in this research project.

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Appendix B  Mindmap of thesis

Research: Novice teachers' attitudes towards giftedness, gifted students and special provision for the gifted.

Post 1998
Post
Pre
1997
1996
192 Participants
Gagne-Nadeau Questionnaire
Demographic Information
6 Categories (from Questionnaire)
Research Qs

Discussion
Results
Literature Review

Summative Evaluation

Data
Organization

Research Questions

Tertiary Module: Catering for High Ability / Gifted & Talented Students
Appendix C  University module outline: ECU 3600 - Catering for high ability (gifted and talented) students.

"A MODEL FOR THE 'GIFTED' MODULE" - WESTERN AUSTRALIA

'Academic Extension'

(Social Justice Policy W.A. 1991)
(Policy for the Education of Gifted & Talented Children 1996)
"Teaching TAGS" (WA) 1995

Lecturers
"quality in partnersrship

Consultants in
Schools 1977-present

Students (B.A.(Ed)
"successful practitioners"

Characteristics
of teachers'

'Enrichment'
Definitions

"Issues"

"Study of
methods"

"Creativity"

Research articles
critique and -
group presentation

MODULE
ON CATERING FOR
HIGH ABILITY
adolescents
1984-PRESENT

TYPE I
General
exploratory

TYPE II
Skills

TYPE III
'Real-life' problem
solving

Teacher Development

Ability to modify
curricula to foster
talent development.

Needs assessment of
Gifted in particular
contexts

Reflective practitioners

Adapted from
Renzulli 1977)
and
(Adams & Wallace 1990)
by Newhouse-Maiden
& Williams (1996)
SURVEY: CATERING FOR HIGH ABILITY (GIFTED AND TALENTED) STUDENTS

NAME or PERSONAL IDENTITY CODE

MALE/FEMALE (circle)

AGE 19-25 (circle)

over 25

Teaching Area(s)

Having just returned from a successful 10 weeks ATP and now a qualified practitioner:

1. Did your ATP school make any form of provision for the bright students? Please specify.

2. Were you involved in any form of special programme to develop your personal talents/gifts? Please specify.

3. What are your expectations of this "gifted" module?

4. What are the hoped for outcomes for you as a result of this module?
   a) personally
   b) professionally, and
   c) for your future students?

Please continue now with the Attitude Scale inventory on the next 2 pages.
Appendix E  1997 cohort demographic sheet

EDU 3600
SURVEY: CATERING FOR HIGH ABILITY
(GIFTED AND TALENTED) STUDENTS

<table>
<thead>
<tr>
<th>Name or Personal Identity Code</th>
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<table>
<thead>
<tr>
<th>Male/Female</th>
<th>(circle)</th>
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</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>19-25</th>
<th>over 25</th>
<th>(circle)</th>
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</thead>
<tbody>
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</table>

<table>
<thead>
<tr>
<th>Teaching Area(s).</th>
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<tbody>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Prac (ie ATP, other: please specify)</th>
</tr>
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<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>Was your Prac in a government or non government school?</th>
</tr>
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<tbody>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Having just returned from either a successful Prac or successful 10 week ATP and now as a qualified practitioner:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Are you aware of gifted and talented state policy?  Yes  No</td>
</tr>
<tr>
<td>2. Did your school have a policy on gifted and talented students?  Yes  No</td>
</tr>
<tr>
<td>3. Did you see or use a TAGS professional development file on gifted or talented students?  Yes  No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Did your ATP school make any form of special provision for the bright students?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please specify.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>3. As a student in school, were you involved in any form of special programme to develop your personal talents/gifts? Please specify.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>4. What are your expectations of this &quot;gifted&quot; module?</th>
</tr>
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</tbody>
</table>

| 5. What are the hoped for outcomes for you as a result of this module? |
| a) personally |
| b) professionally, and |
| c) for your future students? |

Please continue now with the Attitude Scale inventory on the next 2 pages.
Appendix F  Summative evaluation form of 1997 university module.

EDITH COWAN UNIVERSITY  
SCHOOL OF TEACHING AND LEARNING  
ED3600: GIFTED MODULE EVALUATION

Please indicate the extent of your agreement or disagreement with the following items by ticking

<table>
<thead>
<tr>
<th></th>
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<th>SA</th>
<th>A</th>
<th>D</th>
<th>SD</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>The module content was consistent with my prior expectations.</td>
<td></td>
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<tr>
<td>2.</td>
<td>The module objectives were met.</td>
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<tr>
<td>3.</td>
<td>Comments on returned assignments were helpful.</td>
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<tr>
<td>4.</td>
<td>There was a good balance between theory and application of the theory.</td>
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<tr>
<td>5.</td>
<td>The intellectual content of the unit was substantial rather than trivial.</td>
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<tr>
<td>6.</td>
<td>Lectures were adequately supplemented by other relevant strategies.</td>
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<tr>
<td>7.</td>
<td>Small group work encouraged my creativity and skills in metacognition.</td>
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<tr>
<td>8.</td>
<td>The lectures and small group discussions in workshops discouraged analytic thought.</td>
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<tr>
<td>9.</td>
<td>There was an inadequate range of reference materials available.</td>
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<tr>
<td>10.</td>
<td>Knowledge and examination of the TAGS File contributed to my learning.</td>
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<tr>
<td>11.</td>
<td>Assigned reading appreciably aided learning in this module.</td>
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<tr>
<td>12.</td>
<td>The module assignment made me think and creatively apply workshop content.</td>
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<tr>
<td>13.</td>
<td>Small group activities provided good experience in applying module ideas.</td>
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<tr>
<td>14.</td>
<td>Lecturer's expectation for good performance was unrealistic.</td>
<td></td>
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<tr>
<td>15.</td>
<td>The module outline handed out before the mid-semester break was clear and useful.</td>
<td></td>
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<tr>
<td>16.</td>
<td>The module has increased my interest in catering for high ability students.</td>
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</tbody>
</table>
17. Which aspects of the module did you find most useful?

18. Please comment on the Group Assignment: e.g. Effectiveness? Usefulness? Appropriate application of marks? Worthwhile learning experience? etc.

19. List some strategies you would employ to cater for high ability children in your classroom.

20. How could the module be improved?

21. Are you willing to be included in a follow-up study next year? If yes, please provide name and a contact telephone number.

22. Any other comments?
Appendix G  1998 cohort letter to participate in present study.

Name

Street Number and Name

Suburb and Post code

Dear

In 1997 you participated in a module at Edith Cowan University called EDU 3600: *Catering for High Ability (Gifted and Talented) Students*. In this module lecturers, Janet Williams and Lesley Newhouse-Maiden, gave you a pre and post questionnaire about your attitudes towards giftedness, gifted students and special provision for the gifted to ascertain whether this module had "made a difference" in your attitudes.

As part of my bachelor of Education (Honours) Thesis, I am interested in finding out whether as a new graduate you have had any opportunities to teach gifted students and whether there had been any attitudinal change regarding provision for the gifted, as a result of recent school experiences. I would greatly appreciate if you would again complete the attitudinal inventory enclosed, so that I can measure whether there have been attitudinal changes since you became a graduate teacher. This data will remain strictly confidential and is being collected as part of my thesis. If you would like further information you may contact me on (08) 9245 6582 or my supervisor, Mrs Lesley Newhouse-Maiden on (08) 9370 6527
For your convenience I have enclosed a stamped, self-addressed envelope and I would greatly appreciate if you could return the completed questionnaire by October 31, 1998.

In anticipation, I thank you for your time and I wish you all the best with your new career.

Yours sincerely

SUZANNE COOPER

Bachelor of Education (Hons) Student
Appendix H  "Titles of sections" scoring sheet for Gagné-Nadeau attitude questionnaire.

Scoring procedure for the questionnaire "Opinions about the gifted and their education."

Instructions. Transfer your answers from the questionnaire to the corresponding spaces below, taking care to invert answers (5 = 1; 4 = 2; etc.) to items within brackets. Then, do the requested computations to obtain totals and means.

<table>
<thead>
<tr>
<th>Totals</th>
<th>Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>18 = ___</td>
</tr>
<tr>
<td>B.</td>
<td>10 = ___</td>
</tr>
<tr>
<td>C.</td>
<td>14 = ___</td>
</tr>
<tr>
<td>D.</td>
<td>13 = ___</td>
</tr>
<tr>
<td>E.</td>
<td>14 = ___</td>
</tr>
<tr>
<td>F.</td>
<td>15 = ___</td>
</tr>
<tr>
<td>Total score (Sum of A to F)</td>
<td>134 = ___</td>
</tr>
</tbody>
</table>

Titles of sections

A. **Needs and support** (Needs of gifted children and support for special services).
B. **Level of opposition** (Objections based on ideology and priorities.)
C. **Social value** (Social usefulness of gifted persons in society).
D. **Rejection** (Isolation of gifted persons by others in the immediate environment).
E. **Ability grouping** (Attitudes toward special homogeneous groups, classes, schools).
F. **School acceleration** (Attitudes toward accelerative enrichment).

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## Appendix I  Summary of university students' major subject teaching areas.

<table>
<thead>
<tr>
<th>Teaching Area</th>
<th>1996 Cohort</th>
<th>1997 Cohort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art</td>
<td>8.33%</td>
<td>14.28%</td>
</tr>
<tr>
<td>Business Education</td>
<td>6.48%</td>
<td>7.93%</td>
</tr>
<tr>
<td>Design &amp; Technology</td>
<td>13.88%</td>
<td>7.93%</td>
</tr>
<tr>
<td>Drama/English</td>
<td>16.66%</td>
<td>12.69%</td>
</tr>
<tr>
<td>Health &amp; Physical Education</td>
<td>16.66%</td>
<td>22.22%</td>
</tr>
<tr>
<td>Home Economics</td>
<td>5.55%</td>
<td>12.69%</td>
</tr>
<tr>
<td>Library</td>
<td>4.629%</td>
<td>9.52%</td>
</tr>
<tr>
<td>Mathematics</td>
<td>3.70%</td>
<td>0%</td>
</tr>
<tr>
<td>Media</td>
<td>0.925%</td>
<td>0%</td>
</tr>
<tr>
<td>Science</td>
<td>9.25%</td>
<td>3.17%</td>
</tr>
<tr>
<td>Social Science</td>
<td>7.40%</td>
<td>9.52%</td>
</tr>
</tbody>
</table>