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THE IMPACT OF GROUPING GIFTED STUDENTS ON MOTIVATION

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Abstract

Encouraging and facilitating learning for children is an important role for educators. How best to motivate children to learn is a critical question when educating gifted children? Motivation is that commitment to involvement with the learning process. A distinction can be made between goal orientations to achievement with a focus in this study on mastery goal orientation and performance goal orientation. This study considered whether mastery goal orientation was more prevalent when gifted pre-adolescent children (aged 10-12 years) in NSW schools, Australia, were grouped together in a selective class (experimental group) in contrast to children placed in non-selective class situations (comparison group). The results indicated that mastery goal orientation decreased significantly for all children over time but the magnitude of these decreases was similar across the two groups. In fact, for this age group all motivation was decreased over time for both the selective class groups and the non-selective class groups. Further research on the affective and motivational outcomes for gifted children and their learning is suggested. Pre-adolescent developmental influences are discussed.

Keywords: Gifted children, mastery goal orientation, selective class placement, grouping of gifted children

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1. Introduction

As educators we strive to see students reach their potential. Special classes for gifted and talented children can yield successful educational experiences for highly gifted students (Feldhusen, 1991; Feldhusen & Sayler, 1990).

Research indicates that the outcome of selective class placement for gifted students often results in increased motivation for learning (Goldberg & Cornell, 1998; Gross, 1993). Research on achievement orientation has delineated different types of goal orientations among students and the motivational processes in play (Ames & Ames, 1984; Ames & Archer, 1988; Dweck, 1986; Urdan & Mestas, 2006). Different goals bring out different motivational patterns and impact on student learning in a classroom setting. Ames (1992) refers to dichotomous achievement goal constructs which have been labelled as learning and performance goals (Brophy, 2010; Dweck, 1986; Dweck & Leggett, 1988), task involvement and ego-involvement goals (Maehr & Nicholls, 1980) and mastery and performance goals (Ames & Archer, 1988). She refers to these different named goals as 'convergent'.

Academic achievement is impacted by motivation. Research also indicates that goal orientation, classroom climate as well as perceived efficacy impact student achievement (Ames & Archer, 1988; Zimmerman, Bandura, & Martinez-Pons, 1992). For gifted students, grouping becomes an important issue if integration or segregation of the gifted impacts on mastery goal orientation which is a focus in learning and achievement.

2. Motivation

Gifted children, like all children, need to be motivated to learn, especially in school settings. Meeting the emotional and academic needs of gifted students has been extensively researched (Colangelo, Assouline, & Gross, 2004; Feldhusen, 1991; Gottfried & Gottfried, 1996, 2004; Gross, 1995; Robinson, 2006). There is evidence that appropriate educational interventions as well as a focus on social and emotional needs are necessary to optimise the learning of gifted children (Foster, 1983; Gagne, 1995; Hoekman, McCormick, & Barnett, 2005). Feldhusen and Hoover (1986) stated that a focus on maintaining motivation should be the goal of all gifted programs. What is less clear is what motivates gifted students to learn and whether special class settings improve the motivation of gifted pre- adolescent school children.

From social cognitive theories, (Bandura, 1986; Deci & Ryan, 1985; Dweck, 1986, 2000; Nicholls, 1984; Ryan & Deci, 2000), it is evident that there is an interaction between social-contextual and personal factors impacting human motivation. However, Dai, Moon, and Feldhusen (1998) propose that personal and social-cognitive factors are mediated by

self-processes such as self-regulation and ability to goal set, to influence achievement factors. Stemming from Ryan and Deci's research (2000) when individuals feel competent, their intrinsic motivation is enhanced.

Some researchers (Anderson & Rodin, 1989; Vallerand, Gagne, Senecal, & Pelletier, 1994) speculated that in a homogenous class of gifted students, their intrinsic motivation is enhanced if they are able to pursue learning goals at their own pace whereas, in a heterogenous class these students may be held back by proceeding at a slower pace. In this situation, intrinsic motivation may be compromised and gifted students may in fact feel controlled and less able to achieve at their own pace.

Gottfried and Gottfried (1994) reported that intrinsic motivation was evident in gifted children from the age of 8 and continued into adolescence when students were immersed in cognitively appropriate tasks. They proposed a construct called 'gifted motivation' which relates to significant intrinsic academic motivation and results in higher academic achievement (Gottfried, Cook, Gottfried, & Morris, 2005). Most achievement goal and intrinsic motivation theorists believe that mastery goals are facilitative of intrinsic motivation (Elliot & Harackiewicz, 1996; Kaufman & Dodge, 2009). Awareness of learning goals needs to be identified early in life and nurtured by stimulating class environments. Children's values about achievement are a crucial factor in motivation that leads to their academic performance (Pintrich, 2000; Pintrich & DeGroot, 1990).

McCoach and Siegle (2003) reported that there is a strong relationship between students' goals and their motivation to achieve these goals. Their research showed that gifted underachievers and gifted achievers differed most significantly on the issue of motivation. The goals that gifted students set for themselves often reflect the effort they put into achieving these goals.

Motivation to learn is a competence "acquired through general experience but stimulated most directly through modelling, communication of expectations, and direct instruction or socialization by significant others (especially parents and teachers)" (Brophy, 1987, p. 3). Children's home environment initially shapes attitudes that children develop towards learning. "When parents nurture their children's natural curiosity about the world around them by encouraging questions and exploration, they give children a powerful message that learning is worthwhile and can be fun and satisfying" (Brophy, 1987, p. 3). When children are raised in a home that nurtures a sense of self-worth, competence, autonomy and self-efficacy, they will be more apt to accept the risks inherent in learning.

Conversely, when children do not view themselves as basically competent and able, “their freedom to engage in academically challenging pursuits and their capacity to tolerate and cope with failure are greatly diminished” (Lumsden, 1994, p. 1).

The term motivation to learn is defined by Marshall (1987, p. 136) as “the meaningfulness, value, and benefits of academic tasks to the learner, regardless of whether or not they are intrinsically interesting”. Ames (1990) notes that motivation to learn is characterised by long-term, quality involvement in learning and commitment to the process of learning.

3. Goal Orientation

One vital component of student motivation is goal orientation. Goals are cognitive representations of the different purposes children may adopt in achievement situations (Pintrich, Marx, & Boyle, 1993). They are the answers to the question “Why am I doing this task?” Research has focused on two general answers to this question which represent two particular goal orientations. Children who engage in a task primarily to improve their level of competence are said to have a mastery goal orientation (Ames & Archer, 1988). The other broad orientation is performance approach goals. Performance approach orientation reflects students wanting to achieve academically to demonstrate their ability, to perform better than other students and to attain certain marks. Performance approach goals often reflect learners obtaining tangible rewards associated with academic performance (Dowson & McInerney, 1998).

Cognitive skills necessary for academic achievement interact with motivational processes. Motivation to achieve involves a goal orientation toward competence and can be seen to fall into two categories: learning goals where individuals seek to increase their competence or to understand or master a new task; and, performance goals, in which individuals work to gain favourable judgements of their competence or avoid negative judgements of their competence (Dweck & Elliott, 1983).

Students who are mastery goal oriented value learning for its own sake and define success by greater competence and understanding (Butler, 1995). Elliot and Harackiewicz (1996, p. 462) report that “the adoption of a mastery goal is hypothesized to produce a mastery motivational pattern characterized by a preference for moderately challenging tasks, persistence in the face of failure, a positive affective stance toward learning and enhanced task enjoyment”. Other researchers contend that subjective feelings of efficacy are involved with effort and achievements in pursuing self-referenced standards and lead to determining self-concept in distinct domains (Nicholls, Cheung, Lauer, & Pataschnick, 1989).

In contrast, performance goals, are referenced against others' performance or against external standards such as grades (Ames, 1992). Integral to performance goals is a focus on ability (Dweck, 1986), self-worth (Covington, 1984) and obtaining favourable judgements from others (Meece, 1994) rather than on effort. Success is seen in terms of 'beating' others. Feelings of pride are obtained from doing well, especially with little effort rather than from improved competence through appropriate effort (Ames, 1984). Often there is a preference for easy tasks, as well as attribution of failure to lack of ability and decreased enjoyment of tasks.

Motivational goal orientation is an important factor in learning because the interaction of motivational factors and cognitive factors has a subsequent effect on academic performance (Pintrich, 1990). Elliot and Church (1997) devised a hierarchical model of achievement motivation showing that the achievement motive links to mastery and performance –approach goals, both of which lead to improved classroom performance. Is motivation to learn enhanced by selective opportunity class placement? This is an important issue when discerning where best a gifted child will learn. Gifted children have outstanding potential and exceptional abilities to achieve. Educators and parents want to enhance and nurture the achievement of gifted and talented children. Most educators would see the value of fostering mastery goal orientation as a motivator for learning and achievement. This study considered whether mastery goal orientation was more prevalent when gifted children were placed in a homogeneous selective class than when they were placed in non-selective class situations.

This study considered the effects selective gifted class placement has on the motivational goal orientation of gifted children (their mastery goal orientation, and performance approach goal orientation). The gifted students in the selective gifted classes formed the experimental group. The gifted students in either the streamed grouping or the mixed ability groups formed the comparison group.

Specific hypotheses were as follows:

1. That mastery goal orientation would be enhanced by selective gifted class placement compared to the non-selective class placement

2. Performance approach goal orientation will be unchanged by selective gifted class placement compared to the non-selective class placement

4. Method

4.1. Participants

The participants in this study were school children aged 10-12 in grades 4-6 in both government and non-government schools. The study comprised two groups, one of two hundred and fifty gifted and talented students, selected after formal individual cognitive testing by a psychologist as well as school and/or parent nomination (IQ's over 120) to be a member of one of 10 opportunity classes (these are special classes set up in some government primary schools for gifted and talented children where entry is selective. Parents and children have to formally apply for their child to obtain a place in these selective school classes and entry is on merit, based on IQ, work samples as well as teacher and/or parent nomination) in a region of Sydney (selective class group). The comparison group (non selective class group) made up of 384 gifted and talented students, 197 students aged 10-12 in grades 4-6 from 9 schools (6 government primary schools and 3 non-government primary schools) in a mixed ability setting and 187 students from 5 schools (2 government primary schools and 3 non-government primary schools) in streamed settings. The streamed groups were based on achievement in class tests at each school and represented the top achievers in the age group 10-12 year olds. The streamed groups varied in their ability range and generally these children had not been individually cognitively tested. The streamed groups were formed by schools as a chosen grouping of children basically designed so that those children needing extra support could be grouped together as distinct from grouping the more able together. All participants were in the top 10% of their age cohort on cognitive and/or ability tests.

5. Procedure

Letters were sent to the Principals of the 12 government schools with selective opportunity classes (OC) inviting them to participate in this study. The same letters were sent to the Principals of the other 14 schools which catered for their gifted children in either streamed settings or in mixed ability groups.

The School Motivation Questionnaire (Marsh & Craven, 1994) was used to determine motivational orientations. This questionnaire contains scales measuring six motivational orientations. Scales contained six or seven items. Participants responded to positively worded declarative statements, (see Table 1) using a five-point

Likert scale. Factor analyses identified all the hypothesised factors on the School Motivation Questionnaire (SMQ). The clarity of the factor structure supports the construct

validity of the SMQ. Factor loadings for all confirmatory factor analyses were consistently high (median=.81) and all reliability estimates were .90 or higher (Marsh, Craven, Hinkley & Debus, 2003). For this study I only report on two scales, mastery goal orientation scale and performance goal orientation scale.

Each of the 250 children in the 10 selective OC's, as well as the 384 students in streamed or mixed ability classes were tested on this instrument. The classroom teachers of the selective opportunity classes, the streamed classes and one school-nominated teacher from each school housing the mixed ability classes were trained to administer the SMQ. The instruction was given by trained administrators of the test. Teachers were provided with scripted directions detailing the administration procedures for the test. The importance of following the scripted directions was emphasised so that there was a standardised testing procedure. There were two waves of data collected. Time 1 data was collected in the second or third week of the school year in February. Time 2 data was collected in the same way, using the same procedures, in October of the same year (8 months after Time 1). This reflected data collection at the start of the school year and toward the end of the same school year.

6. Variables

6.1. Independent Variables

In this study the independent variables were:

- 1.Group membership, that is, membership in a homogeneous class of gifted and talented students versus mixed ability or streamed class membership; and,
- 2.Time.

6.2. Dependent Variables

In this study the dependent variables were:

- 1.The measure of mastery goal orientation on the School Motivation Questionnaire (SMQ) (Marsh & Craven, 1994);
- 2.The measure of performance approach goal orientation on the SMQ;

6.3. Control Variables

There was one control variable in this study:

- 1.The age of the children

6.4. Data Analysis

Items on the School Motivation Questionnaire (Marsh & Craven, 1994) were scored and mastery goal orientation and performance goal orientation scores were calculated. The mastery goal orientation scale consisted of 6 items, performance goal orientation had 7 items. Reliabilities of these scales were calculated for Time 1 and Time 2 and are reported in Table 1.

Table 1. Scales from the School Motivation Questionnaire (SMQ) with Sample Items and Reliability Coefficient Alphas for Time 1 and 2

3	Example Item	Reliability Coefficient Alpha	
		Time 1	Time 2
SMQ			
Mastery Goal Orientation	I feel most successful in school when I reach a goal or target	.59	.63
Performance Approach	I do my school work because I like to be at the top of the class	.68	.70

A series of repeated measures ANOVAs was performed on the two motivation scales. The means of mastery goal orientation and the performance approach goal orientation were calculated and then used in these repeated measures ANOVAs. For each analysis time (Time 1 vs. Time 2) was a repeated measures variable whereas group (selective class group, or non-selective group) was the between group variable. Statistical analyses of comparing means of each construct, examined the effects of group placement on motivational goal orientation and on group differences between Time 1 and Time 2. The main focus of these analyses was whether or not there were differences between the two groups over time.

7. Results

7.1. Motivational Goal Results

Descriptive statistics for the dependent variables are shown in Table 2 below.

Table 2. Descriptive statistics for dependent variables

Variable	Selective class group				Non-selective group			
	Time 1		Time 2		Time 1		Time 2	
	M	SD	M	SD	M	SD	M	SD
Motivation								
Mastery	4.16	.57	3.98	.66	4.26	.59	4.19	.62
Perf /Approach	4.00	.67	3.84	.71	4.25	.62	4.04	.68

Table 2 shows that Mastery goal approach decreases from Time 1 to Time 2 in both the selective class group as well as the non-selective class group. The main effect for Time, regardless of group shows that this decrease is significant. In addition, the main effect Group is significant (i.e. Mastery goal orientation is lower in the selective group (averaged over time). ($F(1,562)=12.16, p<.01$; partial eta squared=.021). Finally, there is a marginally non-significant interaction effect between Group and Time which does not support Hypothesis 1.

Repeated measures ANOVA results for the main effect of group and time as well as interaction effects for mastery goal orientation are shown in Table 3.

Table 3. Main Effects (ME) of Group and Time with Interaction Effects on Mastery Goal Orientation

Variable	DF	MS	F	Sig of F
ME of Time	1	3.93	19.31	*.000
ME of Group	1	6.59	12.16	*.001
Interaction	1	.65	3.21	.074

* $p < .01$

Table 2 shows that Performance approach goal orientation decreases from Time 1 to Time 2 in both the selective class group as well as the non-selective class group. The main effect for Time, regardless of group shows that this decrease is significant. In addition the main effect Group is significant (i.e. Performance goal orientation is lower in the selective group (averaged over time) ($F(1,562)=21.36, p<.01$; partial eta squared=.036). Finally, there is a non-significant interaction effect between Group and Time which does not support Hypothesis 2 (Table 4).

Table 4. Main Effects (ME) of Group and Time with Interaction Effects on Performance Approach Goal Orientation

Variable	DF	MS	F	Sig of F
ME of Time	1	9.55	45.25	*.000
ME of Group	1	6.59	14.17	*.000
Interaction	1	.16	.75	.387

* $p < .01$

8. Discussion

8.1. Motivational Goal Orientation

This research considered membership of special gifted classes and the impact on motivational goal orientation. Two aspects of motivational goal orientation were considered

1) Mastery goal orientation, where students engage in a task basically to improve their competence and understanding;

2) Performance approach goal orientation where goals are referenced against the performance of other students or external standards; and,

These two goal orientations were used to examine why students do their work and whether this orientation differed for the selective classes of gifted students and non-selective classes of gifted students. The research question asked which class grouping enhanced mastery goal orientation for gifted learners. Results indicated that there were significant effects of time and group for the two types of goal orientations researched. Specifically, mastery and performance goal orientation decreased from time 1 to time 2 and this decline was greater for the selective group of students compared to the other group. Hypotheses 1 and 2 need to be rejected.

The results were surprising and in contrast to the research of Winner (1996) who found that gifted children generally are motivated to work and challenged to achieve mastery. Mastery orientation was lower to begin with and declined even further as time went on. This happened in both groups but the decline was greater in the selective group. Results indicate that in this cohort, the students were not engaging in mastery goal orientation and possibly therefore not improving their competence and understanding but may have been driven by other factors. This could reflect a feeling of complacency that may result when students have gained entrance into a special class (Gottfried & Gottfried, 2004). It may also reflect that these children were not being academically challenged in the classroom or that other factors were interfering with their learning. Roeper (2000) refers to the drive to learn being emotionally based while the ability to learn is cognitive. Speculation about the decline in mastery orientation suggests that the students motivation had declined possibly because their emotional development was not as advanced as their cognitive development overall or else the desire to keep learning was not a driving force at this stage in their development (Roeper, 2000). Another explanation may revolve around the research findings which show evidence of a negative association between intrinsic motivation and aspects of tedium (Hoekman et al., 2005). Perhaps the educational experiences offered to these students were in the tedium bracket' rather than challenging. Other factors such as the classroom

atmosphere and the competition in the classroom may have been significant issues (Urdan & Maehr, 1995).

8.2. Performance Goal Orientation

Performance approach goal orientation was significantly lower in the gifted group and was significantly lower at the end of the year compared to the beginning of the year. This was an unpredicted outcome as it was hypothesized that there would not be any difference in performance approach goal orientation in the selective group compared to the non-selective group. Criticism of gifted classrooms has been that an overly competitive atmosphere can prevail (Webb, 1993), however in this study no data on classroom factors was collected and analysed.

Competitive atmosphere in a classroom can be modified by teacher praise of student's effort. Mueller and Dweck (2002) in their research found that praising gifted children's intelligence did not boost performance or self-esteem. They found that when effort was praised this encouraged students to sustain their motivation and performance.

The surprising result is the lowering of mastery goal orientation in the gifted group. The justification for gifted classes often uses motivation as a key argument (Gross, 1993; Rogers, 2002; Winner, 1996) where it is assumed that gifted learners grouped together will work to improve their skills and competence. It is felt that the higher order thinking skills and problem solving presented will be a challenge to gifted learners and this can best be delivered when gifted learners are grouped together (Gross, 1995). Harter (1992) noted a decline in mastery goal orientation with average students in upper primary classes. Perhaps, with a gifted population, this same decline is evident. This decline in mastery orientation for gifted students grouped together in the present study was consistent with findings by other researchers (Craven, Marsh, & Print, 2000). However it must be noted that this research did not explore whether the gifted children were in fact challenged sufficiently or appropriately in these selective class groupings.

Students' thinking about ability and effort has implications for educators' understanding of high-ability students' motivation (McNabb, 1997). Nicholls (1984) reported that there are developmental trends for children in how they view the constructs of ability and effort. Pre-schoolers generally do not distinguish between these two constructs but primary school age children view these two constructs as separate, and effort is reported as the most important. Towards early adolescence, there is a change in thinking, which reflects that if you are smart you do not need to exert much effort and if you have to work hard then it is because you are not very smart. The students in selective gifted class may view their

inclusion in the class as evidence of their giftedness and then find it difficult to appear to work hard in front of their peers for fear of being judged by peers as not very 'capable'.

8.3. Implications

There are important implications for work habits of gifted students when they are labelled as gifted. With this label often comes the notion that you are able to learn things easily and quickly and that learning is effortless. As the school tasks become more challenging in a selective gifted class, some gifted learners, with a notion that learning is easy and does not require much effort, present with compensatory behaviours of avoidance to protect their view of their high ability. The generally lowered mastery goals in this study may be an indication of this preservation of self-worth when you are labelled gifted (McNabb, 1997, Chessor & Whitton, 2008).

Finally, the study of motivational goal orientations for children, poses some critical questions. The questions revolve around the need to further study the emotional development of gifted children. If, as Roeper (2000) stated, motivation is emotional, then it is important for researchers to understand how emotional development impacts on motivation to learn. Enhancement of potential to learn would be worthwhile for all students and research which unravels the complexities of motivation may shed light on how to nurture students' potential to be critical thinkers and advanced problem solvers.

This research indicated a decrease in mastery goal orientation for all students. This fact may be simply aged related (Harter, 1986) but the foundations for higher learning are laid in primary school. Pintrich (2000) indicates that goals are like other knowledge structures and can be activated by a child a priori as well as be influenced by information available in the given context. The correlation between emotional development and motivation is not fully understood and so research in this area is needed. Nurturing of intellectual potential of all students is seen as a worthwhile outcome of education. Parental role in this area is crucial (Chessor & Whitton, 2005). However, the contextual factors of school environment and classroom atmosphere cannot be ignored. Guidance for gifted students can provide a preventative approach to emotional problems if parents are involved in nurturing the social and emotional needs of their children. This is an important factor and needs further study of the emotional development of gifted students. Attending to the emotional needs of gifted students is just as vital as developing their cognitive skills. Limitations of this study revolve around the time constraints of collecting data and the lowering of motivation. These may indeed be reflective of children who are tired toward the

end of the school year. Additionally, there needs to be data collected on the nature of the classroom atmosphere and the support to which children have access.

Parents have a unique insight into their children (Chessor & Whitton, 2005); their information is valuable in understanding not just the educational needs of their child but also the social and emotional needs. Although the influences on affective and motivational outcomes for gifted children are complex, they are vital to understanding students' learning and hence providing learning outcomes which will enhance their development. Qualitative data from teachers, parents and the children would have added a valuable dimension to this work.

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