

HIGH-ABILITY STUDENTS' CONCEPTIONS OF THE FAIRNESS
OF COOPERATIVE LEARNING PRACTICES

by

DORIS MALLETT

B.Ed., University of Calgary, 1986

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARTS

in

THE FACULTY OF GRADUATE STUDIES
Department of Educational Psychology
and Special Education

We accept this thesis as conforming
to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

September 1995

© Doris Mallett, 1995

In presenting this thesis in partial fulfilment of the requirements for an advanced degree at the University of British Columbia, I agree that the Library shall make it freely available for reference and study. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by the head of my department or by his or her representatives. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Department of *Educational Psychology and Special Education*

The University of British Columbia
Vancouver, Canada

Date *September 29, 1995*

ABSTRACT

This study was an investigation of high-ability students' conceptions of the fairness of common cooperative learning practices as compared to their average-ability peers. The sample consisted of sixty children in grades four, five, and seven (i.e., twenty-three subjects enrolled in a pull-out gifted/talented enrichment program and the remainder non-participants in the pull-out program). It was hypothesized that, overall, high-ability students would endorse as most fair common cooperative learning practices involving heterogeneous groupings over acceleration and enrichment cooperative learning practices. In addition, they would indicate a preference for a cooperative learning practice involving a controversial issue and select as more fair the cooperative learning practice allowing students to choose their own groups over the teacher assigning students to groups. In addition, it was hypothesized that students' choices and justifications for those choices would reveal cognitive-developmental differences between the grades; however, there would not be significant differences between ability groups.

Separate multivariate analyses of variance were conducted with 1) choice of fair practice and 2) issues raised when justifying choices as the dependent variables to determine if there were any main effects relating to grade or ability group, or any interactions of these effects. Main effects for grade were indicated for practices only. No effects were indicated for

ability group nor were there any interactions between grade and group.

A comparison of the group means revealed that, overall, high-ability students chose the mixed-ability cooperative learning practice involving a controversial issue over acceleration and enrichment cooperative learning practices. However, high-ability students at different grade levels ranked the five practices differently. Although no significant differences existed in choices between the students in both groups, there were differences in the order in which each group rated the fairness of the practices at each grade level.

Issues discussed by students in both groups when justifying their choices of fair practices were generally in the equality and equity of work domains, followed by benefits of cooperative learning.

Overall, there was evidence that offering high-ability students a controversial topic enhanced their desire to work in mixed-ability groupings within the regular classroom.

TABLE OF CONTENTS

Abstract.....	ii
Table of Contents.....	iv
List of Tables.....	vii
Acknowledgement.....	viii
 CHAPTER 1 - INTRODUCTION.....	 1
1. Statement of the Problem.....	1
2. Purpose of the Project.....	5
3. Summary of the Problem.....	6
4. Rationale.....	7
5. Organization of the Study.....	8
6. Definition of Terms.....	9
7. Summary of Chapter 1.....	11
 CHAPTER II - REVIEW OF THE LITERATURE.....	 13
1. Overview of the Chapter.....	13
2. Moral Judgment as a Function for Assessing Fair Learning Practices and Fairness of Societal Practices.....	 13
2.1 Studies Involving Students' Understanding of what Constitutes Fair Learning Practices..	15
2.2 Studies Involving the Fairness of Societal Practices.....	19
2.3 Cooperation as a Societal Practice.....	20
3. Cooperative Learning and the High-Ability Student.....	22
3.1 Research Supporting Cooperative Learning Practices for High-Ability Students.....	24
3.2 Structure of Cooperative Learning Groups.....	30
3.3 Cooperative Learning Practices Detrimental to High-Ability Students.....	31
3.4 Studies Examining Students' Point of View on Cooperative Learning Practices.....	34

3.5	Controversy and Learning in Cooperative Learning Practices.....	35
3.6	Choosing Cooperative Groups vs Assigning Groups.....	36
5.	Statement of Hypotheses.....	37
CHAPTER III - DESIGN OF THE INQUIRY.....		42
1.	Overview of the Chapter.....	42
2.	Participants.....	42
3.	Interview Procedures.....	43
4.	Structured Interview.....	44
4.1	Introduction to the Topic.....	45
4.2	Cooperative Learning Practice with Teacher-Selected Heterogeneous Groups.....	46
4.3	Cooperative Learning Practice with Student-Selected Groups.....	47
4.4	Cooperative Learning Practice with Acceleration Groups Within the Classroom.....	47
4.5	Cooperative Learning Practice with Enrichment Groups Outside the Classroom.....	48
4.6	Cooperative Learning Practice with Teacher-Selected Heterogeneous Groups with Controversial Topic.....	48
5.	Analysis of Interviews.....	49
6.	Summary of Chapter Three.....	53
CHAPTER IV - STATEMENT OF RESULTS.....		54
1.	Overview of the Chapter.....	54
2.	Method of Analysis.....	54
3.	Analysis of Scores.....	55
3.1	Aptness of the Model.....	55
3.2	Analysis of Choices of Fair Practices.....	56
3.2.1	Results of Multivariate Analysis of Variance for Choices.....	57
3.3	Analysis of Issues Discussed When Judging Fairness of Practices.....	61
3.3.1	Results of Multivariate Analysis of Variance for Issues.....	62
4.	Summary of Chapter Four.....	63

CHAPTER V - DISCUSSION AND CONCLUSIONS.....	65
1. Overview of the Chapter.....	65
2. Limitations of the Present Findings.....	65
3. Discussion of Grade and Group Differences.....	67
3.1 Grade Differences in Choices of Fair Cooperative Learning Practices.....	67
3.2 Group Differences in Choices of Fair Cooperative Learning Practices.....	69
3.3 Mixed-Ability Cooperative Learning Practices versus Acceleration and Enrichment Cooperative Learning Groupings.....	70
3.4 Mixed-Ability Cooperative Learning Practice Involving a Controversial Topic.....	72
3.5 Peer-Chosen Cooperative Learning Groupings versus Teacher-Assigned Groupings.....	73
3.6 Grade and Group Differences of Issues Presented when Justifying Responses.....	74
4. Implications for Future Research.....	75
5. Summary and Conclusions.....	76
BIBLIOGRAPHY.....	81
APPENDIX - Example of Drawings Used for the Structured Interview.....	87

LIST OF TABLES

1.	Issues raised when judging fairness of practices.....	51
2.	Correlations between raters of issues raised.....	53
3.	Means (and Standard Deviations) of students' choices of fair practices by grade and group.....	57
4.	Means (and Standard Deviations) of students' choices of fair practice by grade.....	59
5.	Rankings of students' choices of fair practice by group.....	60
6.	Means (and Standard Deviations) for proportions of issues discussed by grade and group.....	61
7.	Means (and Standard Deviations) of proportions of issues discussed at each grade.....	63

ACKNOWLEDGEMENT

I wish to acknowledge the significant contribution of Dr. Marion Porath who inspired, guided, and encouraged me at every stage of researching, writing, and completing this thesis. The many hours of consultation were sincerely appreciated. The assistance received from Dr. Kim Shonert-Reichl in expanding my research was invaluable. I also wish to thank Dr. Theresa Thorkildsen, Department of Educational Psychology, University of Illinois at Chicago, whose research inspired and guided my study and for reading my thesis for examination. A colleague, Helen Novak, is recognized for the many hours she devoted to drawing the cartoons used during the interviews. I wish to thank the principal, teachers, and children who took part in the study.

CHAPTER I

INTRODUCTION

1. STATEMENT OF THE PROBLEM

The potential for cooperative learning groupings to differentiate and challenge the learning of high-ability students is a long-debated issue in education. Cooperative learning theorists recommend heterogeneous grouping for a major portion of the school day for all learners to maximize their own and others' learning at most grade levels and in most subjects rather than adding special programs for high-ability students (Johnson & Johnson, 1989, 1991; Johnson, Johnson, & Holubec, 1988, 1990; Johnson, Skon, & Johnson, 1980; Slavin, 1987, 1988, 1990a, 1990b, 1990c, 1991). Others, while not attempting to negate the model of cooperative learning groupings, argue that there are limits to heterogeneous groupings for high-ability students (Allan, 1991; Clinkenbeard, 1991; Feldhusen, 1989; Kulik & Kulik, 1991, 1992; Robinson, 1990; Sicola, 1990).

Studies examining achievement outcomes for students in heterogeneous cooperative learning groups reported success with these arrangements (Johnson, et. al., 1980; Slavin, 1990a, 1990c, 1990d). From these results, educators have inferred that cooperative learning is also effective with high-ability students (Robinson, 1990); however, Slavin (1990a) commented, "The research base for applications of cooperative learning to the truly gifted is weak...virtually non-existent" (p. 28). Robinson (1990), in an extensive critique of the use of cooperative

learning with high-ability students, draws attention to the dearth of research evidence.

What is particularly lacking is research which addresses the issue of high-ability students' conceptions of what constitutes fair and effective practices in addressing individual differences in academic ability in cooperative learning groupings. Dewey (1944) claimed that democracy should be extended to all parts of social life; yet in most schools democratic participation by the students is nonexistent. Although a large volume of research on moral development exists, with issues such as stealing and physical violence being the focus of moral reasoning in the schools (Kohlberg & Turiel, 1971), children's interpretations of the morality of the social arrangements they must live with have received little attention (Thorkildsen, 1989a). Students' justification for endorsing one practice as more fair than another, although it may not be a practice endorsed in their school, may demonstrate students' increasing desire for mutual respect (i.e., reciprocity) (Piaget, 1965).

A study by Thorkildsen (1989a) demonstrated that students possess the ability to progressively differentiate conceptions of fair learning practices in the classroom. That is, at ages younger than ten, children's interpretation of fair learning means completion of equal quantities of work and equal reward, while ten to sixteen-year-olds indicated that it was fair to expect all students to learn the same things but that learning simply involved working hard to assimilate facts, and students at

approximately eighteen years of age reasoned that individuals learn at different rates and maintained that more able individuals should be allowed to progress at their own speed. Further, five progressively more differentiated conceptions of fairness indicating differences in the type of goods and the procedures for their distribution were identified. Specifically, students' choices and supportive justification revealed an age trend in 1) equality of rewards, 2) equality in the quantity of schoolwork completed, 3) equality of learning, 4) equity of learning partially differentiated from equality of learning, and 5) equity of learning.

The differentiation between equality and equity is concurrent with the appearance of solidarity (Piaget, 1965). Specifically, solidarity begins to emerge at approximately seven years of age and "between 7 and 10 sheer equality ...outweighs equity" (Piaget, 1965, p. 216). Equalitarianism develops only through the progress made by cooperation and solidarity (i.e., mutual respect). Specifically, children of five to seven years perceive their society as one in which all individuals are alike unlike ten to twelve-year-olds who achieve an ordered unity with laws and regulations and who demonstrate stronger moral solidarity than do the younger children. Consideration of equity begins to succeed sheer equalitarianism at approximately eleven to twelve years of age. This pattern is similar to that described in the research where younger children place an emphasis on rewards and concrete matters (Kohlberg, Levine, &

Hewer, 1983), followed conceptually, and in age of appearance, by amount of information learned with no differentiation in individual learning ability, and finally distinguishing individual differences and advocating that more able individuals progress more rapidly (Nicholls, Patashnick, & Mettetal, 1986).

Children begin to experience a clear sense of fairness in Kohlberg's second stage of moral judgment and Piaget's third stage of moral judgment. Acts of reciprocity emerge and are conceived as equal exchanges or acts of cooperation in terms of a goal in which each person gets an equal share. Next, an awareness of shared feelings, agreements, and expectations develops where children take others' perspective into account in their relationships with them. "Equalitarianism would therefore seem to come from the habits of reciprocity peculiar to mutual respect rather than from the mechanism of duties that is founded upon unilateral respect" (Piaget, 1965, p. 293). That is, children move from a limited focus on unilateral respect to cooperation and mutual respect.

The current study examined whether students identified for inclusion in a program of academic and creative enrichment on the basis of superior academic aptitude and attainment utilize different interpretations of what constitutes fair and effective practices in cooperative learning groupings than those students not identified for such a program. In the remainder of this paper, the group of students enrolled in the gifted/talented enrichment program will be referred to as "students in the

enrichment program" while those students not enrolled in the enrichment program will be referred to as "the representative group". The theoretical framework for the investigation is based on the theories of both Piaget (1965) and Kohlberg (1969, 1971, 1981, 1984; Kohlberg, DeVries, Fein, Hart, Mayer, Noam, Snarey, & Wertsch, 1987; Kohlberg et. al., 1983; Kohlberg & Turiel, 1971).

2. PURPOSE OF THE PROJECT

The purpose of this project was to examine conceptions of fair practices in cooperative learning groupings between a group of students enrolled in a gifted/talented enrichment program and those not in the program to determine if grade trends exist in 1) students' choices of fair practices and 2) issues they raised when making choices. Because the success of cooperative learning groupings for high-ability students has not yet been found to be universal in keeping the students sufficiently challenged (Allan, 1991; Clinkenbeard, 1991; Feldhusen, 1989; Kulik & Kulik, 1989, 1991, 1992; Robinson, 1990; Sicola, 1990), it is important to determine if students, identified as high ability, favor cooperative learning groupings. Specifically, the data were examined to determine which practices were perceived as most fair (i.e., either heterogeneous cooperative learning groupings or same-ability cooperative learning groupings).

If the goal of programming for high-achieving students is to offer the most effective learning environment, it is important to determine if the students participating in cooperative learning programs conceive the programs as being fair and effective.

Should high-ability students themselves not envision cooperative learning groupings as being a fair way to learn, such groupings may be rendered ineffective. In contrast, students' views of the benefits of cooperative learning may provide insights into effective practices to meet the individual needs of high-ability students.

3. SUMMARY OF THE PROBLEM

The present study addressed the ability to interpret the fairness of common cooperative learning groupings as a possible cognitive-developmental attribute of students in an enrichment program compared to the developmental attributes of a representative group. To identify differences in the meaning of fairness, the current study also examined the issues raised by students in the enrichment program when justifying their choices relating fairness of cooperative learning practices in the classroom.

Previous research has indicated age trends in the identification of fairness of different teaching practices and issues surrounding these practices in students from Grade 1 - 12 who had not participated in gifted programs as well as undergraduates (mean age was 21.5) (Thorkildsen, 1989a). In another study, results similar to those obtained from the more representative group, insofar as their choice of fair practices and issues discussed when judging fairness, were obtained from high-ability students aged six to eighteen attending university-

sponsored, gifted programs designed for their particular age and talents (Thorkildsen, 1993a). However, no direct comparison group was included in either study and both groups experienced different educational experiences. The current study will involve a comparison group from the same school attended by the high-ability students, providing the opportunity to determine developmental trends.

The study considered the questions: 1) Do students in the enrichment program perceive as fair cooperative learning practices which are different from those perceived as fair by the representative group? 2) Will the issues raised when students in the enrichment program justify their choices differ from the representative group? The study included children in Grades 4, 5, and 7 enrolled in the same school. The age range was 9 to 13 years.

4. RATIONALE

Children perceive the fairness of societal practices as dependent on the purpose of the situation (i.e., the way the situation or relevant social goods are defined). This premise is supported by data that children evaluated the fairness of educational practices, such as peer tutoring, differently depending on the goal of the situation (e.g., extrinsic reward, equality or equity of work, equality or equity of learning) (Thorkildsen, 1989b). Thorkildsen's (1989a) study supports this theory in that younger students (i.e., below age ten) chose

classroom practices which offered extrinsic rewards whereas older students (i.e., ten to eighteen) chose only practices that enabled high- and low-ability students to learn the same things. Those students above eighteen began to choose as fair those practices which allowed high-ability students to learn more than low-ability students.

Focusing on high-ability students' perceptions of fair ways to organize learning practices in cooperative learning groupings (which are part of their daily routine) may help to provide direction for future program planning which would include input from the consumer - the student. Examining students' perceptions may lead to a better understanding of the most effective cooperative learning practices for high-achieving students and subsequent teacher training for service delivery.

5. ORGANIZATION OF THE STUDY

Chapter One presents the rationale for the research problem. Chapter Two reviews the literature relevant to the inquiry. Chapter Three outlines the method, subjects, procedure, and interview analysis used in the research. Chapters Four and Five describe the results of the data analysis, provide a discussion of the results, and draw conclusions and implications from the study.

6. DEFINITION OF TERMS

Cooperative Learning

Cooperative learning is defined by Johnson and Johnson (1991):

Cooperative learning is the instructional use of small groups so that students work together to maximize their own and each other's learning. Within cooperative learning groups students are given two responsibilities: To learn the assigned material and make sure that all other members of their group do likewise. Their success is measured on a fixed set of standards. Thus, a student seeks an outcome that is beneficial to him or herself and beneficial to all other group members.

In order to be productive, cooperative learning groups must be structured to include the essential elements of positive interdependence (each member can succeed only if all members succeed), face-to-face interaction during which students assist and support each other's efforts to achieve, individual accountability to ensure that all members do their fair share of the work, the interpersonal and small group skills required to work cooperatively with others, and group processing (groups must reflect on how well they are working together and how their effectiveness as a group may be improved).
(p. 298)

High-Ability

The literature reviewed utilized descriptors such as "high-achieving," "gifted," "talented," and "creative" to describe students who participated in various acceleration and enrichment programs and in various research projects. Many studies did not report specific identification criteria; therefore, it was difficult to ascertain how the population was actually defined and what percentage of the population was included under the various descriptors. Because many schools in the Greater Vancouver area use criteria similar to those used in the targeted school to determine membership in "gifted/enrichment" programs

(i.e., teacher and/or parent nomination based on above-average academic performance), the term "high-ability" appears to be the most appropriate to encompass all students included in gifted/enrichment programs.

The gifted and talented programs in the targeted school are blended into one program covering three major program areas: critical thinking/writing, math enrichment, and computer enrichment. Students are either nominated by teachers or by parents for participation in the school's gifted/talented enrichment pull-out program.

Reciprocity

Reciprocity appears in Piaget's (1965) third stage of moral judgment (i.e., about seven to ten years of age) where the desire for mutual understanding is first felt (i.e., autonomy follows heteronomy).

This stage marks the beginning of any real cooperation existing between children. Towards the age of ten to eleven, children become aware of the reasons for laws and rules become the necessary condition for agreement. Children of twelve to thirteen distinguish lawless whims from constitutional innovation (i.e., everything is allowed, every individual proposition is, by right, worthy of attention). Laws are now independent of the tradition of elders (pp. 62, 63).

For if there is to be any reciprocity between players in the application of established rules or in the elaboration of new rules, everything must be eliminated that would compromise this reciprocity (inequalities due to chance, excessive individual differences in skill or muscular power, etc.) (p. 65).

From the intellectual point of view mutual respect frees the child from the opinions that have been imposed upon him while it favours inner consistency and

reciprocal control. From a moral point of view, it replaces the norms of authority by that norm immanent in action and in consciousness themselves, the norm of reciprocity in sympathy (p. 103).

Solidarity

Piaget (1965) concluded that children possess a type of psychological social equilibrium based on cooperation and resting on equality and solidarity. "In reality, equality grows with solidarity" (p. 288) and "between the ages of seven and ten, sheer equality outweighs equity" (p. 216).

The sense of justice, though naturally capable of being reinforced by the precepts and the practical example of the adult, is largely independent of these influences, and requires nothing more for its development than the mutual respect and solidarity which holds among children themselves (pp. 195-196).

It is precisely after the age where solidarity begins to be efficacious that the equalitarian notion of justice begins to assert itself with sufficient strength to overcome the authority of the adult (p. 196)

7. SUMMARY OF CHAPTER ONE

Given the potential for cooperative learning groupings to differentiate and challenge the learning of all students, it is pertinent to examine whether students identified for enrichment perceive cooperative learning practices as fair. In order to provide optimal learning conditions for high ability students, the practices in the regular classroom must offer sufficient challenge to render such practices effective. Consideration should also be given to differences existing in students' perceptions of fair practice at different grade levels. What may be seen as fair by one group may not be so for another,

necessitating an evaluation of certain practices (i.e., mixed ability cooperative learning practices, acceleration, and enrichment pull-out programs).

CHAPTER II

A REVIEW OF THE LITERATURE

1. OVERVIEW OF THE CHAPTER

Literature pertaining to the question of high-ability students' perception of what constitutes fair learning practices in school and cooperative learning practices is reviewed, resulting in four hypotheses being formulated.

The literature review is arranged in two sections which examine i) children's conceptions of the fairness of different instructional practices in meeting the needs of students with different abilities and ii) notions of cooperative learning and the implications for high-ability students.

A summary, stating the four hypotheses, concludes the chapter.

2. MORAL JUDGMENT AS A FUNCTION FOR ASSESSING FAIR LEARNING PRACTICES AND FAIRNESS OF SOCIETAL PRACTICES.

Although an abundance of research exists on moral development (e.g., Kohlberg, 1971, 1981, 1984; Kohlberg, Levine, & Hower, 1983; Kohlberg & Turiel, 1971; Nucci, 1981, 1982; Power, Higgins, & Kohlberg, 1989; Turiel 1983; Turiel, Killen, & Helwig, 1987; Walker & Richards, 1979), an area that has received minimal attention is that of children's perceptions of what constitutes fair learning practices in the classroom (Thorkildsen, 1989a, 1993a). The dominant approaches to the study of moral reasoning and moral development have been the theory and research of

Lawrence Kohlberg (1971, 1981, 1984, 1987) and Piaget (1965). Empirical research demonstrates that moral judgment progresses through qualitatively different stages in a sequence that is universal and invariant (Colby & Kohlberg, 1987; Piaget, 1965; Turiel, 1966).

Kohlberg's procedures, however, have been criticized for providing dilemmas which are irrelevant to individuals' everyday experiences (Straughan, 1975). Furthermore, these dilemmas have been found to be inadequate in representing the diverse moral problems deemed important by people (Colangelo, 1982; Yussen, 1977).

Researchers have traditionally focussed on the understanding of moral rights and responsibilities of individuals and have asked questions such as, "How should different children be rewarded for doing different amounts of work?" (Damon, 1977); and, "If there was no rule against it, would it be OK for someone to hit another person?" (Turiel, 1983). Although moral reasoning in schools has been of concern (e.g., Kohlberg, 1971, 1981, 1984; Kohlberg & Turiel, 1971; Weinstein, 1983), the focus has been on areas such as stealing, social violence, and social conventions. The existing literature on moral development does not indicate how students of various ages and ability levels perceive which educational "goods" (e.g., extrinsic rewards, self-esteem, or knowledge) are important in schooling, nor which educational practices are delivering the fair distribution of these goods (Thorkildsen 1989a).

A review of recent studies including students' understanding of the fairness of various teaching approaches to account for individual differences in ability (Thorkildsen, 1989a, 1993a) was undertaken. Thorkildsen's research (1989b, 1991) examining students' moral reasoning regarding societal practices depending on the implicit contract or definition of a situation was also reviewed. These studies provide the framework for the investigation into high-ability students' conceptions of what constitutes fair cooperative learning practices and examination of the issues they raised when justifying their choices.

2.1 Studies Involving Students' Understanding of What Constitutes Fair Learning Practices

A limited number of studies have examined students' understanding of what constitutes fair methods of adapting instruction to account for the diversity of students in the classroom. Recent research has focussed specifically on students' conceptions of the fairness of different ways in which schools achieve their goals of promoting learning (Thorkildsen 1989a, 1989b, 1991, 1993a).

Thorkildsen (1989a) interviewed a group of students (i.e., grade one to undergraduate, university level) about the fairness of five practices of adapting instruction for faster and slower learners. Specifically, the study was designed to examine students' perception of the fairness of different methods of adapting instruction to meet the needs of different-ability

students. The practices included: 1) fast workers working ahead (acceleration), 2) fast workers sitting and waiting, 3) fast workers helping (peer tutoring), 4) fast workers using the computer (enrichment), and 5) all move on (slow ones never finish). Further, the issues discussed by the students were analyzed to determine the categories of goods and distributions they considered fair. Finally, the choices and justifications offered by the students were examined jointly to identify qualitative differences in the meaning of fairness. To represent each of the five teaching practices, drawings of faster workers and slower workers were presented. Students were asked if they thought the practices were fair, if they thought that faster workers would think that this practice was fair, and if they thought slower workers would think that the practice was fair. In each case, students were asked to justify their answers. When each practice was paired with every other practice, students stated which was more fair and which they thought the faster and slower workers would choose as more fair and why they had made those choices.

Results demonstrated that students of all ages chose peer tutoring as the fairest of the five practices. Practices demonstrating differences between high- and low-ability students were perceived as unfair by students. These findings "...support the view that conceptions of fairness are not simply communicated to children but are constructed from their experiences" (Thorkildsen, 1989a, p. 333).

Further, Thorkildsen's (1989a) results, in accord with other research (Kohlberg et al., 1983; Leahy, 1981, 1983; Nicholls et al., 1986), indicated that students below about ten years were more likely than older students to choose as the most fair practices which place emphasis on rewards and other observable matters (i.e., uniformity or equality of extrinsic rewards) and did not mention learning in their justifications. Children between the ages of ten to about eighteen chose as fair only those practices enabling all students to learn the same things regardless of their ability (i.e., equal learning). Beyond eighteen years of age, students began to argue that acceleration was fair for high-ability students and they should be allowed to learn more than low-ability students (i.e., equity of learning).

The question of fairness was addressed from the perspective of high- and low-ability students and although conceptions of what is fair in instructional practices did not vary, further studies by Thorkildsen (1989b, 1991), reported in the following sub-section, suggested that although students saw competition as unfair in learning or mastery situations, they did not always see it as unfair. Specifically, their perceptions of the fairness of instructional practices determined to be fair in learning contexts were judged to be unfair in contests and tests. In other words, students considered the fairness of learning practices differently depending on the implicit contract or definition of a situation.

To examine the extent to which students' conceptions of the

fairness of educational practices reflect the practices established and endorsed in their own lives, a study of high-ability students enrolled in special programs for gifted students (i.e., 113 high-ability students (minimum IQ of 115), ages six to eighteen, enrolled in university-sponsored, gifted programs designed for their particular age and talents was undertaken (Thorkildsen, 1993a). The high-ability students were told of the responsibilities of being gifted and that they were different from others because of their superior intellectual potential. Although it is frequently "...argued that high-ability students internalize these views and consequently reason and act in ways that perpetuate their own self-interest at the expense of others" (Thorkildsen, 1993a, p. 183), results indicated that high-ability students' conceptions of fair learning practices were fundamentally the same as the representative group (Thorkildsen, 1989a) and they were no more likely to select acceleration and enrichment practices they experienced as fair ways to learn (Thorkildsen, 1993a, 1993b).

Although students in both of Thorkildsen's studies (1989a, 1993a) expressed similar conceptions of fairness in learning practices (i.e., peer tutoring was the fairest way to help everyone learn), examination of students' judgments indicated that they offered different interpretations of the practices depending on their age. Students held different priorities and used different criteria when evaluating the practices, suggesting that individuals emphasize diverse issues (Thorkildsen, 1993b).

Both groups of young children typically focussed on equal rewards and quantity of work; slightly older students indicated that both high- and low-ability students learn equal amounts; and in late adolescence, students fully incorporated the meaning of individual differences in ability into their conceptions of fair learning practices and, similar to adults, emphasized maximizing intellectual potential. Thorkildsen (1993a) concluded, "Students' ability to comprehend the rationales underlying the practices they experience constrains the extent to which they endorse the values embodied in their culture. The rationale for acceleration and enrichment practices was explicitly interpreted and endorsed for the high-ability student by adults" (p. 189). Thorkildsen (1993a) reported that these findings support the cognitive-developmental position theorized by Colby and Kohlberg (1987) and Piaget (1965). That is, similar age-related trends in conceptions of fairness were observed in both groups. High-ability students differentiated conceptions of fair practices more quickly than students in the representative group although all levels were evident for students in both groups.

2.2 Studies Involving the Fairness of Societal Practices

Thorkildsen (1989b, 1991) carried out studies specifically designed to examine the development of children's conceptions of social justice by focusing on the fairness of learning and testing practices. Thorkildsen's studies stem from research in the development of reasoning ability in students and how specific practices and settings influence choice (Colby & Kohlberg, 1987;

Damon, 1977, 1980, 1988; Nicholls, 1989; Nicholls & Hazzard, 1993; Nicholls et. al, 1986; Nicholls & Thorkildsen, 1988, 1989; Nucci, 1981, 1985; Piaget, 1965; Shweder, Mahapatra, & Miller, 1987; Smetana, 1981; Turiel, 1983; Turiel, Killen, & Helwig, 1987; Walzer 1983).

In two studies designed to determine if children perceive the fairness of societal practices as dependent on the goal of the situation, Thorkildsen (1989b, 1991) reported that conceptions of fair educational practices develop differently for testing and learning situations. For example, although competition was seen as unfair in learning or mastery situations, students did not always see this as unfair in testing or contests. Similarly, cooperative practices judged fair in learning contexts were judged unfair in testing situations and contests. Therefore, it appears "...that children consider the fairness of practices to be dependent upon the definition of the situation or the implicit contract involved" (Thorkildsen, 1989b, p. 971).

Conclusions from Thorkildsen's research on conceptions of social justice are pertinent to the current study in that students' justifications for choosing one cooperative learning practice over another may depend on the purpose or goal of the practice (i.e., whether the practice involves a learning situation or whether it also involves an evaluation component).

2.3 Cooperation as a Societal Practice

When examining cooperation in conjunction with the

development of justice in children, it is necessary to first consider whether the child has attained autonomy. Piaget (1965) stated that:

Moral autonomy appears when the mind regards as necessary an ideal that is independent of all external pressure. Autonomy therefore appears only with reciprocity, when mutual respect is strong enough to make the individual feel from within the desire to treat others as he himself would wish to be treated. (p. 194)

Although questioning children about cooperation and reciprocity is difficult (i.e., children do not recognize or converse about their social attitudes), one concept which seems to be the direct result of cooperation and is more easily analysed, is the notion of justice. Piaget (1965) emphasized:

The sense of justice, though naturally capable of being reinforced by the precepts and the practical example of the adult, is largely independent of these influences, and requires nothing more for its development than the mutual respect and solidarity which holds among children themselves. (pp. 195-196)

In contrast to a given rule, which from the first has been dictated from outside to the child and which for many years he/she has failed to understand, such as the rule of not telling lies, the rule of justice is a sort of innate condition of social relationships or a law governing their equilibrium. "And as the solidarity between children grows we shall find this notion of justice gradually emerging in almost complete autonomy" (Piaget, 1965, p.196).

It appears that there exist three broad stages in the development of distributive justice in relation to adult authority as well as the relations between children. Stages in

the moral life can be described by three periods in the development of the sense of justice in the child. The first period, lasting up to the ages of 7 to 8, is one during which justice is subject to adult control. A second period between ages 8 and 11 is that of progressive equalitarianism (i.e., progressive development of autonomy and the priority of equality over authority). Finally, towards the ages of 11 to 12, a period appears during which purely equalitarian justice is tempered by considerations of equity. Instead of looking for equality in identity, the child no longer thinks of the equal rights of individuals except in relation to the particular situation of each (Piaget, 1965).

The notions of justice and solidarity develop correlatively and as a function of the mental age of the child. Three factors that appear to be connected are:

- i) reciprocity asserts itself with age
- ii) desire for equality increases with age
- iii) certain features of solidarity, such as not cheating or not lying between children, develop concurrently with the above tendencies (Piaget, 1965).

3. COOPERATIVE LEARNING AND THE HIGH-ABILITY STUDENT

During the past 90 years, over 600 studies have been conducted on cooperative learning (Johnson & Johnson, 1991); however, the study of high-ability students is not included in the research base.

A computer search of the PSYCHINFO data base from its inception in 1967 to the present, December 1989, resulted in 191 entries on cooperative learning. Only two of these examined giftedness. A similar ten year search of ERIC yielded only three out of 295 entries: (Robinson, 1990, p. 11).

Several reasons exist that make it difficult to compare studies and make generalizations. First, there is a diverse population of students and situations included in each individual study. Second, there are many classifications which encompass the "more able student" (e.g., gifted, talented, creative, high ability, high achiever), and it is not always clear what level of ability and/or achievement individual researchers include in their studies. Third, researchers misrepresent the findings by generalizing to other disparate situations with no specific support cited for the statement as it relates to high-ability students. Fourth, making comparisons between studies of accelerated and non-accelerated students is difficult because accelerated students are exposed to material not seen by regular students (Slavin, 1988).

There are two perspectives dividing investigators on the issue of the effectiveness of cooperative learning practices for high-ability students. The recommendation that learning the majority of the time in well-structured heterogeneous cooperative learning groups benefits high-ability students (Gallagher, 1991; Johnson & Johnson, 1987, 1988, 1989, 1991; Johnson et al., 1980, 1988; Sharan, 1980; Slavin, 1987, 1988, 1990a, 1990b, 1990c, 1990d, 1991) is in conflict with the ideology and philosophy of others who believe that the practice of heterogeneous cooperative

learning groups is unfair to high-ability students (Allan, 1991; Robinson, 1990; Sicola, 1990). Research reviewed by Kulik and Kulik (1989, 1991, 1992) showed that gifted students achieved more in homogeneous settings than they did in heterogeneous classes. Similarly, Feldhusen and his colleagues (1989) concluded that "grouping of gifted students in special classes with a differentiated curriculum, or as a cluster group in a regular heterogeneous classroom (with differentiated curriculum and instruction) leads to higher academic achievement and better academic attitudes for the gifted and leads to no decline in achievement or attitudes for the children who remain in the regular heterogeneous classroom" (Feldhusen, 1989, p. 10). The students in the analyses were identified as "gifted," representing the top three percent of the population. Therefore, the comparisons of performance of high-ability students to those in the analyses by Kulik and Kulik and Feldhusen are difficult to make given the distinct populations.

3.1 Research Supporting Cooperative Learning Practices for High-Ability Students

In a synthesis of research on cooperative learning, Slavin (1991) concluded that research provides no support for the claim that cooperative learning will hold back high-achieving students. Moreover, research on cooperative learning methods demonstrates that high-ability students gain as much from cooperative learning (relative to high-ability students in traditional classes) as do average and low achievers (Slavin, 1991). However, it is noted

that not all cooperative learning methods are instructionally effective (Kagan, 1990; Slavin, 1990a, 1990b). Specifically, the effects of cooperative learning vary considerably according to the particular methods used. For example, 84 percent of studies of methods such as Student Teams-Achievement Divisions (STAD), Teams-Games Tournament (TGT), Team-Assisted Individualization (TAI), and Cooperative Integrated Reading and Composition (CIRC) found significant positive achievement effects. STAD can be used in any subject matter area; however, the strategy works best with material that has single, correct answers such as in mathematics, computation, spelling, language usage, and mechanics. TGT's emphasis is on four-member heterogeneous teams in which the students receive a teacher directed lesson, help one another master the material, and compete in weekly tournaments with others of similar achievement. TGT is best suited to basic skill introduction. TAI - Mathematics was developed as a program that combines cooperative learning with individualized instruction to meet the needs of diverse classrooms while CIRC consists of three principal elements: basal-related activities, direct instruction in reading comprehension, and integrated language arts/writing with students working in heterogeneous learning teams. Both TAI and CIRC incorporate acceleration within the heterogeneous class.

As well, two other elements need to be present for successful cooperative learning practices: 1) group goals and 2) accountability (Slavin 1990c, 1990d). Further, four reviews of research on cooperative learning practices (Davidson 1985;

Johnson, Maruyama, Johnson, Nelson, & Skon, 1981; Newmann & Thompson 1987; Slavin 1990d) resulted in similar findings; that is, cooperative learning practices can be an effective means of increasing student achievement but only if group goals and individual accountability are incorporated in the cooperative learning method. Cooperative learning has also been used successfully within ability-grouped classes for high achievers whether it be for enrichment or acceleration (Slavin 1990a).

Analysis of 60 studies resulted in overall positive effects of cooperative learning on achievement (Slavin 1990a, 1990c, 1990d, 1991). However, the syntheses for which the effects were determined do not include high-ability students as a separate group. The research reviewed "....clearly shows that under certain well-defined circumstances, cooperative learning can be an effective form of classroom organization for accelerating student achievement" (Slavin, 1990c, p.33).

However, it is recognized that there are times when high-achieving students should work in isolation from other students, and when they should compete to see who is best (Johnson & Johnson, 1991, 1992). When high-achieving students do work in cooperative groups, the groups should not always be heterogeneous (i.e., they should be segregated for fast-paced accelerated work) (Johnson & Johnson, 1992; Slavin 1988). Advantages to this arrangement are that high-ability students remain in a heterogeneous setting most of the day; they are grouped solely on the basis of their achievement in a particular subject; and any

changes in student performance level can be accommodated with a change in grouping.

Nine studies conducted by Johnson and Johnson (1992) over a fifteen-year period analyzed the impact of cooperative learning on each of high, medium, and low-ability students separately. A few studies included only high-ability students. As reported by Johnson and Johnson (1992), this research demonstrated that:

- 1) High-ability students benefit academically from cooperative learning groups when cooperative groups are carefully structured and when the exchange of ideas within the group benefits the high-ability members as much as any other member.

- 2) Learning cooperatively with lower achieving peers does not decrease the critical thinking and higher-level reasoning of high-ability students. High-ability students' time should be spent primarily in conceptualizing, thinking critically, and developing higher-level reasoning strategies. This is achieved through cooperative learning and use of structured academic controversies to promote intellectual conflict. Specifically, when controversies are structured, students must research and prepare a position; rehearse orally the relevant information; advocate a position; teach their knowledge to peers; analyze, critically evaluate, and rebut information; reason both deductively and inductively; and synthesize and integrate information into factual and judgmental conclusions that are summarized into a joint position to which all sides can agree (Johnson & Johnson, 1987).

3) High-ability students usually gain academic advantages from working in heterogeneous cooperative learning groups. Learning the material to teach to others results in learning at a higher cognitive level than if it were learned for a test; explaining it to others increases the students' achievement level, cognitive reasoning, and retention; and checking the explanation of others for accuracy tends to increase high-ability students' achievement.

4) High-ability students' learning is not hindered by low-achieving students. The cognitive restructuring and practice that occur foster a more thorough grasp of the material and its retention.

5) High-ability students' achievement would not likely be higher if they worked only with intellectual peers because there is some evidence that fewer explanations take place within a homogeneous group and there is less expectation that one will need to explain what they are learning to others in the high-ability group. A group of all high-ability students seems to have no advantage over heterogeneous groups in terms of level of cognitive reasoning.

6) Heterogeneous learning groups can create academic disadvantages for high-ability students. Although the quality of learning is increased (i.e., conceptualizing and cognitively networking what is being learned), the quantity may decrease.

7) When high-ability students are separated for enrichment, they should be placed in cooperative groups which are as

heterogeneous as possible as students have strengths in different areas (i.e., some students do well because they are creative risk-takers, are talented in mathematics or writing, like to do things right, or like to please adults). Academic controversies should regularly be structured within the cooperative learning groups.

One of the clearest and most consistent findings from research on ability grouping is that simply putting high achievers together does little for their achievement (Kulik & Kulik, 1989; Slavin, 1987, 1990a). On the other hand, acceleration studies tend to show that very bright students do not suffer in basic skills when they are accelerated as they are learning the more advanced skills (Slavin 1990a).

The cumulative research base of the last 30 years consistently demonstrates that subject matter acceleration permits increased achievement for talented students (Kulik & Kulik 1989, 1991, 1992). Results of Kulik and Kulik's (1992) meta-analysis show clear positive gains for students in gifted programs which they attribute to the specialized curriculum and materials used and to the training afforded teachers in such programs. Kulik and Kulik (1989) separated the within-class grouping studies into those designed for all students and those designed specifically for academically talented students. The programs designed for all students showed a positive but small effect on student achievement, similar to that for high, average, and low-ability groups. The within-class groupings for

academically talented students were found to have substantial positive academic effects.

3.2 Structure of Cooperative Learning Groups

Well-structured cooperative learning groups are quite different from traditional classroom grouping and poorly structured cooperative groups (Johnson et al., 1990). To be most effective, cooperation must be structured so that group members believe they are responsible for and benefit from one another's learning; promote one another's learning face-to-face by helping, sharing, and encouraging; are accountable to do their fair share of the work; practice the required leadership, communication, decision-making, trust-building, and conflict resolution skills required for the group to ensure the success of each member; and regularly process how effectively the group is functioning. The cooperating groups must have a group goal that is important to them (Slavin, 1988).

Effective cooperative learning depends on helping students to develop interdependence in which the goals of group members are positively linked and their interactions are characterized by mutual facilitation counterbalanced by individual accountability for participating and learning. Further, three key components of successful cooperative learning are curriculum (i.e., provide materials that induce curiosity to learn and produce intrinsic motivation, and provide students with opportunities to engage in critical thinking and higher-level reasoning). autonomy (i.e., students have a role in deciding what they are to do and how they

are to do it) (Nicholls, 1989; Sharan & Sharan, 1989/90), and relationships (i.e., view others in a group as collaborators rather than as obstacles to one's own success) (Kohn, 1991). If the task is challenging and interesting, and if students are sufficiently prepared with skills in group process (Johnson et al., 1990; Kohn, 1986), students will experience the process of group work itself as highly rewarding

In summary, a carefully structured cooperative environment that offers challenging learning tasks, that allows students to make key decisions about how they perform those tasks, and that emphasizes the value (and skills) of helping each other to learn constitutes an alternative to extrinsic motivators, an alternative both more effective over the long haul and more consistent with the ideals of educators (Kohn, 1991).

3.3 Cooperative Learning Practices Detrimental to High-Ability Students

The effects of cooperative learning on high-ability students are difficult to assess. First, advantages of cooperative learning for high-ability students are strengthened by the research base on cooperative learning itself without having first investigated several outcomes considered important for high-ability students. For example, the degree to which self-concept and self-esteem are directly related to academic success needs to be examined. Also requiring investigation is the possible lack of preparation in middle school which may deny students success later in high school because they were not well prepared

academically as well as the possibility that middle schools may be producing the opposite of what they seek to accomplish in affective development by not ensuring that the greatest success in school and life exists (Robinson, 1990; Sicola 1990).

Although Johnson and Johnson (1982) did compare handicapped, regular, and gifted students, they included only 14 gifted students and did not provide descriptive information about the gifted students nor the identification procedure used to select them. Other studies examining the differential effects of cooperative learning on students defined as high achieving showed that the ways in which the achievement or ability groups were defined were fraught with difficulty (Allan, 1991; Robinson, 1990). No descriptive data specific to sub-groups were provided and the description of students in high- and low-ability groups were not sufficiently outlined to permit generalizations of results to "academically talented" students. Some researchers designate the high-achieving group as the top third of the class on an achievement measure or teacher judgment which is not congruent with the selection of academically talented students where programs serve 15 to 20 percent of students identified on multiple measures. Further, identification of high-ability students by single achievement measures of basic skills, teacher constructed placement tests, or teacher judgment alone should not be used interchangeably with giftedness.

Evaluation of the cooperative learning study comparing individualistic and cooperative goal structures for talented

students (Johnson et al., 1980) requires a description of both conditions. In the cooperative structure children are encouraged to communicate with one another and turn in one assignment while those in the individualistic condition could not talk and were required to complete and turn in assignments on their own. The individualistic conditions used in this study do not resemble the kind of independent study recommended for talented students. The comparisons need to be made with classroom practices which are successful with talented students.

The extent to which cooperative learning is substituted for the delivery or educational provisions such as acceleration in specific subject matter for academically talented students or is used as the justification for not attending to their special needs is the extent to which it becomes disadvantageous (Robinson, 1990). The disadvantages of cooperative learning for high-ability students are primarily those of limiting instruction to grade level materials, presenting instruction at too slow a pace, and evaluating primarily on basic skill measures. In terms of achievement, cooperative learning is beneficial to students only if they do not know the material already (Slavin, 1988) which, in many cases, high-ability students do. A balance that promotes heterogeneity in a variety of programs and courses as well as the inclusion of course offerings for high-ability students in various disciplines is necessary in meeting individual needs (Sicola, 1990).

3.4 Studies Examining Students' Point of View on Cooperative Learning Practices

Clinkenbeard (1991) examined the content of an in-class essay assignment written by 14 gifted (i.e., identification based on group cognitive ability test scores at or above the 96th percentile) sixth graders. The topic was, "Compare and contrast being in a class with kids who are all about as smart as you as compared to a class where you're the smartest". Eight comments were made about group work, all of them complaining about being expected to do all the work when placed in a mixed-ability group. Two students indicated that they enjoyed group work in their gifted class. Twelve comments were noted that teachers and peers do not acknowledge the successes of gifted students.

Matthews (1992) interviewed 15 gifted sixth and eighth graders (i.e., identified only as being from a wealthy suburban school district) to get their impression of cooperative learning. When asked about some of the benefits Johnson and Johnson (1991) advance for cooperative learning, specifically about explaining material, they had a difficult time understanding why other students could not understand material that they did not have difficulty with and also resented the time taken away from their own learning to explain material to uncooperative students. They enjoyed explaining material if a student wanted to learn but got frustrated if it was hard for the other student to understand. None of the 15 students said that they understood the material better themselves after explaining it to others. They saw no

benefits to themselves and they recognized how their being bored with the material could harm other students. The gifted students' concern with the quality of the work was what caused them to many times dominate the group or to do all the work themselves. Gifted students were much less negative about cooperative learning when working with students on their level.

3.5 Controversy and Learning in Cooperative Learning Practices

Cognitive growth requires social interaction and the exchange of varied opinions (Piaget, 1965). The conceptual conflict resulting from being confronted with a number of possible answers and points of view is essential for cognitive growth, critical thinking, development of higher-level reasoning strategies, and moral growth (Johnson & Johnson, 1992; Kohlberg, 1981; Nicholls & Nelson, 1992; Piaget, 1965). Cooperative learning provides the context within which cognition and metacognition best take place. The interpersonal exchange within cooperative learning groups, and especially the intellectual challenge resulting from conflict among ideas and conclusions (i.e., controversy), promotes critical thinking, higher-level reasoning, and metacognitive thought (Johnson & Johnson, 1991).

When teachers create a controversy within cooperative learning groups, students research and take a position, analyze, critically evaluate, and rebut information, take the perspective of others and derive a synthesis and integration of positions. Controversies are resolved by engaging in the discussion of the advantages and disadvantages of proposed actions aimed at

synthesizing novel solutions. When managed constructively, controversy promotes uncertainty about the correctness of one's views, an active search for more information, a reconceptualization of one's knowledge and conclusions, and consequently, increased motivation to achieve, higher achievement and retention of the learned material, and greater depth in understanding (Johnson & Johnson 1991; Nicholls, 1983; Thorkildsen & Jordan, 1995) .

3.6 Choosing Cooperative Groups vs. Assigning Groups

Thorkildsen and Jordan (1995) elicited the help of fourth and fifth graders in their inquiry about fair and effective ways to collaborate. As was recommended by many researchers (e.g. Johnson & Johnson, 1982, 1989; Sharan, 1980; Slavin, 1991), they assigned students to groups because when students are allowed to choose their collaborators, some students would be isolated and their learning would suffer. Each group chose a leader and a name for their group to promote cohesion with a common identity (Johnson & Johnson 1987; Slavin 1983). Although much conflict was evident between team members and limited progress on their reports was made, students agreed to remain in their groups for three weeks. When a new topic was introduced, students agreed that spontaneous collaboration would be better than working in assigned groups and when students changed collaborators their ideas were shared freely. Thorkildsen and Jordan reflected that, by assigning students to groups, they placed excessive restraints on the creativity and communication of ideas of students. Good

ideas spread slowly amongst the students as they were less free to approach non-group members who might have otherwise helped them. Students were prompted to reflect on and discuss the fairness and effectiveness of the practices which were intended to help them learn and the ways in which they collaborated.

Further, when asked how they chose their groups, students indicated that they chose friends, not because they were friends, but because they worked well together and that it was more comfortable working with friends. Cooperative learning models operate on the premise that children do not have diverse priorities which will influence their approach to assigned tasks; however, the students in this classroom indicated that they could not all learn or achieve their goals in the same way. For example, some emphasized the need to work alone and expressed concern about receiving recognition for their efforts; some emphasized learning and asserted their superior ability over others and mocked those who did not meet their standards; and yet others valued friendship in its own right and looked for a sense of community as an end in itself. Thorkildsen and Jordan (1995) concluded that "...finding the right way to collaborate will forever remain a controversial moral task" (p. 30).

4. STATEMENT OF HYPOTHESES

The following four hypotheses have been formulated to address the research questions 1) Do students in an enrichment program, perceive as fair cooperative learning practices which

are different from the representative group (e.g., choose acceleration in cooperative learning groups within the classroom and cooperative learning enrichment groupings outside the classroom rather than mixed-ability groups)? 2) Do students in the enrichment program favor mixed-ability cooperative learning groupings involving a controversy? 3) Do students in the enrichment program perceive as more fair choosing their own members for cooperative learning groups than having these assigned by the teacher? and 4) Do the issues raised by students in the enrichment program, when justifying their choices, differ significantly by grade and from the representative group?

1. Students enrolled in the gifted/talented enrichment program will select as most fair cooperative learning practices involving mixed-ability groups over cooperative learning practices involving acceleration and enrichment outside the classroom. Students not enrolled in the special program will make similar choices of fair practices.

RATIONALE: The solidarity existing between children results in the notion of justice and appears when mutual respect is strong enough to make the child feel from within the desire to treat others as he himself would wish to be treated (Piaget, 1965). Further support for this hypothesis is that children see the fairness of societal practices as dependent on the goal of the situation (Thorkildsen, 1989a, 1989b, 1991, 1993a) (i.e., having an equal amount of work and an

equal amount of learning). Thorkildsen's (1993a) study revealed that high-ability students did not relentlessly seek opportunities to fulfill their own intellectual interests while ignoring their social world. Almost all of the 113 high-ability students interviewed endorsed peer tutoring as the fairest way to help everyone learn.

2. Overall, enrichment program students will select as most fair the teacher assigned, mixed-ability, cooperative learning practice involving a controversial topic.

RATIONALE: The conflict resulting from being confronted with a number of possible answers and points of view promotes cognitive growth, critical thinking, creative insight, and the development of higher-level reasoning strategies (Johnson & Johnson, 1992; Nicholls, 1983; Thorkildsen & Jordan, 1995). Cognitive development theorists (e.g., Kohlberg, 1969; Piaget, 1965) have implied that it is repeated interpersonal controversies in which individuals are forced again and again to recognize the perspective of others that promote cognitive and moral development, the ability to think logically, and the reduction of egocentric reasoning. These interpersonal conflicts cause conceptual conflict, uncertainty, and disequilibrium within individuals' cognitive structures, motivating a search for a more adequate and mature process of reasoning. It is anticipated that high-ability students will perceive the controversial issue, being the goal of

this cooperative learning practice, as an opportunity to increase their learning about a topic more so than if they were researching the topic alone as well as seeing it as an opportunity to share different points of view.

3. Students in the enrichment program will perceive as more fair choosing members for cooperative learning groups over teacher-assigned groups.

RATIONALE: Although this hypothesis appears to conflict with the previous hypothesis, the information sought from each hypothesis is different. The specific purpose for the previous hypothesis was to examine the fairness of a controversial topic as a goal of the cooperative learning practice while this hypothesis is to determine whether students in the enrichment program perceive as more fair the cooperative learning practice with student-chosen groups over the cooperative learning practice with teacher-assigned mixed-ability groups. By assigning students to groups Thorkildsen and Jordan (1995) concluded that excessive restraints had been placed on the creativity and communication of ideas. When the students chose their own groups, they were asked how they chose their groups.

Students indicated that they chose friends, not because they were friends, but because they worked well together and that it was more comfortable working with friends.

4. A difference will exist in a) the choices of fair practices and b) the issues raised between Grade 4 and Grade 7

enrichment program students when justifying their choices about the fairness of cooperative learning practices. Similar results will be evident for the students in the representative group.

RATIONALE: Below age ten, students choose as fair practices which produce equality in observable matters such as amount of work completed; however, they do not make reference to learning. Between ten and eighteen, students consider fairness to mean equal learning and choose as fair practices that would enable high- and low-ability students to learn the same things (Thorkildsen, 1989a, 1993a). Thorkildsen (1993a) reported that high-ability students' ability to understand the reasons underlying the practices they experience constrains the degree to which they endorse the values found in their society. Therefore, students in the enrichment program are not expected to endorse cooperative learning with acceleration within the classroom and enrichment cooperative learning groupings outside the classroom more frequently than students in the representative group.

The methodology used to test these hypotheses is presented in the following chapter.

CHAPTER III
DESIGN OF THE INQUIRY

1. OVERVIEW OF THE CHAPTER

This study was designed to examine if students identified for inclusion in a program of academic and creative enrichment on the basis of excellent academic achievement utilize different interpretations of what constitutes fair practices in cooperative learning groupings than those students not identified for such a program. Information regarding the subjects forms the first part of the chapter. The interview materials and procedures are outlined in the second and third parts. Finally, part four contains information on the coding of the interviews.

2. PARTICIPANTS

The target group consisted of 23 students (13 females and 10 males) previously identified as high-ability students and included in a pull-out gifted/talented enrichment program. The program is intended to cover three major program areas: critical thinking/writing, math enrichment, and computer enrichment. General requirements for placement in the program may include all or some of the following:

- a) excellent strength in any number of academic domains
- b) teacher nomination
- c) parent nomination

The comparison group consisted of 36 students (20 females

and 16 males). To facilitate the analysis of the data by having equal numbers in each group, 13 females and 10 males (i.e., total of 23 interviews) were randomly selected using a random digits table.

Of the total sample, 34 students were enrolled in the French Immersion Program in the school. Available students were from grades four, five, and seven in an elementary school in the Greater Vancouver area. The age range was nine to thirteen years. Subjects were predominantly, but not exclusively, white and English-speaking. The socio-economic level of the school's catchment area was middle class. Some Grade 7 students in the representative group had previously participated in the enrichment program at the school; however, they had since opted out of the enrichment program. Testing took place during the month of June, 1994.

3. INTERVIEW PROCEDURES

Upon first meeting with each student, they were informed of the purpose of the interview (i.e., the focal point of a study at the University of British Columbia) and that their interview would be tape-recorded. Although the school and the parents had previously consented to the students' participation in the study, each student's informed consent was obtained for participation in the research project. They were informed that they could withdraw from the interview at any time if they changed their mind. It was emphasized that there were no right or wrong

answers and that they could freely express their ideas. They were assured that the information they gave during the interview would be kept confidential (i.e., individual's answers would not be shared with teachers) and that it would in no way impact on their current programming. They were informed that analysis of their interview would be carried out and that their names would never be associated with any examples used in the thesis. Each interview lasted approximately twenty-five minutes.

Following the introduction of the general topic of cooperative learning practices, students were questioned individually about the fairness of five commonly used cooperative learning practices. The interviewer was blind to which students were in the gifted/talented enrichment program in the school and which were not. This information was known only after the interviews had been typed and subsequently coded by two raters.

4. STRUCTURED INTERVIEW

To present each situation in a concrete form, cartoon-like drawings (see the Appendix for a sample of the drawings) were used for the introduction and to represent the five cooperative learning practices (i.e., teacher-assigned heterogeneous groups, student-selected groups, accelerated group working within the regular classroom, enrichment group leaving the classroom to work in multi-age cooperative learning groups, and teacher-assigned heterogeneous groups to work on a controversial topic). The cartoon pictures, the interview format, and questions were either

similar to or exactly the same as those used in Thorkildsen's (1989a, 1993a) studies. Permission was obtained from the author to use her methodology and questions.

Cooperative learning practices were presented in four counterbalanced orders to prevent possible effect on choices, justifications or conceptions. Students were first asked to judge the fairness of each practice alone and provide justification for their response. They were subsequently asked if they thought the faster worker would think this practice was fair and justify their answer. The next question was to determine if they thought the slower worker would think the practice was fair. Again they were asked to justify their response. Students were next presented with paired comparisons of the practices and asked which one they thought was more fair. The students were asked which one they thought the faster worker would think was more fair and then which one they thought the slower worker would think was more fair. Following each question, the students were asked to justify their answers.

4.1 Introduction to the Topic

To ensure that the students understood the general topic, cooperative learning was introduced using a sequence of three pictures showing 1) the teacher assigning fast and slow students to work together in groups of four or five, 2) students working individually and collectively on a project, and 3) group presentation to the class. It was emphasized that everyone needed to work together to achieve the group's goal and that each

individual was not only responsible for completing their assigned task but that they also had the responsibility for the success of the group as a whole.

The following introductory questions were taken from Thorkildsen (1989a, 1993a):

"Does that ever happen in your class?" Each student was then told, "Teachers do different things when they want students to work together in groups. I'm going to show you some of those things, and I want you to tell me if you think they are fair."

4.2 Cooperative Learning Practice With Teacher-Selected Heterogeneous Groups

To introduce the practice of working together in heterogeneous groups assigned by the teacher, five drawings were presented with the following information given to each student.

First, in this class, the teacher told the students that they needed to work in cooperative learning groups made up of slower and faster workers which she assigned. The students were informed that each group had to work together, with each member being responsible for a part of the project. Next, the students decided amongst themselves what their goal should be for the project and what specific work each member of the group was responsible for. Then the students had the option to consult each other if they were uncertain about what they were to do, for support, or feedback while working on the project. Then, after a set period of time, the group came together to share, discuss, and record what they had learned. Finally, the teacher required each student to write a summary of the project without assistance from team members.

Each student was then asked the following questions. 1) "Do you think that's fair? Why?" 2) "Would the fast workers in this class think that was fair? Why?", and 3) "Would the slow workers in this class think that was fair? Why?" (Thorkildsen, 1989a, 1993a).

These questions also were used in each of the following four

situations.

4.3 Cooperative Learning Practice with Student-Selected Groups

To introduce the practice of working together in cooperative learning groups selected by the students, a series of five pictures was presented with the following information given to each student.

First, in this class, the teacher told the students that they were free to select the members of their cooperative learning group. The students were informed that each member of the group had to work together, with each member being responsible for a part of the assignment. Next, the students decided amongst themselves what their goal would be for the project and what each member of the team would be responsible to contribute. Then the students had the option to consult each other if they were uncertain about what they had to do, for support, or feedback while working on the project. After a set period of time, the group came together to share, discuss, and record what they had learned. Finally, the teacher required each student to write a summary of the project without assistance from team members.

4.4 Cooperative Learning Practice with Acceleration Groups Within the Classroom

To introduce the practice of acceleration within the regular classroom, a set of three drawings was presented with the following information given to each student.

First, in this classroom, the teacher assigned slower workers to work together in cooperative learning groups and assigned all the faster workers to another cooperative learning group. Each group next takes the responsibility for finishing assigned tasks efficiently, checking each other's work and giving assistance to other members whenever it is necessary. The teacher works with small groups of students who need instructions on specific skills.

4.5 Cooperative Learning Practice with Enrichment Groups Outside the Classroom

To introduce the practice of enrichment outside the classroom with multi-age cooperative learning groupings, a series of three drawings was presented with the following information given to each student.

First, in this classroom, the teacher informs the faster workers that they are to go to an assigned classroom in the school to meet with other fast workers. Next, the fast workers are working in cooperative learning groups made up of children from several different grades. Finally, the slower workers who remain in the regular classroom are assigned to cooperative learning groups to work on an assignment.

4.6 Cooperative Learning Practice with Teacher-Selected Heterogeneous Groups with Controversial Topic

To introduce the practice of heterogeneous groupings assigned by the teacher, working on a controversial topic, a series of five drawings was presented with the following information given to each student.

In this classroom, the teacher first assigns students to work in groups of two pairs with each pair consisting of a fast worker and a slow worker (i.e., each group has two faster workers and two slower workers with a fast and a slow worker in each pair). Next, one pair is told that they have to work together cooperatively to learn all they can to support the topic (e.g., Should the wolf be a protected species?) while the other pair needs to work together cooperatively to learn all they can to oppose the topic. Then, following the cooperative work, each pair presents their position to the other and they discuss the two positions, comparing strengths and weaknesses of each other's arguments. The pairs then take the other's position and present the opposing position as best they can. Finally, the two pairs have to agree on one position and write a group report that includes their joint view, supporting evidence, and reasons for making the choice.

Using the same drawings, each practice was then paired with every other practice and the students were asked, "Which is more fair?" and "Why?" They were also asked, "Which would the fast worker think is more fair?" "Why?" and "Which would the slower worker think is more fair?" "Why?"

At the end of the interview, students were asked, "Which are you more like, the fast workers or the slow workers?" and "What kinds of things do teachers you have known usually do with fast and slow workers?" This information made it possible to validate the possibility that students' judgments of fairness were a function of their perceived ability or agreement with common practices.

5. ANALYSIS OF INTERVIEWS

Tape-recorded interviews were typed and assigned the same random number they had been assigned at the time of the interview. This allowed for classification by grade levels and gender once the coding was complete. The principal had provided a sealed envelope containing the identity of the students enrolled in the gifted/talented enrichment program and the contents were known only once the coding was complete. A cross-reference with the numbers assigned to each interviewee then enabled the division of groups (i.e., those in the gifted/talented program and those not participating in the program).

Each interview was analyzed to determine the issues raised

when judging fairness of choices of situations (i.e., when situations were presented alone). Nine categories from Thorkildsen's (1989a) list were found to be suitable and were selected to guide the analysis. As had been done in Thorkildsen's (1989a) study, as many justifications as were discussed after each question were counted (e.g., "I guess this would not be fair for the fast workers because sometimes they don't like to work with the slower workers (fast dominant) and they can move faster when they're with other faster workers (equity of work). Table 1 provides examples of typical and consistent answers for each of the nine categories.

Table 1. ISSUES RAISED WHEN JUDGING FAIRNESS OF PRACTICES

ISSUES	EXAMPLES OF RESPONSES
1. Equality of Work	Fast are not doing all the work. Fast does not think it is fair if slow does not work at all. Everyone pitches in. Everybody doing the same amount of work.
2. Equity of Work	Fast do not have to wait for the slow. Fast want to do a good job, work quickly, finish work. Slow have other slow to work with at their own pace.
3. Equality of Learning	All learn the same amount about something. Slow may not learn more things and not have any ideas if in separate groups. Fast person cannot just speed up but has to stay behind and help. Fast would teach slow how to keep up and get faster.
4. Equity of Learning	Fast should be able to learn all they can. Slow read more and find out more information. Everybody in the fast group knows what to do. Gives slow a chance to learn it thoroughly and learn a lot better.
5. Benefits of Cooperative Learning	Fast help the slow. Learn to work properly in groups. Can share ideas. Both need to learn to work with others. Get different point of view.
6. Other Rewards	Fast can go ahead and have fun. Slow would get work done so they could goof off too. By working hard, slow can get to go in fast class. Slow will have a better reputation because he is working with the fast.
7. Fast Worker Dominant	Fast thinks it is a drag working with slow. Fast knows more. Slow would get on their nerves. Would not understand slow. Say slow are dumb because they do not understand what fast are doing.
8. Slow Worker Feels Inferior	Slow rejected from the group. Slow think they are not as smart and will

not get a good mark. Slow need a leader to help them. It is obvious that the slow are not as smart.

9. Group Dynamics

Slow can work better if all at the same level. Work with people they know and trust. Fast would not enjoy being in a separate room away from their friends who they likely enjoy helping.

The number of statements made by each student in each category was recorded, using the sample responses as a guideline. To control for difference in the number of statements made, proportions of responses in each category were calculated for each student (Thordkildsen, 1989a, 1993b).

Forty-one percent of the interviews were coded independently by a second individual who was also blind to the grade, gender, and ability level of the students. The interviews were representative of the forty-six students included in the study (i.e., stratified by grade, gender, and ability level).

Interrater reliability using Pearson's product-moment correlations (Pearson "r") were determined for each category (Table 2). The mean correlation was .85.

TABLE 2. CORRELATIONS BETWEEN RATERS OF ISSUES RAISED

ISSUES	COEFFICIENTS
1. Equality of Work	.69
2. Equity of Work	.77
3. Equality of Learning	.93
4. Equity of Learning	.91
5. Benefits of Cooperative Learning	.84
6. Other Rewards	.70
7. Fast Worker Dominant	.81
8. Slow Worker Feels Inferior	.95
9. Group Dynamics	.82

6. SUMMARY OF CHAPTER THREE

Chapter Three presented the methodology used to test the four hypotheses. The sample was identified and procedures relating to the administration of the interviews were specified. Finally, descriptions of the analysis of the interviews and coding procedures were provided.

Results of the analyses of the data will be presented in the following chapter.

CHAPTER IV

STATEMENT OF RESULTS

1. OVERVIEW OF THE CHAPTER

This chapter presents the method of analysis and results of the analyses of the data. Two sets of scores were obtained from students' responses to interview questions: 1) the practices judged to be the fairest by each grade and each group and 2) the proportion of issues discussed at each grade and by each group when justifying their choices of fair practices.

The two sets of scores will be reported and analyzed in the present chapter in order to provide answers to the questions posed in Chapter 1 and to support the acceptance or rejection of the hypotheses proposed in Chapter 2.

2. METHOD OF ANALYSIS

The method of analysis is outlined below and the analysis of results is presented in Section 3.

The means and standard deviations of number of times students at each grade level selected each practice as more fair than another in paired comparisons were obtained for both groups (i.e., students participating in the enrichment program and those in the representative group).

The means and standard deviations of issues discussed by the students at each grade level was obtained for both groups (i.e., those in enrichment program and those in the representative

group).

Separate multivariate analyses of variance were conducted with 1) choice of fair practice and 2) issues raised when justifying choices as the dependent variables to determine if there were any main effects relating to grade or group, or any interaction of these effects.

Univariate tests of significance were carried out to determine which practices were significantly different.

A Tukey test was used to determine if all the statements regarding contrasts of means for the cooperative learning practice of enrichment outside the classroom were simultaneously true for grade (i.e., the differences between the means of the students in Grades 4, 5, and 7 were tested for statistical significance in their choice of the fairness of cooperative learning enrichment outside the classroom) .

Comparison of mean values for the five practices was used to determine if students in one group were more likely than students in the other group to say that one practice would be more fair than another.

3. ANALYSIS OF SCORES

3.1 Aptness of the Model

As it is important that the underlying assumptions of the MANOVA model be met in order to make valid inferences regarding the relationships between the dependent variables and the independent variables, a residual analysis was used to detect

violations of the underlying assumptions of the MANOVA model. A histogram of standardized residuals and a residual plot showed normality of the error terms. For practices, the multivariate test for homogeneity of dispersion matrices reported Box's $M = 57.86$, $F(45,1607) = .81$, $p = .82$. The multivariate test for homogeneity of dispersion for issues reported Box's $M = 68.5$, $F(45,6360) = 1.19$, $p = .18$.

Because it appeared that all assumptions were met, valid inferences could be drawn from the multivariate analysis of variance.

3.2 Analysis of Choices of Fair Practices

Means and standard deviations of the number of times students of each grade level and from each group selected each practice as more fair than others in paired comparisons are reported in Table 3.

TABLE 3. MEANS (AND STANDARD DEVIATIONS) OF STUDENTS' CHOICES OF FAIR PRACTICES - BY GRADE AND GROUP

Practices	Grade and Group					
	H/A	Reg	H/A	Reg	H/A	Reg
	4	4	5	5	7	7
Teacher assigned mixed-ability groups	1.71 (1.38)	1.29 (1.25)	1.75 (0.71)	2.25 (1.04)	2.25 (1.04)	2.75 (0.89)
Student chosen groups	1.58 (1.40)	2.29 (1.50)	1.25 (1.28)	2.00 (1.41)	2.25 (1.49)	2.13 (1.55)
Acceleration within classroom	1.43 (1.27)	1.43 (1.13)	2.38 (0.92)	1.38 (0.92)	2.38 (1.19)	1.63 (0.92)
Enrichment outside classroom	2.00 (1.29)	2.00 (1.63)	2.63 (1.51)	1.63 (1.51)	1.13 (0.99)	0.25 (0.46)
Teacher assigned mixed-ability groups working on controversial topic	3.14 (0.69)	2.57 (0.53)	1.88 (1.12)	2.63 (1.51)	2.00 (0.93)	3.25 (0.89)

NOTE: 1) 4 is the maximum possible score, indicating that a practice was preferred over all others.

2) H/A represents students in the gifted/talented enrichment pull-out program.

3) Reg represents students not participating in the gifted/talented enrichment pull-out program.

3.2.1 Results of Multivariate Analysis of Variance for Choices

In order to test hypotheses 1, 2, 3, and 4(a), responses of the students in the enrichment program and those from the representative group were tested for significant differences related to grade and group. The number of times each student chose a practice as most fair in paired comparisons was calculated and these totals were entered as the dependent

variables.

A grade by group multivariate analysis of variance was carried out for choice of practice. With the use of Pillais' criterion, a significant effect for grade only was found, $F(10,74) = 2.55$, $p = .01$. There were no significant group effects or interactions. These results justified univariate F -tests to further examine grade effects. The critical value for acceptance of results of the univariate tests as significant was .01 (i.e., $.05 \div 5 = .01$). The cooperative learning practice involving enrichment outside the classroom was found to be significant $F(2,40) = 6.04$, $p = .005$.

The Tukey test was used to determine which pairs of groups were significantly different at the .05 level. Specifically, Grade 7 was significantly different from both Grades 4 and 5 (i.e., Grade 7 students were less likely to choose as fair the cooperative learning practice of enrichment outside the classroom than either the Grades 4 or 5 students).

Table 4 represents the means and standard deviations for each grade. Since there were no significant grade by group differences, the means are collapsed into one group for each grade.

TABLE 4. MEANS (AND STANDARD DEVIATIONS) OF STUDENTS' CHOICES OF FAIR PRACTICES BY GRADE

Practices	Grade		
	4	5	7
Teacher assigned mixed-ability groups	1.50 (1.29)	2.00 (0.89)	2.50 (0.97)
Student chosen groups	1.93 (1.44)	1.63 (1.36)	2.19 (1.47)
Acceleration within classroom	1.43 (1.60)	1.88 (1.02)	2.00 (1.10)
Enrichment outside classroom	2.00 (1.40)	2.13 (1.54)	0.69 (0.87)
Teacher assigned mixed-ability groups working on controversial topic	2.86 (0.66)	2.25 (1.34)	2.63 (1.09)

NOTE: 1) 4 is the maximum possible score, indicating that a practice was preferred over all others

Although few significant differences existed between grades in choice of the fairness of cooperative learning practices, order of choice of each group is presented to provide additional information. Mean values reported by the MANOVA were used to determine the order of choice of the cooperative learning practices for each group and are reported in Table 5.

TABLE 5. ORDER OF STUDENTS' CHOICES OF
FAIR PRACTICES BY GROUP

Practices	Group	
	Enrichment	Regular
Teacher assigned mixed-ability groups	3*	2**
Student chosen groups	4	2**
Acceleration within classroom	2	3
Enrichment outside classroom	3*	4
Teacher assigned mixed-ability groups working on controversial topic	1	1

* Tie for third choice

** Tie for second choice

These results do not support the acceptance of hypotheses 1 and 3, namely, that students identified for the enrichment program would choose as most fair mixed-ability cooperative learning practices over acceleration and enrichment cooperative learning practices and that they would select choosing members for cooperative learning groups over teacher-assigned groups.

The results do, however, support hypothesis 2, namely, that students in the enrichment program will choose as most fair the cooperative learning practice involving a controversial topic and that the results would be similar for the representative group. Hypothesis 4(a) is also supported by the results because there is a significant difference between grades for one of the practices (i.e., cooperative learning enrichment outside the classroom).

3.3 Analysis of Issues Discussed When Judging Fairness of Practices

Means and standard deviations of the proportion of issues students of each grade level and from each group discussed when justifying their choices of fair cooperative learning practices are reported in Table 6.

TABLE 6. MEANS (AND STANDARD DEVIATIONS) FOR PROPORTIONS OF ISSUES DISCUSSED - BY GRADE AND GROUP

Issues	Grade and Group					
	H/A	Reg	H/A	Reg	H/A	Reg
	4	4	5	5	7	7
Equality of work	.18 (.08)	.15 (.15)	.13 (.08)	.25 (.09)	.23 (.10)	.20 (.08)
Equity of work	.26 (.14)	.25 (.11)	.19 (.10)	.21 (.10)	.24 (.12)	.14 (.10)
Equality of learning	.02 (.04)	.09 (.08)	.13 (.11)	.05 (.08)	.05 (.04)	.06 (.05)
Equity of learning	.06 (.08)	.05 (.07)	.15 (.12)	.07 (.07)	.07 (.08)	.08 (.07)
Benefits of cooperative learning	.25 (.09)	.25 (.08)	.17 (.09)	.11 (.09)	.16 (.08)	.16 (.07)
Other rewards	.00 (.00)	.16 (.03)	.06 (.08)	.06 (.05)	.04 (.06)	.02 (.04)
Fast worker dominant	.07 (.10)	.03 (.03)	.06 (.06)	.06 (.04)	.05 (.04)	.10 (.07)
Slow worker feels inferior	.03 (.05)	.04 (.06)	.06 (.07)	.09 (.07)	.06 (.05)	.10 (.07)
Group dynamics	.14 (.08)	.13 (.12)	.06 (.05)	.13 (.07)	.12 (.07)	.13 (.07)

3.3.1 Results of Multivariate Analysis of Variance for Issues

In order to test hypothesis 4(b) (i.e., a difference will exist in the issues raised between Grade 4 and Grade 7 enrichment program students when justifying their choices about the fairness of cooperative learning practices and that these will be similar to the representative group's issues), results from the students in the enrichment program and those from the representative group were tested for significant differences in the proportion of issues discussed related to grade and group. The number of times students mentioned justifications fitting any one of the nine categories identified by the coders was calculated. Then, to control for variation in the number of statements made by students, proportions were calculated for each category.

A grade by group multivariate analysis of variance was carried out for the proportion of issues discussed when justifying choices. There were no main effects for either grade or group and no interactions reported.

Table 7 represents the means and standard deviations for each issue for each grade. Since there were no significant grade by group differences, the means are collapsed into one group for each grade.

TABLE 7. MEANS (AND STANDARD DEVIATIONS) OF PROPORTIONS
OF ISSUES DISCUSSED AT EACH GRADE

Issues	Grade		
	4	5	7
Equality of work	.16 (.11)	.19 (.10)	.22 (.09)
Equity of work	.26 (.12)	.20 (.09)	.19 (.11)
Equality of learning	.06 (.07)	.09 (.10)	.05 (.05)
Equity of learning	.06 (.08)	.11 (.10)	.07 (.08)
Benefits of cooperative learning	.25 (.09)	.14 (.09)	.16 (.07)
Other rewards	.01 (.02)	.06 (.07)	.03 (.05)
Fast worker dominant	.05 (.07)	.06 (.05)	.07 (.07)
Slow worker feels inferior	.03 (.05)	.08 (.07)	.08 (.06)
Group dynamics	.13 (.10)	.10 (.07)	.13 (.06)

These results do not support the acceptance of hypothesis 4(b), namely, that a difference will exist between Grades 4 and 7 in the proportion of issues raised when justifying their choices.

4. SUMMARY OF CHAPTER FOUR

Chapter 4 presented the method of analysis and the results

of the study. Multivariate analysis of variance indicated main effects for grade in the choice of fair cooperative learning practices. There were no significant main effects for group nor was there any group by grade interaction. A one-way ANOVA showed a linear trend for the cooperative learning practice with enrichment outside the classroom. A Tukey test was used to explore group differences resulting in Grade 7 being significantly different from both Grades 4 and 5.

There were no significant main effects for grade or group, nor any group by grade interaction, in the proportion of issues discussed when justifying choices of fair cooperative learning practices.

Order of the choice of fair learning practices based on mean values, when making choices in paired comparisons, revealed that, overall, students in both the enrichment program and the representative group chose as the most fair the cooperative learning practice with teacher-assigned mixed-ability groupings with a controversial topic. Students in both groups did not rank the remainder of the cooperative learning practices in identical order.

Limitations, discussion, implications for future research, and conclusions will be presented in Chapter 5.

CHAPTER V

DISCUSSION AND CONCLUSIONS

1. OVERVIEW OF THE CHAPTER

The purpose of the study was to investigate students' perception of the fairness of cooperative learning practices as possible cognitive-developmental attributes of high-ability children compared to others who were not so identified. The results would provide information that would assist in planning appropriate learning environments for students identified for enrichment programs.

After describing the limitations of the study, the findings will be discussed and related to previous research. Implications for both education and future research will be discussed.

2. LIMITATIONS OF THE PRESENT FINDINGS

1. The method of identifying students for the gifted/talented enrichment program (i.e., teacher or parent nomination) in this study limits the discussion to similar populations of students. The results cannot be inferred to situations where high-ability students have to meet specific criteria (i.e., specific IQ and achievement level for formal identification) for pull-out enrichment, acceleration programs, or other challenge and gifted programs.

2. Because the questions addressed in this study were specific

to the fairness of cooperative learning practices, high-ability students' conceptions of fairness of other classroom practices affecting their learning may result in different effects (i.e., choices are evaluated with respect to specific goal) (Thorkildsen, 1989a, 1989b, 1993a).

3. The possibility exists that students may have interpreted the cooperative learning practices of acceleration within the classroom and enrichment outside the classroom according to the practices with which they are familiar. That is, the students may not have considered the meaning of "cooperation" in the cooperative learning practices presented but rather given their choices and justifications based on the type of experiences to which they are accustomed. That is, they may be more familiar with working in groups with limited goal setting and undefined roles rather than in structured cooperative learning groupings.

4. Some students in the representative group may in fact be high-ability students who have either never been identified for the enrichment program or may have had experience with the program and have since opted out of the program. Therefore, some of the choices and issues discussed by these students may have been more representative of the high-ability group, affecting the results of the analyses for ability group effect.

5. Considerable disadvantages exist in using the interview method, including "social desirability, language deficiency, competence and performance differences, and even the possibility that subjects might simply spout off opinions they heard from

others without reflecting on these issues" (Leahy & Hunt, 1983, p.140). Although impossible to control for such disadvantages, it must be recognized that a structured interview has the potential for such shortcomings.

3. DISCUSSION OF GRADE AND GROUP DIFFERENCES

3.1 Grade Differences in Choices of Fair Cooperative Learning Practices

The findings of main effects for grade and practice in students' conceptions of fair learning practices have been previously reported (Thorkildsen, 1989a, 1993a). Similar results were reported for both the representative group and the high-ability group in Thorkildsen's (1989a, 1993a) studies. That is, grade trends indicated that acceleration and enrichment were more likely to be seen as fair by older students and peer tutoring seen as less fair by the older students than the younger ones.

In the present study, a significant main effect for grade was observed in the cooperative learning practice with enrichment groupings outside the classroom. The finding that Grade 7 students chose the cooperative learning practice of enrichment outside the classroom less frequently than did either the Grade 4 or Grade 5 students suggests that, overall, older students may not perceive enrichment as an opportunity to learn more and, if perceived as a reward for completing work, would be less likely to endorse the practice than Grade 4 and Grade 5 students who are more likely to think of enrichment as a reward (Thorkildsen,

1989a). The trend may also be related to Piaget's (1965) theory of the notion of justice (i.e., the sense of what is just stems from the sheer mutual respect and solidarity which holds among children themselves) and older students now perceive cooperative learning enrichment outside the classroom as inequality to their peers. One could speculate that the Grade 7 students may have lost interest or motivation in the enrichment program offered to them; however, this tentative suggestion requires confirmation by further research.

Results indicating main effects for grade for one cooperative learning practice and no main effects for group support predictions of cognitive-developmental theorists (Colby & Kohlberg, 1987; Kohlberg, 1971, 1981; Piaget, 1965). Similar to findings in Thorkildsen's (1993a) investigation, results from this study demonstrate that evaluations of classroom practices are held to be constrained by developing understanding of practices (i.e., students' ability to comprehend the underlying reasons for practices will impact on their conceptions of the fairness of practices to which they are exposed).

The acceptance of hypothesis 4(a), that a difference will exist in the choices of fair practices between Grade 4 and Grade 7 enrichment program and representative group students, lends tentative support to the argument against enrichment outside the classroom for gifted/talented students as these programs are presently structured. Programs offering enrichment within the classroom may be effectively introduced providing all students an

equal chance at learning more and meeting the developmental needs of children at this age (i.e., equality of learning).

3.2 Group Differences in Choices of Fair Cooperative Learning Practices

The equivalent conceptions of fair learning practices held by both high-ability students and those in a more representative group has been reported in a previous investigation (Thorkildsen, 1993a). Similarly, there was no significant group difference between the students enrolled in the gifted/talented program and the representative group in the current study. As was previously noted, Thorkildsen's research (1989a, 1993a), supported the cognitive-developmental position whereby "Students' ability to comprehend the rationales underlying the practices they experience constrains the extent to which they endorse the values embodied in their culture" (p. 189).

These results however do not attest to uniformity of order in which each group chose the practices nor to the variety of justifications offered for their choices. Cooperative learning practices involving acceleration within the classroom was the overall second choice for the enrichment program students while it was the fourth choice for the non-enrichment program students. It should be noted that Grade 4 enrichment group students chose acceleration inside the classroom as their least fair practice while it was the Grade 7 enrichment group's most fair practice, reflecting the notion of equal amount of work being important for the younger students while the older students consider equity of

learning as more important (e.g., "faster workers can get ahead more in something that they're doing"). Non-enrichment students frequently indicated that this practice was fair because "for the fast people it would be really fair, for the slow people, it would be okay because the teacher is going to help them a little bit." They saw this practice as beneficial to them since they would get extra help from the teacher and both groups would "work at their own level." Some students in the representative group also perceived the acceleration group as a group which works independently and receives little help from the teacher which they did not feel was fair.

The enrichment program students justified their choices by frequently stating that "sometimes they don't like to work with the slower workers and they can move faster when they're with other faster workers and the teacher can help the slower groups because the faster workers don't need the help." These students also indicated that acceleration was unfair "because the slower students might feel that they're not as good or not as special or something."

3.3 Mixed-Ability Cooperative Learning Practices versus Acceleration and Enrichment Cooperative Learning Groupings

Thorkildsen (1993a) reported that high-ability students typically chose peer tutoring as fairest even though they experienced both acceleration and enrichment programs. Similarly, overall, students from the enrichment program in the present study chose a mixed-ability cooperative learning practice

over both acceleration and enrichment cooperative learning practices. However, justifications for this choice suggest that the intended goal of the practice (i.e., defending a position taken on a controversial issue) may have been the main reason for their choice rather than the opportunity to work in a mixed-ability group. They supported their choices with justifications such as, "...it's kind of weird though how they have to switch and they're against it when they were supporting it before. That's neat. It would be fair because then it gives you a taste of both sides." This inference is further supported by enrichment program students' second choice, cooperative learning acceleration groups within the classroom, over either of the other two mixed-ability cooperative learning practices. Differences in choice of fair practices were noted between grades for the enrichment program students (i.e., Grade 7 students chose acceleration as most fair while Grade 4 students chose it as the least fair. Also, Grade 5 students chose enrichment outside the classroom as most fair while Grade 7 students chose it as the least fair).

The rejection of hypothesis #1 indicates that mixed-ability groupings will not always be perceived as fair and acceptance of such cooperative learning practices may depend on the specified goal. Further, it appears to support the theory that understanding the intended goal of a practice is likely to guide students' choices of the fairness of that practice (Thorkildsen, 1993a).

3.4 Mixed-Ability Cooperative Learning Practice Involving a Controversial Topic

The acceptance of hypothesis 2, (i.e., high-ability students endorsing as most fair the mixed-ability cooperative learning practice with a controversial topic) lends tentative support to the argument that when high-ability students are in cooperative learning groupings, whether it be for enrichment, acceleration, or with a mixed-ability group, academic controversies should regularly be structured within these cooperative learning groups (Johnson & Johnson, 1992; Kohlberg 1981; Piaget, 1965).

Carefully-structured cooperative learning environments could offer intellectually challenging learning tasks, allowing all students to make key decisions about how they perform those tasks. Specifically, conceptual conflict arising from being confronted with multiple possible answers and points of view is essential for cognitive growth, critical thinking, and the development of higher-level reasoning strategies (Johnson & Johnson, 1992).

Acceptance of hypothesis #2 supports the literature relating to controversy and learning and supports the importance of the notion that the goal structure within which the controversy occurs is a necessary condition for the success of such a structure.

3.5 Peer-Chosen Cooperative Learning Groupings versus Teacher-Assigned Groupings

Students' conceptions of peer-chosen groups over teacher-assigned groups have been examined in Thorkildsen and Jordan (1995) study of a Grade 4/5 class. Students reported that they all had different priorities when they came to school and that they could not all achieve their purposes and learn the same way which is counter to cooperative learning models which function as if students' agendas will not affect their approach to assigned tasks. Students from the enrichment group in the present study, for the most part, selected the cooperative learning practice with peer-chosen groups as least fair; however, their justifications were somewhat different from the above-noted study. Justifications for considering the practice of peer-chosen cooperative learning groups as unfair included, "...people would most likely want to go with all their friends and they might start to work together then get in a big argument and things wouldn't work out so I think it's better if the teacher assigns people that would work well together." They also reported that friendships may be threatened, that the inability of friends to stay on-task could result in poor marks, and peers' feelings may be hurt if they were not chosen to be in particular groups.

However, the students not enrolled in the enrichment program chose this cooperative learning practice as their second choice stating that, "if they pick their own groups, then they can get

some people that they know that are really responsible"; "you pick people at your same speed"; and "you get to pick who you think you're comfortable with."

The rejection of hypothesis #3, in conjunction with examination of students' justifications, attests to the different priorities existing between students, influencing their conceptions of the fairness of learning practices.

3.6 Grade and Group Differences of Issues Presented when Justifying Responses

Since the proportion of issues discussed by grade and group in this study were not significantly different, no support is given to the contention that younger students (i.e., below age ten) were more likely than older ones (i.e., ten to sixteen) to maintain that equality of work was more fair than equality of learning when justifying their choices. Similarly, there were no grade by group interactions.

As in the present study, Thorkildsen (1989a, 1993a) found that students at different ages gave different interpretations of the fairness of helping all students learn and focused on different issues. A review of the interviews indicated that students enrolled in the gifted/talented enrichment program were not more likely than students in the representative group to discuss the fairness of having unequal amounts of learning; however, they did express concern about the inequality of the amount of work they would be required to do in mixed-ability cooperative learning groups.

The limited grade range (i.e., Grade 4 to 7) may, in part, be responsible for the lack of significance in the issues raised when students justified their choices of the fairness of cooperative learning practices, resulting in the rejection of hypothesis 4(b).

4. IMPLICATIONS FOR FUTURE RESEARCH

1. Research similar to that carried out by Thorkildsen (1989a, 1993a) to identify levels of students' conceptions of fairness of learning practices would shed light on the possibility that high-ability students have more advanced conceptions than do students in a representative group when working in a variety of cooperative learning groupings. Further, the research could be analyzed to determine if both groups essentially move through each level sequentially (i.e., beginning with an emphasis on equality of work and rewards to an emphasis on equality of learning, and finally to equal distribution of learning). A wider range of grades would be necessary if the goal of the research was to determine if similar age trends to those reported by Thorkildsen (1989a, 1993a) exist in cooperative learning groupings.

2. A more comprehensive study is necessary to provide information about which specific conditions will support controversies in a beneficial way (e.g., heterogeneous participants, amount of relevant information each participant brings to the situation, ability of participants to disagree with

one, another, and the ability of participants to engage in rational argument) (Johnson & Johnson, 1989). The results would be invaluable in planning well-structured cooperative learning practices.

3. Since responses from the students in the representative group revealed that they frequently feel inferior when working with high-ability students, an ethnographic study would be useful to examine the possibility that cooperative learning groupings could be detrimental to the norm group's self-esteem and academic progress should the cooperative learning practices not be well-structured to also meet this group's academic and social needs.

4. A further study to determine the influence of friendship upon students' choices of the fairness of cooperative learning practices would be necessary to determine the influence, if any, this would have on cooperative learning situations versus working cooperatively in groups with students with whom they are not familiar (e.g., perhaps cooperative learning groupings with enrichment outside the classroom would provide this information).

5. SUMMARY AND CONCLUSIONS

Students' ages have been found to be more important than ability in determining an individual's potential to comprehend the rationales underlying the practices they experience (Colby & Kohlberg, 1987; Kohlberg, 1971, 1981; Piaget, 1965; Thorkildsen, 1993a). This finding is supported by the results of the present

study. Within both the gifted/talented enrichment group and the representative group, students at different grades discussed a variety of issues concerning working with others in cooperative situations. At each grade level no significant difference existed to indicate that students in the gifted/talented program had more differentiated conceptions of the fairness of cooperative learning practices presented to them (i.e., that gifted/talented enrichments students would be more likely to discuss issues relating to work, learning, and helping others earlier than students in the representative group).

The primary objective of this study was to examine gifted/talented enrichment program students' perceptions of the fairness of cooperative learning practices compared to their peers who were not participants in the enrichment program, providing information for planning practices appropriate for high-ability students. Initially it was pertinent to examine whether or not students' choices of the fairness of cooperative learning practices contributed information different from that found in the literature on cooperative learning and, if so, what the nature of this additional information might be and how it could be used in program planning. Why is the information especially appropriate for planning cooperative learning practices to meet the needs of high-ability students? Upon examining the research, relatively few studies involved asking either high-ability or norm groups what their perceptions were of the fairness of cooperative learning practices. Therefore, it

may be asked whether or not the results from previous studies reflected how high-ability students actually perceive such practices. For example, do high-ability students favor mixed-ability cooperative learning practices over cooperative learning practices with acceleration and enrichment and do their choices differ from a norm group made up of their peers? The present study was designed to assist in providing answers to questions such as these.

Briefly, from the results already discussed it may be inferred that, although there are some differences between grades, high-ability students do not always reject mixed-ability cooperative learning groupings. The additional information is qualitative rather than quantitative, and indicates areas of concept development in which certain practices may be judged as fair under specific conditions (i.e., a well-structured cooperative learning practice setting up the context facilitating constructive controversy).

High-ability students do not readily accept the fairness of the social practices they experience. The interviews indicate that high-ability students appear to be aware of their social world and not preoccupied with endorsing cooperative learning practices which meet only their needs as endorsed by adults (e.g., "the slow worker might not finish on time", "not fair because slow workers might think that they're not good at all and the faster workers are the best and then they get low self-esteem" and "not fair to have slower workers working with other

slower workers - they should be able to work with faster workers too").

The stated goal of the situation in these interviews was to work in cooperative learning groupings to help each other learn. Analysis of high-ability students' justification for choices indicate areas of preference dependent upon students' grade level and defined purpose of the cooperative learning activity. From this information, certain practices may be selected for emphasis when preparing programs and materials to meet the needs of high-ability students.

Assessing students' understanding of the goals of cooperative learning situations and their corresponding conceptions of fairness provides the potential to create a successful and challenging learning environment while providing students with lifelong skills which they themselves talk about (e.g., "both need to learn to work with others" and "fast should learn to work in different ways - alone, together, split work").

High-ability students' conceptions of fair practices appear to be constructed out of their own experiences as they referred to their peers' feelings (e.g., "slower worker might feel kind of bad), to the equity of work (e.g. "if everyone doing the same thing, it's fair), and to equality of learning (e.g., "all learn the same amount about something") when justifying their choices of fair cooperative learning practices.

The evidence presented here indicates that high-ability students, similar to the norm group, make choices about the

fairness of learning practices based on the specified goal of the situation. Further, justification for these choices appears to be closely related to the stated goal of the situation.

Cooperative learning groupings could advantageously be used with a variety of goals. Well-structured cooperative learning practices could provide teachers with opportunities to offer challenges in achievement, problem solving, creativity, and task involvement for high-ability and norm students alike in both homogeneous and heterogeneous groupings. Understanding the nature of interdependence and how to manage conflicts are essential qualities of future citizens; therefore, it is essential for teachers to understand the theory of social interdependence in order to guide their students to benefit from cooperative learning situations. This goal will realistically be achieved through teacher training in this specific domain.

It appears that while high-ability students show evidence of a preference for mixed-ability cooperative learning practices involving a controversial topic, a number of questions remain as to their preference for acceleration within the classroom and enrichment outside the classroom should they be presented with controversial topics in those situations and the extent to which their justifications would reflect endorsing cooperative learning practices meeting only their needs as endorsed by adults.

BIBLIOGRAPHY

Allan, S. D. (1991). Ability-grouping research reviews: What do they say about grouping and the gifted? Educational Leadership, 48, 60-65.

Clinkenbeard, P.R. (1991). Unfair expectations: A pilot study of middle school students' comparisons of gifted and regular classes. Journal for the Education of the Gifted, 15, 56-63.

Colangelo, N. (1982). Characteristics of moral problems as formulated by gifted adolescents. Journal of Moral Education, 11, 219-221.

Colby, A., & Kohlberg, L. (1987). The measurement of moral judgment (Vol. 1). New York: Cambridge University Press.

Damon, W. (1977). The social world of the child. San Francisco: Jossey-Bass.

Damon, W. (1980). Patterns of change in children's social reasoning: A two-year longitudinal study. Child Development, 51, 1010-1017.

Damon, W. (1988). The moral child: Nurturing children's natural moral growth. New York: Free Press.

Davidson, N. (1985). "Small-group learning and teaching in mathematics: A selective review of the research." In R. Slavin, S. Sharan, S. Kagan, R. Hertz-Lazarowitz, C. Webb, & R. Schmuck (Eds.), Learning to cooperate, cooperating to learn (pp.156-178). New York: Plenum.

Dewey, J. (1944). Democracy and education. New York: The Free Press. (Originally published in 1916.)

Feldhusen, J. P. (1989). Synthesis of research on gifted youth. Educational Leadership, 46, 6-11.

Gallagher, J. J. (1991). Educational Reform, Values, and Gifted Students. Gifted Child Quarterly, 35, 12-19.

Johnson, D. W. & Johnson, R. T. (1982). Effects of cooperative and individualistic instruction on the achievement of handicapped, regular, and gifted students. Journal of Social Psychology, 116, 227 - 283.

Johnson, D. W., & Johnson R. T. (1987). Learning together and alone: Cooperation, competition and individualization. Englewood Cliffs, NJ: Prentice Hall, Inc.

Johnson, D. W., & Johnson, R. T. (1989). Cooperation and competition: Theory and research. Edina, MN: Interaction Book Company.

Johnson, D. W., & Johnson, R. T. (1991). Collaboration and cognition. In A. Costa (Ed.), Developing minds: A resource book for teaching thinking (rev. ed., Vol. 1) (pp. 298-301). Alexandria, VA: ASCD.

Johnson, D. W., & Johnson, R. T. (1992). What to say to advocates for the gifted. Educational Leadership, 50, 44-47.

Johnson, D. W., Johnson, R. T., & Holubec, E. (1988). Cooperation in the classroom. Edina, MN: Interaction Book.

Johnson, D. W., Johnson, R. T., & Holubec, E. (1990). Circles of learning. Edina, MN: Interaction Book Company.

Johnson, D. W., Maruyama, G., Johnson, R., Nelson, D., & Skon, L. (1981). Effects of cooperative, competitive, and individualistic goal structures on achievement: A meta-analysis. Psychological Bulletin 89, 47-62.

Johnson, D. W., Skon, L., & Johnson, R. T. (1980). Effects of cooperative, competitive, and individualistic conditions on children's problem-solving performance. American Educational Research Journal, 17, 83-93.

Kagan, S. (1990). The structural approach to cooperative learning. Educational Leadership, 47, 12-15.

Kohlberg, L. (1969). Stage and sequence: The cognitive-developmental approach to socialization. In D. A. Goslin (Ed.), Handbook of socialization theory and research (pp. 347 - 480). Chicago: Rand McNally.

Kohlberg, L. (1971). Stages of moral development as a basis for moral education. In C. M. Beck, B. S. Crittendon, & E. V. Sullivan (Eds.), Moral education: Interdisciplinary approaches. (pp. 23-92). Toronto: University of Toronto Press.

Kohlberg, L. (1981). The philosophy of moral development: Moral stages and the idea of justice. San Francisco: Harper & Row.

Kohlberg, L. (1984). The psychology of moral development: The nature and validity of moral stages. San Francisco: Harper & Row.

Kohlberg, L., DeVries, R., Fein, G., Hart, D., Mayer, R., Noam, G., Snarey, J., & Wertsch, J. (1987). Child psychology and childhood education: A cognitive developmental view. White Plains, NY.: Longman Inc.

Kohlberg, L., Levine, C., & Hewer, A. (1983). Moral stages: A current formulation and a response to critics. Basel, Switzerland: Karger.

Kohlberg, L., & Turiel, E. (1971). Moral development and moral education. In G. S. Lesser (Ed.), Psychology and educational practice (pp. 410-465). Chicago: Scott, Foresman.

Kohn, A. (1986). No contest: The case against competition. Boston: Houghton Mifflin.

Kohn, A. (1991). Group grade grubbing versus cooperative learning. Educational Leadership, 48, 83-87.

Kulik, J. A., & Kulik, C. (1989). Effects of ability grouping on student achievement. Equity and Excellence, 23, 22-30.

Kulik, J. A., & Kulik, C. (1991). Ability grouping and gifted students. In N. Colangelo & G. Davis (Eds.), Handbook of Gifted Education (pp. 178-195). Boston: Allyn and Bacon.

Kulik, J. A., & Kulik, C. (1992). Meta-analytic findings on grouping programs. Gifted Child Quarterly, 36, 73-77.

Leahy, R. L. (1981). The development of the conception of economic inequality: I. Descriptions and comparisons of rich and poor people. Child Development, 52, 523-532.

Leahy, R. L. (1983). The child's construction of social inequality: Conclusions. In R. L. Leahy (Ed.), The child's construction of social inequality (pp. 311-328).

Leahy, R.L., & Hunt, T.M. (1983). A cognitive-developmental approach to the development of conceptions of intelligence. In R. L. Leahy (Ed.), The child's construction of social inequality (pp. 135-160). New York: Academic Press.

Matthews, M. (1992). Gifted students talk about cooperative learning. Educational Leadership, 50, 48-50.

Newman, F. M., & Thompson, J. (1987). Effects of cooperative learning on achievement in secondary schools: A summary of research. Madison, Wisc: University of Wisconsin National Center on Effective Secondary Schools.

Nicholls, J. G. (1983). Conceptions of ability and achievement motivation: A theory and its implications for education. In S. G. Paris, G.M. Olson, & H. W. Stevenson (Eds.), Learning and motivation in the classroom (pp. 211-237). Hillsdale, NJ: Erlbaum.

Nicholls, J. G. (1989). The competitive ethos and democratic education. Cambridge, MA: Harvard University Press.

Nicholls, J. G., & Hazzard, S. P. (1993). Education as adventure: Lessons from the second grade. New York: Teachers College Press.

Nicholls, J. G., & Nelson, J. R. (1992). Students' conceptions of controversial knowledge. Journal of Educational Psychology, 84, 224-230.

Nicholls, J.G., Patashnick, M., & Mettetal, G. (1986). Conceptions of ability and intelligence. Child Development, 57, 636-645.

Nicholls, J. G., & Thorkildsen, T. (1988). Children's distinctions among matters of intellectual convention, logic, fact and personal preference. Child Development, 59, 939-949.

Nicholls, J.G., & Thorkildsen, T.A. (1989). Intellectual conventions versus matters of substance: Elementary School Students as Curriculum Theorists. American Educational Research Journal, 26, 533-544.

Nucci, L. P. (1981). Conceptions of personal issues: A domain distinct from moral or societal concepts. Child Development, 52, 114-121.

Nucci, L. P. (1982). Conceptual development in the moral and conventional domains: Implications for values education. Review of Educational Research, 52, 93-122.

Nucci, L.P. (1985) Children's conceptions of morality, societal convention, and religious prescription. In C. G. Harding (Ed.), Moral dilemmas: Philosophical and psychological issues in the development of moral reasoning (pp. 137-174). Chicago: Precedent Publishing.

Piaget, J. (1965). The moral judgment of the child. Glencoe, Il: The Free Press. (Original work published in 1932.)

Power, F.C., Higgins, A., Kohlberg, L. (1989). Lawrence Kohlberg's approach to moral education. New York: Columbia University Press.

Robinson, A. (1990). Cooperation or exploitation? The argument against cooperative learning for talented students. Journal for the Education of the Gifted, 14, 9-27.

Sharan, S. (1980). Cooperative learning in small groups: Recent methods and effects on achievement, attitudes, and ethnic relations. Review of Educational Research, 50, 241-271.

Sharan, Y. & Sharan, S. (1989/1990). Group investigation expands cooperative learning. Educational Leadership, 47, 17-21.

Sicola, P. K. (1990). Where do gifted students fit? An examination of middle school philosophy as it relates to ability grouping and the gifted learner. Journal for the Education of the Gifted, 14, 37-49.

Slavin, R. E. (1987). Ability grouping and student achievement in elementary schools: Best evidence synthesis. Review of Educational Research, 57, 293-336.

Slavin, R. E. (1988). Synthesis of research on grouping in elementary and secondary schools. Educational Leadership, 46, 67-77.

Slavin, R. E. (1990a). Ability grouping, cooperative learning and the gifted. Journal for the Education of the Gifted, 14, 3-8.

Slavin, R. E. (1990b). Cooperative learning and the gifted: Who benefits? Journal for the Education of the Gifted, 14, 28-30.

Slavin, R. E. (1990c). Cooperative learning: Theory, research and practice. Englewood Cliffs, NJ: Prentice-Hall.

Slavin, R. E. (1990d). Research on cooperative learning: Consensus and controversy. Educational Leadership, 47, 52-54.

Slavin, R. E. (1991). Synthesis of research on cooperative learning. Educational Leadership, 48, 71-82.

Shweder, R. A., Mahapatra, M., & Miller, J. G. (1987). Culture and moral development. In J. Kagan & S. Lamb (Eds.), The emergence of morality in young children (pp. 1-83). Chicago: University of Chicago Press.

Smetana, J. (1981). Preschool children's conceptions of moral and social rules. Child Development, 52, 1333-1336.

Straughan, R. R. (1975). Hypothetical moral situations. Journal of Moral Education, 4, 183-189.

Thorkildsen, T.A. (1989a). Justice in the classroom: The student's view. Child Development, 60, 323-334.

Thorkildsen, T.A. (1989b). Pluralism in children's reasoning about social justice. Child Development, 60, 965-972.

Thorkildsen, T.A. (1991). Defining social goods and distributing them fairly: The development of conceptions of fair testing practices. Child Development, 62, 852-862.

Thorkildsen, T.A. (1993a). Those who can, tutor: High-ability students' conceptions of fair ways to organize learning. Journal of Educational Psychology, 85, 182-190.

Thorkildsen, T.A. (1993b, June). Developing moral and intellectual potential. Paper presented at the 1993 Henry B. and Jocelyn Wallace National Research Symposium on Talent Development, Iowa City, IA.

Thorkildsen, T. A., & Jordan, C. (1995). Is there a right way to collaborate? When the experts speak, can the customers be right? In J. G. Nicholls & T. A. Thorkildsen (Eds.), Reasons for learning: Making lives in school. New York: Teachers College Press.

Turiel, E. (1983). The development of social knowledge: Morality and convention. Cambridge: Cambridge University Press.

Turiel, E., Killen, M., & Helwig, C. C. (1987). Morality: Its structure, functions and vagaries. In J. Kagan (Ed.), The emergence of morality in young children (pp. 155-244). Chicago: University of Chicago Press.

Walker, L., & Richards, B. S. (1979). Stimulating transitions in moral reasoning as a function of stage of cognitive development. Developmental Psychology, 15, 95-103.

Walzer, M. (1983). Spheres of justice: A defense of pluralism and equality. New York: Basic.

Weinstein, R. S. (1983). Student perceptions of schooling. Elementary School Journal, 83, 287-312.

Yussen, S. R. (1977). Characteristics of moral dilemmas written by adolescents. Developmental Psychology, 13, 162-163.

APPENDIX

Example of Drawings Used for the Structured Interview





