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Perceived Autonomy & Motivational Orientation: A Study of
High School Students in the Classroom

by

Edwin James Nicolson

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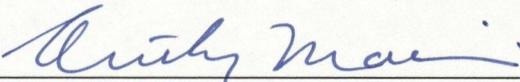
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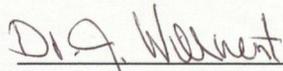
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FACULTY OF GRADUATE STUDIES

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Perceived Autonomy and Motivational Orientation: A Study of High School Students in the Classroom" submitted by Edwin James Nicolson in partial fulfillment of the requirements for the degree of Master of Arts.



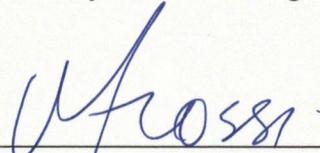
Supervisor, Dr. Anthony Marini

Graduate Division of Educational Research



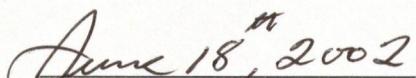
Dr. JoAnne Willment

Faculty of Continuing Education



Dr. Victor Grossi

Division of Applied Psychology (Adjunct)


Date

Abstract

A sample of 188 participants, consisting of 124 females and 64 males volunteered for the study. Participants were distributed over a variety of classes in grades 10-12. An author developed Perceived Autonomy Scale, a modified Self-Regulation Questionnaire, SRQ-A (Ryan & Connell, 1989) and a modified Intrinsic vs. Extrinsic Orientation Scale (Harter, 1981) were administered to each participant. Interrelationships among the three scales were examined in light of previous studies and the data was studied for possible sex effects. The Perceived Autonomy Scale was found to be valid and reliable for the sample under study. It demonstrated limited but highly significant predictive abilities with respect to students' motivational orientation towards class. Previously established patterns of relationship between the two motivation scales were confirmed. Males perceived themselves to be relatively more autonomous than females in some situations with respect to specific classroom learning variables.

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CHAPTER ONE

INTRODUCTION

The applied issues raised by education can be viewed as falling into two broad categories....how to facilitate and channel the intrinsic motivation of children toward the promotion of learning, discovery, and achievement how to utilize extrinsic structures in such a way as to encourage self-regulation and not alienate the children from the process of learning or stifle their intrinsic motivation for related topics and concerns.

Deci & Ryan, Intrinsic Motivation and Self-Determination in Human Behavior (1985)

Because students' autonomy is an important goal of both development and education, it is critical for researchers to identify how and why some situations evoke positively motivated behaviors and some do not.

Paris & Turner, Situated motivation. In P. R. Pintrich & D. R. Brown & C. E. Weinstein (Eds.), Student Motivation, Cognition, and Learning (1994)

In the mid 1990's the high school at which this investigator taught relinquished its semestered class scheduling in favor of a Copernican system of organization (Carroll, 1989). Coincidentally and concurrently the school adopted a new science program of studies. The first mentioned change more than doubled

the length of classes to 2 h 48 min, while the second saw the investigator and his colleagues first pilot and then implement significantly restructured and re-envisioned science curricula.

Exciting as each of these changes was, their simultaneous occurrence strongly tested the professional capacities of the teachers and virtually compelled them to re-evaluate not only their teaching strategies, but more basically, their roles as teachers in the classroom. Fortunately, assistance appeared on two fronts. At the school level an administrator, and exceptional educational leader, engaged all interested teachers in an innovative continuing professional development program aimed at improving the learning of both students and teachers under the new scheduling regime. Simultaneously, the provincial Department of Education extended to its group of science field test teachers a particularly comprehensive and valuable professional in-service program.

This investigator availed himself of both these opportunities and once again, now at a somewhat later stage of his teaching career, became intrigued with the examination of teaching and learning, and with the new possibilities that emerged with respect to the conduct of his high school classes. In order to further enhance his knowledge and expertise relative to these interests he embarked on a graduate course of studies.

The formal studies informed and in turn received substance from the field teaching practices that had begun to utilize cooperative learning, performance assessment, differentiated teaching, metacognitive strategies and autonomy supportive structures. Through this recursive interaction of studying and teaching the investigator arrived at his current place of interest, namely the interlocution of classroom structure and student motivation. The question that ultimately arose to both initiate this investigation and become its object of study was: Do high school students' perceived autonomy within a particular class contribute to their motivational orientation towards that class?

The investigator centered his interest on *autonomy* because in an ecological sense that seemed to be a significant factor in some of the classroom changes he had been making in response to the new teaching regime. On the other hand he chose *motivational orientation* over some form of performance dependent variable for a number of reasons. Firstly, he intuitively felt that certain significant learning consequences; e.g., affects, cognitions and behaviors were not always made evident via tests of achievement. Secondly, the more he engaged in his studies the more attractive became particular motivational approaches in illuminating the complexities of human behavior in the learning environment. Lastly, through a cursory review of the research literature it became evident to him that not all high achievement has its origins in more desirable forms of motivation; i.e., from a pedagogical standpoint perhaps the learning ends do not always justify the learning means.

CHAPTER TWO

REVIEW OF THE LITERATURE

Rationale

The Case of Student Autonomy

The case is of Child. It is *his* present powers which are to assert themselves; *his* present capacities which are to be exercised; *his* present attitudes which are to be realized.

Dewey, in Martin S. Dworkin, Dewey on Education (1959)

At least one recurring idea among classical twentieth-century educational theorists and philosophers considered significant to learning; i.e., student autonomy, has stubbornly failed to take root within Western public education systems. John Dewey in one of the last professional publications of his career lamented that “The fundamental authoritarianism of the old education persists in various modified forms” (Dewey, 1959). It is the belief of this investigator that the concern over student autonomy expressed by Dewey and others stemmed not so much from beds of political and philosophical idealism but rather emanated from lifetimes of involved, thoughtful, committed study of children and their education. Maria Montessori explicitly made the point by stating “When we say the child’s freedom must be *complete*, that his independence and normal functioning must be *guaranteed* by society, we are not using the language of vague idealism” (Montessori, 1995).

More recently John Goodlad’s 1979 study of American classrooms revealed that most classrooms were “almost entirely teacher dominated with respect to seating, grouping, content, materials, use of space, time utilization,

and learning activities and that teachers out-talked the entire class of students by a ratio of three to one” (Kohn, 1999). Should this assessment be considered to be somewhat harsh and perhaps less applicable 20 years later, Goodlad reiterated his conclusion in 1999 (Kohn, p. 7).

Anderman & Midgley (1998) in their review of middle school student motivation state that “for young adolescent students, with their increased cognitive abilities and developing sense of identity, a sense of autonomy may be particularly important”. Unfortunately, the authors go on to cite research that suggests the opportunity for exercising autonomy may actually decrease for students as they move from the elementary grades to the middle grades.

It is not that the case for autonomy has failed to marshal its share of advocates. Adding to the chorus from Dewey and Montessori, Jean Piaget is quoted as having said “little learning is retained when it is learned on command” (Kohn, 1999). Kohn (1999), himself, on the basis of considerable personal observation and review of the literature iterates “Students can’t be compelled to learn, only invited, encouraged and helped”, and “for a basic feature by which to judge the quality of our children’s classrooms - we could do worse than to pay attention to how actively students are involved in making choices about their learning”. And high school educators too, in what seems to be a minority, have indicated “teachers have to let students take ownership” (Kohn, 1999).

Authoritarian thinking within schools can be both pervasive and insidious, as illustrated by the following example:

Abigail is given plenty of worksheets to complete in class as well as a substantial amount of homework Abigail’s teacher, a charismatic lecturer, is clearly in control of the class: students raise their hands and wait patiently to be recognized. The teacher prepares detailed lesson plans well ahead of time, uses the latest textbooks, and gives regular quizzes to make sure kids stay on track (Kohn, 1999).

While many teachers, parents and members of the community may find this picture “reassuring” (Kohn, 1999), it is not what would be advocated by educators grounded in cognitive constructivism theory or by those versed in current motivation theory. And Susan Harter (1999), evaluating the educational implications of self-construction theory makes the case that “Teachers need to avoid instructional models in which the flow of information is unidirectional”.

Reasons have been put forth to explain the general lack of learner autonomy in schools but as they are not immediately germane to the purposes of this thesis will not be pursued. Sufficed to say, they are paradigmatic, theoretical philosophical and organizational in nature.

The Case of Student Motivation

To paraphrase Dewey, and with acknowledgement to Deci and Ryan, the case of student motivation might be said to be of informational classrooms versus controlling classrooms. If this end is recognized as a worthy goal, however, a more developed knowledge and understanding of motivation theory and research may be required of those involved in the care and education of our youth - as illustrated by the following two classroom situations:

Paris & Turner (1994)

1. I've got so many unmotivated students in my class!
2. My students are only motivated to get good grades.
3. She was a great teacher, a real motivator.

The investigator's own personal encounter

It was near the end of a high school course in which students typically held control over many of the day to day classroom learning variables, and the investigator - then teacher, decided to change hats and reconstruct the learning environment. In a very direct, rapid, vigorous and atypical manner he began to fire questions to the class by way of review. Events unfolded as might be expected with boisterous responses

emanating from the students. Suddenly from a student at the back of the room came an excited Coach! Coach! - an entirely spontaneous and subconscious response from a student who was also engaged in competitive sports outside the school. The student had momentarily lost track of where he was (in the classroom not at practice) his response no doubt having been evoked by his teacher's (now coach's) performance. So complete was the student's absorption that even when his response was pointed out by other students he did not realize what he had done. To the investigator's chagrin he then exclaimed "We should learn this way more often!"

The first aforementioned instance presents a popular albeit hopeless view, in which motivation is characterized as an unchanging, enduring trait of people or situations, as opposed to the more "contextualized" and "unstable" considerations that are emerging (Paris & Turner, 1994). The second illustration suggests four things with respect to motivation: firstly, just how pervasive external control oriented motivation techniques are found within society; secondly, how conditioned individuals can become to these same techniques; thirdly, how these techniques have the potential to shape students' personal views of motivation; and fourthly, that motivation may be subject to the influence of sex or gender effects.

Theoretical Background

Intrinsic and Extrinsic Motivation Theory

The theoretical underpinnings of this study are seated in the motivational theories of Edward Deci and Richard Ryan (E. L. Deci & R. M. Ryan, 1985; Deci & Ryan, 1990; Ryan & Deci, 2000) and Robert Vallerand (Vallerand, 1997). The basic theory, its historical foundations and supportive research are presented in Deci and Ryan's own book *Intrinsic Motivation and Self-Determination in Human Behavior* (1985). Within the authors' organismic view of the initiation and regulation of behavior, motivations are perceived as being either intrinsic or of a

specific extrinsic variety depending on the amount of self-determination operating. Individuals that are neither intrinsically nor extrinsically motivated are said to be amotivated. At the most basic of levels Ryan and Deci (2000) define *intrinsic motivation* as “the doing of an activity for its inherent satisfactions” (p. 56), *extrinsic motivation* as the doing of an activity “in order to attain some separable consequence . . . for its instrumental value” (p. 60) and *amotivation* as “the state of lacking an intention to act” (p. 61).

Intrinsic motivation by definition is self-determined. What distinguishes intrinsic motivation from more mechanistic drive reduction theories is that it involves an “*ongoing*” (italics added) (E. L. Deci & R. M. Ryan, 1985, p. 33) cyclical process that takes place “when people are free of drives and emotions” (p. 32). According to Deci and Ryan three basic psychological needs are met by intrinsically motivated behaviors. These are the need for *competency*, the need for *autonomy*, and the need for *relatedness*. The authors’ cognitive evaluation sub-theory suggests that social and environmental variables will be perceived as being *informational*, leading to a strengthening of intrinsic motivation, *controlling*, leading to a weakening of intrinsic motivation, or *amotivating*, leading to the feeling of incompetence. A particular variety of extrinsic motivation distinguishes itself from other varieties of extrinsic motivation mainly by the degree to which it has been internalized and integrated into the realm of self, or to the degree it might be considered self-determined. Some extrinsic motivations (i.e., *integrated regulation* and to a lesser degree *identified regulation*) are largely internalized while other extrinsic motivations (i.e., *introjected regulation* and *external regulation*) have experienced little or no internalization respectively. Organismic integration sub-theory posits that environmental variables will either support or weaken the internalization process with respect to extrinsic motivation.

Of the three psychological needs, perceptions of autonomy is hypothesized to be critical for maximum integration of a regulation. While perceptions of competency and relatedness may lead to internalization of a regulation to the point of it becoming introjected, for it to become of the more

self-determined, integrated, autonomous variety it must occur within a context free of controlling influences (Ryan & Deci, 2000). Ryan and Deci (2000) cite findings by a number of researchers that seem to support this suggestion.

Currently it appears that the constructs of intrinsic motivation and amotivation have been multidimensionalized by various individuals as was the construct of extrinsic motivation by Deci and Ryan. Vallerand (1997) and his colleagues have proposed three types of intrinsic motivation:

to know . . . i.e., exploration (Berlyne, 1971), learning goals (Dweck & Leggett, 1988), intrinsic intellectuality (Lloyd & Barenblatt, 1984), intrinsic motivation to learn (Brophy, 1987) and intrinsic curiosity (Harter, 1981) . . .
toward accomplishment i.e., effectance motivation (White, 1959), mastery motivation (Kagan, 1972), intrinsic challenge (Harter, 1981), competence (Nicholls, 1984) . . . and *to experience stimulation* e.g., sensory and aesthetic pleasure . . . such as aesthetic experiences (Berlyne, 1971), flow (Csikszentmihalyi, 1975), sensation seeking (Zuckerman, 1979) and peak experiences (Maslow, 1970) (p. 280).

In the same vein Pelletier (Vallerand, 1997) and his colleagues have suggested four types of amotivation relating to: “*capacity ability beliefs.... strategy beliefs.... capacity-effort beliefs.... and helplessness beliefs*” (Vallerand, 1997, p. 282).

The Autonomy Construct

The construct of autonomy employed by Deci and Ryan and studied in this investigation stems from deCharms’ (1968) perceived locus of causality. Perceived locus of causality refers to the extent that an individual perceives her or his behavior as arising from personal choice. Such a motivational concept is distinguished from the more cognitive idea of locus of control developed by Rotter (E. L. Deci & R. M. Ryan, 1985), that may or may not be accompanied by a sense of self-determination. Methodologically, because individuals responding to the same environmental or social variables may actually experience different perceived loci of causalities, theorists and researchers prefer to measure

peoples' *perceptions* of causality as opposed to measuring the construct by more objective means (Stipek, 1998). And while individuals' perceptions of autonomy with respect to classroom learning variables might also be studied by asking participants how autonomy supportive they perceive their teacher to be or by assessing teachers directly for their orientation to autonomy or control, the investigator of this study desired to get as close as possible to the participants' sense of self in conducting his measurements.

An Integrated Hierarchical Model

Robert Vallerand (1997), building on the work of Deci and Ryan and others, in his monograph entitled *A Hierarchical Model of Motivation* outlines a formal integrated model of intrinsic and extrinsic motivation and amotivation, in which he proposes that motivation-amotivation operates at three levels of generality - global, contextual and situational. Social factors, environmental and external, at each of the three levels will have an effect on motivation at that level in so far as they affect one of three mediators - perceived autonomy, perceived competence and perceived relatedness. And, in turn, the motivation-amotivation that occurs at each level of generality will impact an individual's affect, cognition and behavior. In other words social factors affect motivation-amotivation at three levels of generality, via three mediators to produce three kinds of outcomes.

This investigation set out to explicitly examine how one of the three mediators (i.e., perceived autonomy) operating with respect to one set of social factors (i.e., classroom learning variables) affects motivation at a particular hierarchical level (i.e., the situational-contextual level of the classroom) in a group of high school student respondents.

Technically the high school *classroom* does not appear to precisely locate itself in Vallerand's hierarchical scheme, falling between the contextual and situational categories. Nevertheless, it seemed to this investigator that from an intuitive ecological standpoint the high school classroom was a valid organizational level within which to investigate the phenomena in question. Vallerand, too (personal communication, April, 2001), suggested that studying

motivation-amotivation constructs at what appears to be contextual “sub-sections” might be useful in predicting motivation towards tasks at an even more specific situational level, and that such approaches could be accommodated within the current theoretical model.

Applicable Research Findings

The General State of Motivational Research in Education

Murphy and Alexander’s (2000) structured examination of motivational literature reveals that of the sample of studies included in their review only 14.3% considered high school students, while on a content or task level 27.8% pertained to mathematics, 14.1% to science, and 18% to language arts (i.e., reading, writing and English). As one narrows her or his focus further, to studies investigating the construct of autonomy in motivation at the contextual-situational level of the individual classroom, the paucity of information becomes even more evident. This lack of information was one of the stimulating factors leading to this particular investigation. The situation may be due in large part to a paradigm of control that has perhaps been prevalent within our high schools, and to which this author has already alluded. Murphy and Alexander did not offer a breakdown of data according to hierarchical considerations, perhaps because the hierarchical model of motivational constructs per se has not yet garnered wide attention among theorists and researchers. They did make the qualitative observation, however, that “The distinction between domain-general or domain-specific stance in this literature may well be associated with the construct under investigation” (p.30). For the purposes of this investigation it was decided to include for review those aspects of the literature that were deemed to be most pertinent to the primary research question.

Murphy and Alexander (2000) raised a number of conceptual issues with respect to motivation research. One such issue relates to the ability of an individual subject to access and then accurately communicate her or his true motivations through the use of written or verbal questionnaires. Another concern has to do with how particular motivational variables are represented; i.e., Are

they unidimensional? ...dichotomous? ...multidimensional? To what extent are they independent from other constructs? And yet a third concern relates to the ambiguity found within the literature regarding the trait-state treatment of motivational constructs.

Vallerand (1997), on the other hand, has voiced the concern of others, namely that using behavioral or affective measurements of motivation could be considered to be conceptually circular, in that affect or “. . . behavior serves as both the index of motivation and the consequence”. And as he has also expressed, such indices may mask or fail to distinguish more highly self-determined forms of extrinsic motivation from intrinsic motivation.

The issues raised by Murphy and Alexander and Vallerand will not be addressed at this time but are mentioned as relevant and necessary background considerations to this study.

Linking Motivation to “Consequences”

The primary intent of this investigation was to examine the link between perceptions of autonomy and orientation to motivation based on the assumption that the sister link between orientation to motivation and specific consequences had already been well established. The literature in fact provides a number of examples supporting the latter mentioned link.

In the words of Thibert and Karsenti (1996) “Student motivation is critical for learning, and several researchers have found a positive and robust correlation . . . to prove it (Vallerand and Senecal, 1993; Tuckman, 1994)”, while Vallerand (Vallerand, 1997) goes even further to state “. . . it is clear that motivation *produces* consequences” (italics added). Vallerand describes three series of studies in which intrinsic or extrinsic motivation has been experimentally induced and the effects on a number of variables observed. One of these, a study by Amabile (Vallerand, 1997) showed how intrinsically motivated individuals were judged to be more creative on a poem writing task than their extrinsically motivated counterparts, while another by Lepper, et al (Vallerand,

1997) showed higher levels of learning for various academic subjects corresponding to higher levels of intrinsic motivation.

A study of 91 fifth-graders by Grolnick and Ryan (1987) found that students exhibiting more self-determined motivational orientations as measured by the Relative Autonomy Index (Grolnick & Ryan, 1987) reported experiencing less pressure in reading tasks, displayed higher levels of conceptual learning with respect to those tasks and, in one reading session, higher levels of interest towards the task. A nonsignificant tendency suggesting less loss of information in rote-recall performance over time for more self-determined forms of motivation was also reported.

Vallerand contends that it would be useful for conceptual and research purposes to think of motivational consequences as being “cognitive, affective and behavioral” (Vallerand, 1997) and then he links previous studies conducted by various researchers with each of the three consequences. Under the category of cognitive consequences he has included studies that have been concerned with “concentration” or “attention”, and “memory” and “conceptual learning”, while in the category of affective consequences he has included studies that have dealt with “interest”, “positive emotions”, “satisfaction” and “anxiety”. Linked to the category of behavioral consequences are studies that have been involved with “choice of behavior”, “persistence at the task”, “intensity”, “complexity”, “behavioral intentions” and “performance” (Vallerand, 1997).

Linking Autonomy to “Consequences”

The previously mentioned study of fifth-graders by Grolnick and Ryan (1987), as well as showing the effects of motivational orientation on affect and cognitive performance, investigated the effects of autonomy on consequences. The autonomy variable was manipulated by assigning participants to one of three conditions: controlling-directed, noncontrolling-directed and nondirected. Although students in the two directed-learning groups showed relatively higher initial rote recall, those from the controlling group also showed greater deterioration in recall approximately one week later. Students assigned to the

two noncontrolling groups showed greater conceptual learning, more interest in the reading tasks and less pressure and tension associated with the tasks.

DeCharms seminal motivation project (DeCharms & Shea, 1976) also provides support for the autonomy-consequences association. His researchers found that students of grades 7-8 who perceived their teachers to be origin supportive (i.e., autonomy supportive) showed increased learning as measured by the Iowa Test of Basic Skills. Autonomy variables comprised a significant portion of the Origin Climate Questionnaire subcategories. Of some note is the corollary finding that the relationship held regardless of whether or not the teachers had actually received motivational training (i.e., some teachers appeared to naturally possess the origin attributes).

(Grolnick & Ryan, 1989) found that students in grades 3-6 who perceived their parents to be autonomy supportive and involved performed better in school, while Flink, Boggiano and Barrett (1990) demonstrated that grade 4 students suffered impaired performance when their teachers, who themselves had been pressured to produce results, used controlling strategies with them.

Linking Perceived Autonomy to Motivation

As the link between motivation and consequences has been established so has the link between social factors and motivation-amotivation through the mediators of perceived autonomy, perceived competence and perceived relatedness. Of particular importance to this investigation are those studies that show a relationship between perceived autonomy and orientation to motivation (i.e., intrinsic motivation, extrinsic motivation and amotivation).

In a 1981 study of 610 children in grades 4-6 Deci, Nezlek and Sheinman (1981) found that those students who perceived their teachers to be more origin in nature, as measured by the students' responses to deCharms' Origin Climate Questionnaire (DeCharms & Shea, 1976), reported higher levels of intrinsic motivation on Harter's (Harter, 1981) scales of curiosity, preference for challenge and mastery motivation. A follow-up study by Deci, Schwartz, Sheinman and Ryan (1981) showed that the effect was established as early as 2

months into the school year and remained 7 months later. Ryan and Grolnick (1986) administered deCharms' (1976) self-report Origin Climate Questionnaire to 140 students in grades 4-6 and likewise found that the more the students perceived the classroom to be autonomy supportive the higher were their levels of mastery motivation. A 1984 experimental study of first and second grade children by Koestner (E. L. Deci & R. M. Ryan, 1985) revealed that setting controlling limits with respect to neatness in an art activity undermined both intrinsic motivation, measured by subsequent free choice, as well as creativity.

Vallerand (1997) outlines studies by Guay and Vallerand (in press) which suggests that the perceived autonomy of grades 9-10 students can be influenced by others and in turn is predictive of both self-determined motivation and academic performance. Stiller and Ryan (1992) studying the impact of parent and teacher involvement and autonomy support on student engagement, use of positive coping strategies, control understanding and self-regulation found that academic environments that were perceived to offer student choice had the largest effect on all four motivation variables.

Sex Effects of Motivation

A number of studies have suggested specific sex effects with respect to both autonomy and motivation. Thibert and Karsenti (1996) studying populations of elementary, high school and junior college students found at all levels females to be significantly more self-determined in their motivation toward academic activities of going to school and doing homework than males. This finding was supported by Vallerand (1997) in his study of high school students. Vallerand (1997) indicated that female high school students reported higher perceptions of autonomy than males as well as higher perceptions of autonomy support from both teachers and the school administration.

Indirectly, perhaps mediated by perceptions of autonomy or competence, praise, verbal rewards and feedback have also been found to differentially affect motivation of females and males. In one study of college students, praise led to increased intrinsic motivation in males but just the opposite in females (E. Deci &

R. M. Ryan, 1985). The negative effect of praise on the intrinsic motivation of females was even more dramatically illustrated in studies by Zinser, Young & King and Kast (E. Deci & R. M. Ryan, 1985). It was suggested that where praise or feedback was sufficiently ambiguous males interpreted it as informational (i.e., autonomy supportive) while females interpreted it as controlling. A more recent study of students in grades 4-6 (Boggiano, Main, & Katz, 1991) also showed differences in motivational orientation between males and females relative to adult approval and feedback. A second study involving 9-21 year olds by the same researchers (Boggiano et al., 1991) revealed sex differences in preference for challenge based on type of adult feedback and the children's motivational orientation.

It also appears that in bona fide studies of gender and motivation differences exist. Conti, Collins and Picariello (2001) found higher levels of both intrinsic and extrinsic motivation in masculine children aged 6-10 years when placed in competitive situations.

Not infrequently the literature reports apparently contradictory findings with respect to sex effects and motivation. Sometimes upon close inspection the contradictions are reasonably explained as being attributable to subtle differences in experimental conditions. At other times though the factors operating to produce the contradictions are not so apparent and will almost certainly stimulate more studied consideration and research.

The Research Questions

A Perceived Autonomy Scale developed by this investigator, a modified Self-Regulation Questionnaire, SRQ-A (Ryan & Connell, 1989) and a modified Intrinsic vs. Extrinsic Orientation Scale (Harter, 1981) were utilized to address the following research questions of this study:

1. What properties are exhibited by the Perceived Autonomy Scale?
2. What is the nature of students' perceived autonomy within the sample group of high school students?

3. What characteristics are exhibited by the Intrinsic vs. Extrinsic Motivation Scale (Modified)?
4. What characteristics are exhibited by the Self-Regulation Questionnaire (Modified)?
5. What is the effect of high school students' perceived autonomy within a class, on their motivational orientation towards that class?
6. What are the sex effects with respect to perceived autonomy and motivational orientation within the sample group of high school students?

CHAPTER THREE

METHOD

Participants

The sample of 188 student participants was drawn from three high schools serving a combined urban-rural population in southern Alberta. The students were enrolled in English, Social Studies, Math, Science, Art and Drama classes and volunteered to participate in the study after their respective classroom teachers had first granted permission for the research to proceed using their classes. The sample consisted of 124 females and 64 males fairly evenly distributed over grades 10, 11, and 12. A total of 23 teachers was represented by the student participants, 13 females and 10 males. Seven of the 23 teachers accounted for approximately 70% of the participants, while the number of participants per teacher ranged from 1-30 with a median of 5. Students enrolled in English, Math, Science and Social Studies classes accounted for 90% of the participants, the other 10% being comprised of Art and Drama students. One hundred eight of the participants were linked to a female teacher while 80 were linked to a male teacher.

Instruments

Perceived Autonomy Scale

Researchers utilizing different methodologies have operationally addressed the construct of autonomy in a variety of ways. Deci, Nezlek and Sheinman (E. L. Deci & R. M. Ryan, 1985) in their field study of students in grades 4-6 measured students' perceived autonomy via a self-report questionnaire, as it would appear did Vallerand (Deci, Vallerand, Pelletier, & Ryan, 1991) in his study of high school students. On the other hand Deci, Schwartz, Sheinman and Ryan (E. L. Deci & R. M. Ryan, 1985) in their field study administered a self-report scale to the teachers of students. This scale attempted to determine the extent to which a teacher might be judged to be controlling or autonomy supportive within the classroom. Other studies more experimental in nature have attempted to manipulate the autonomy variable by

producing controlling or autonomy supportive conditions within the experimental situation, as exemplified by Koestner's study (E. L. Deci & R. M. Ryan, 1985). For the purposes of this field study it was decided to operationalize autonomy via a student self-report scale that would measure students' perceived autonomy within a particular class. A search of the literature, however, failed to yield an appropriate instrument that would directly assess high school students' perceived autonomy with respect to relevant social variables within the class. Consequently this investigator decided to develop a scale, the end product of his efforts being the Perceived Autonomy Scale used in this study (see Appendix A).

Particular considerations played a role in selecting variables for inclusion in the Perceived Autonomy Scale and much care and consideration was given to the language when writing-up each item. Items as much as possible were to be authentic to the students and were to precisely as possible represent the constructs under consideration:

- High school course curricula are externally fixed and so items pertaining to this variable were not eligible for inclusion.
- Student attendance and socially acceptable behavior were both deemed to be nonnegotiable, so again items pertaining to these variables were not eligible for inclusion.
- Each item was to reflect student perceptions on a daily ongoing basis.
- Each item was to reflect one clearly identifiable variable, i.e., no double-barreled items.
- Each item was to be consistent with the other items in terms of construction and language used.
- Each item was to be stripped, so far as possible, of emotionally laden affective terminology in order to get at perceived autonomy alone.
- Each item was to use language authentic to the students.
- Each item was to be valid over different classroom situations and teaching styles. This was particularly difficult when dealing with

variables such as assessment, because in some classrooms assessment and work are one and the same.

- Each item was to be ecologically significant - not trivial or redundant or obscure.

Items for the scale were selected apriori based on various initiatives that the investigator had undertaken in his teaching practice in response to curriculum and organizational changes that had occurred in his high school. Students' written responses to his open-ended course evaluation surveys were of particular help in the selection process. As well, interested teachers and students reviewed initial drafts of the questionnaire and provided feedback. Over a period of two years the information was collated and organized and the questionnaire reworked to its present form.

The scale consists of three parts. The first part includes 18 statements, each of which addresses a particular classroom learning variable and to which respondents are asked to indicate on a 5-point Likert scale the amount of perceived control they have (i.e., total control through a lot of control, some control, a little control to no control) over decisions relating to that particular variable. The second part contains 4, 5-point Likert style statements (i.e., strongly agree to strongly disagree) intending to provide some additional validity to the perceived autonomy section. These items asked respondents for their level of satisfaction with their overall decision making control in class, as well as their levels of enjoyment with respect to the teacher, the other students and the subject under study. The third part of the scale contains two items asking respondents to indicate their sex and grade level.

The word control is used throughout the 18 perceived autonomy items because it was believed to be ecologically authentic to the students. It is not intended to represent psychological constructs addressed by expressions such as locus of control or learner control.

Efforts to organize and classify classroom learning variables have largely arisen from information processing theorists working in the areas of self-

instruction, computer assisted and computer managed instruction, individualized instruction and programmed instruction. Although such approaches generally have not come under the purview of motivation theory it was thought that they might still be examined to see if they had anything to offer this study by way of organizing the variables included in the student Perceived Autonomy Scale.

Chung and Davies (1995) following Merrill (1984) developed a Conceptual Model of Variable Relationships which looked as if it might be useful. Their model proposes three classes of *condition variables* - learner, content and environment; four classes of *method variables* - content control, sequence control, pace control and display control; and six *dependent variables* - achievement, number of selection, learning time, attitude, continuing motivation and anxiety. Following their scheme the investigator of this study hypothesized that items numbered 1, 2, 8, 9, 10, 11 and 18 of the Perceived Autonomy Scale could be considered *pace variables*; items numbered 4, 5, 6, 7, 12, 13, and 14 *climate variables*; and items numbered 3, 15, 16 and 17 *display variables*. Pace received those classroom learning variables that were thought to represent pacing of the teaching and learning process, while the second category, climate, received those classroom learning variables that were thought to represent construction of the classroom learning climate. The third category, display, basically received the remaining 4 variables that after some consideration were determined to represent those classroom learning variables related to selection of instructional, learning and assessment media. Not all items classified into the scheme easily. For example, items 15, 16 and 17 which relate to assessment and evaluation presented a problem. They could have been placed under the dependent variable category of achievement, but alternatively might be considered as method variables in view of current tendencies in education to treat assessment and learning as being more of a dialectic process. There may be a conceptual difficulty in attempting to frame an organismic approach to learning in terms of an instructional "system".

Orientation to Motivation Scales

Operationally, intrinsic motivation has largely been defined in terms of “free choice” in experimental research and in terms of “self-reports of interest and enjoyment” (Murphy & Alexander, 2000) in more ecologically oriented field research. With respect to both affective and behavioral indices of intrinsic motivation Vallerand (1997) raises the concern of conceptual circularity if the behavior or affect “serves as both the index of motivation and its consequence” (p. 283). In order to avoid such circularity Vallerand and others have focused on McClelland’s (Vallerand, 1997, p. 284) “why of behavior” using self-report questionnaires, though Murphy & Alexander (2000), question the “accessibility” of one’s self-knowledge when employing self-reports. “To what degree do the ratings these researchers receive or the statements they hear accurately reflect the deeply held, pervasive motives, needs, or drives of their participants” (p. 37)?

A Scale of Intrinsic Versus Extrinsic Orientation in the Classroom.

Harter (1981) suggested that the concept of intrinsic motivation might be multidimensional in nature and developed a self-report instrument consisting of five subscales designed to identify, in a polarized manner, intrinsic or extrinsic orientation toward independent mastery, preference for challenge, curiosity-interest, independent judgment and internal criteria. Each of the five subscales contains six items. The instrument (see Appendix B) which has been widely used and referenced by researchers was originally meant to target students in grades 3-6 within the situational context of the classroom, but has also been utilized in grades 7-9. This investigator made relatively minor modifications to the scale, with permission (Susan B. Harter, personal communication, December 12, 2000) so that terms might be more authentic to students at the high school level (see Appendix C). The modifications primarily consisted of changing “kids” to “students” and “schoolwork” to “class work”. Because high school students typically experience a number of distinct classes within the day or week as compared to students in elementary and junior high the expression “. . . in the

class” was added to a number of the questionnaire items to more emphatically situate the respondents of this study within the single class.

Self-Regulation Questionnaire - Academic. Ryan and Connell (1989), conceived that extrinsic motivation might be multidimensionalized on a continuum of self-determination and constructed self-regulation questionnaires to address motivation in various domains, e.g., academic, pro-social, treatment and religion. Their 26 item Self-Regulation Questionnaire, SRQ-A scale (Ryan & Connell, 1989) (see Appendix D) is designed to measure three levels of extrinsic motivation (i.e., external regulation, introjected regulation, identified regulation) and one form of intrinsic motivation towards doing homework, doing class work, and answering questions in class. A fourth section addresses motivation in a more general way toward doing schoolwork. The questionnaire which was built for use at the elementary grade levels has been utilized in research primarily in grades 3-6. With permission (Richard M. Ryan, personal communication, September, 2000) this investigator modified the questionnaire to more suit the purposes of a high school study (see Appendix E). The two sections measuring motivation towards doing homework and toward doing class work were retained and the language modified in a minor way to reflect what was thought to be greater authenticity for high school students. The final version as used contains 16 items, two for each of the four motivational subscales addressing each of the two academic endeavors. Each participant can also be assigned a single weighted score to provide a single indicator of relative amount of self-determined motivation. The Relative Autonomy Index, or RAI, is obtained by multiplying the external scale by -2, the introjected scale by -1, the identified scale by +1, the intrinsic scale by +2 and then summing the products.

Procedure

The testing took place over the first two weeks of December just prior to the 2-week winter break with 3-4 instructional weeks remaining in the semestered classes. After obtaining permission from each of the three high school principals information about the study was provided to teachers and those

that volunteered their classes were given student information letters and parental consent forms for those students who expressed interest in participating (see Appendix F). Only students who had returned the consent letters signed in the affirmative were allowed to participate in the study. Suitable class times were then arranged with each of the affected teachers in which to administer the questionnaire booklet containing the one autonomy scale and two motivational scales. Prior to receiving instructions for completion of the booklets (see Appendix G) students were told in a general way that the purpose of the study was to investigate some classroom variables that might affect their learning and they were thanked for their time and interest in assisting with the research project. The order of presentation of the two motivational scales was alternated in half of the questionnaire booklets to reduce bias, but in all booklets the autonomy scale was presented last in order to minimize mind set. The booklets were distributed randomly to students at each time of writing. Responses were made directly on the booklets and were later electronically encoded in preparation for data analysis. Student participants required an average of 25 minutes to complete all three scales.

CHAPTER FOUR

RESULTS

Perceived Autonomy Scale

Descriptive Statistics

Table 1 and Figure 1 provide means for the Perceived Autonomy Scale by grade level. With assigned values of 1 = no control, through 2 = a little control, 3 = some control, 4 = a lot of control to 5 = total control, the means represent students' perceived autonomy falling between 'a little control' and 'some control'.

Table 1

Means for Perceived Autonomy Scale by Grade Level

	<i>M</i>	<i>SD</i>
10	2.745	.609
11	2.816	.527
12	2.993	.717

N for all grades were Gr. 10 = 53, Gr. 11 = 69, Gr. 12 = 66.

Figure 1

Perceived Autonomy Scale Means by Grade Level

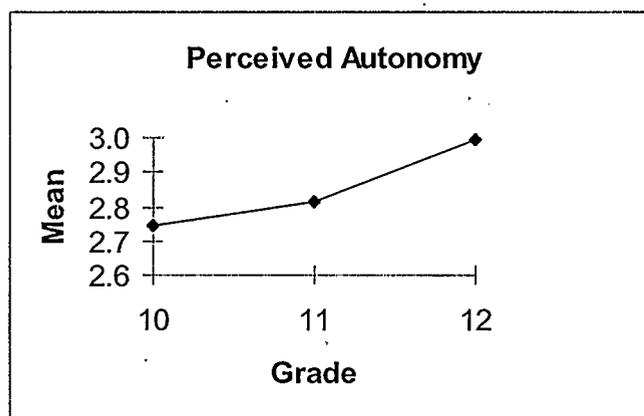


Figure 1 illustrates more graphically the distribution of means over the three grades and is provided to facilitate comparisons with corresponding data obtained from the two motivational scales used in this study. The observed pattern of increasing levels of perceived autonomy for grades 10-12 most closely matches the pattern of increasing levels of perceived ability to make independent judgments over the same grades, using Harter's modified (1980) Orientation to Motivation Scale (see Figure 3). As well, it can be seen that the increasing level of perceived autonomy for grades 11-12 corresponds to increasing levels of intrinsic motivation and identified regulation and decreasing levels of introjected regulation and external regulation using Ryan and Connell's modified Self-Regulation Questionnaire (Ryan & Connell, 1989) (see Figure 4).

Structure and Characteristics

Validity of the scale was primarily assessed through factor analysis. Both a Cattell Scree plot (see Figure 2) and Principal Component Extraction using Varimax rotation (see Table 2) appear to support a 3-factor solution.

Figure 2

Cattell Scree Plot of Eigenvalues vs. Components for Perceived Autonomy Scale

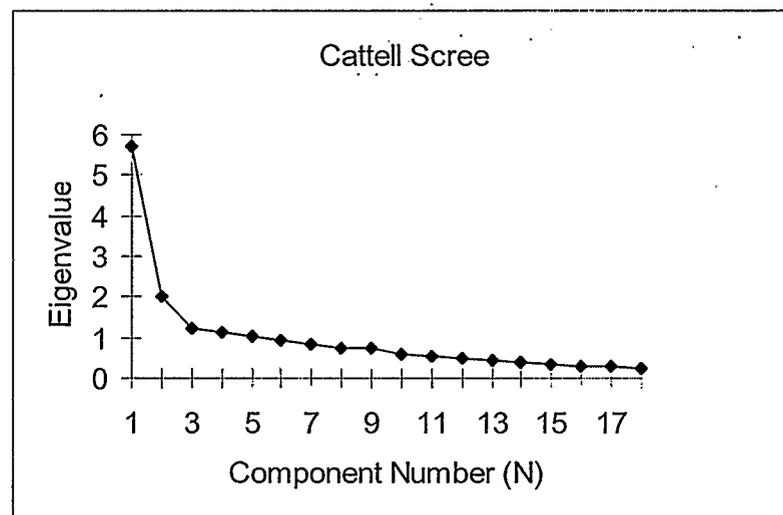


Table 2
 Rotated Component Matrix from Perceived
 Autonomy Scale ^a

	<u>Component</u>		
	1	2	3
N10	.714		
N9	.701		
N8	.640	.442	
N11	.640		
N1	.542		
N2	.538	.329	
N18	.407	.395	
N16	.302	.711	
N15	.313	.707	
N17		.677	
N3		.598	
N5			.713
N12			.700
N4			.669
N7			.635
N6		.498	.575
N14	.446		.472
N13	.406		.426

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 8 iterations.

Initial analysis revealed five statistically determined groupings, but when rerun extracting for three factors the previously predicted assignments for all 18 variables were confirmed (see Table 2). The three factor solution accounts for approximately 50% of the variance. Factor 1, labeled Pace, accounts for 18% of the rotated variance while Factor 2-Display and Factor 3-Climate each account for 16% of the rotated variance. Factor loadings for components identifying each of the three factors range from moderate to high (i.e., .407 - .714). Loadings of less than .3 have been blanked. The variable groupings suggested by this model would be as follows: Pace - N10, N9, N8, N11, N1, N2, N18; Display - N16, N15, N17, N3; Climate - N5, N12, N4, N7, N6, N14, N13.

Pace variables are those that appear to represent perceived autonomy relating to pacing of the learning and teaching process (i.e., determining how much teacher instruction is required each day, determining when the teacher instruction will be provided, scheduling the course topics to be learned each day, determining the amount of homework to be done each day). Display variables appear to represent perceived autonomy relating to utilization of resources in the learning and assessment processes (i.e., selecting resources to be used each day in support of learning, deciding the type of evaluation to be used in determining grades, selection of specific work products to be used in determining grades, determining how understanding of concepts studied will be demonstrated). Climate variables appear to represent perceived autonomy relating to construction of the social learning climate (i.e., determining the number of students and particular students to be included in the learning group, determining seating plans and study locations, regulating the amount of eating, socializing and background music to learning).

Reliability of the three subscales was examined by calculating reliability coefficients (see Table 3). This provided some indication of internal consistency. The determined alpha reliability coefficients for the three groupings ranged from .73 - .81.

Table 3
*Reliability Analysis for 3-Factor Groupings of
 Perceived Autonomy Scale Items*

Subscale	N of Cases	N of Items	Alpha
Pace	182	7	.81
Climate	183	7	.77
Display	183	4	.73

Data Analysis

Analysis of variance and tests on the difference between means for the three proposed subscales showed a significant difference between Climate and Pace subscale means and Climate and Display subscale means (see Tables 4-6). Student participants in this study perceived themselves to have significantly greater amounts of perceived autonomy with respect to those variables associated with establishing the classroom social learning climate as compared to variables associated with either pacing the learning process or choosing the resources and means by which to learn and display one's learning. Statistics relating to the total or overall perceived autonomy (i.e., PAut) (see Table 4) are presented for information only.

Table 4
*Group Statistics for the 3 Proposed Perceived Autonomy
 Subscales and the Total Scale. (PAut)*

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE_M</i>
Pace	188	2.563	.771	.056
Climate	188	3.354	.730	.053
Display	188	2.506	.870	.064
PAut	188	2.858	.627	.046

Table 5
*One-way Repeated-Measures Analysis of Variance (ANOVA) on the
 Proposed 3 Perceived Autonomy Subscales*

Source of Variation	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Perceived Autonomy Subscales	2	84.54	42.27	124.76	<.001
Within Cells	374	126.71	.34		

Table 6
*Pairwise t-Tests for Comparisons of Means from
 the 3 Proposed Perceived Autonomy Scale Subscales*

	<i>t</i>	<i>df</i>	<i>p</i>
Pace vs. Climate	-14.39	187	<.001
Pace vs. Display	1.02	187	.308
Climate vs. Display	12.38	187	<.001

The means for each of the three subscales and the total scale were then broken down by sex of the participants (see Table 7). Levene's Test for Equality of Variance and t-tests for equality of means were utilized to determine if differences existed with respect to the subscale means by sex (see Table 8). Differences between the means by sex were not significant with the exception of those related to one subscale. Males reported having significantly greater relative amounts of perceived autonomy than females for Display subscale variables (see Table 8).

Table 7

*Subscale means and Total-scale (PAut) Mean for Perceived
Autonomy Scale by Sex of Student Participants*

			<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE_M</i>
Pace	Sex	Male	64	2.710	.804	.101
		Female	124	2.487	.746	.067
Climate	Sex	Male	64	3.361	.734	.092
		Female	124	3.351	.730	.066
Display	Sex	Male	64	2.714	.904	.113
		Female	124	2.399	.836	.075
PAut	Sex	Male	64	2.964	.642	.080
		Female	124	2.803	.615	.055

A Spearman rank-order correlation calculation, $r_s = .95$, $p < .001$, indicated that ranking by males was highly correlated with the ranking by females. Females and males in assigning perceived autonomy to each of the 18 variables yielded no significant difference when the variables were ranked in order of the relative amounts of assigned perceived autonomy.

Table 8

Levene's Test for Equality of Variances and t-test for Equality of Means for 3-Factor Extraction of Perceived Autonomy Scale by Sex of the Student Subjects

		Levene's Test for Equality of <u>Variance</u>		<u>t-test for Equality of Means</u>					95% Confidence Interval of the <u>Difference</u>	
		<i>F</i>	<i>p</i>	<i>t</i>	<i>df</i>	<i>2-Tail Sig</i>	<i>M</i> <i>Difference</i>	<i>SE</i> <i>Difference</i>	<i>Lower</i>	<i>Upper</i>
Pace	Equal variances assumed	.74	.392	1.89	186	.061	.2226	.1179	-.010	.455
	Equal variances not assumed			1.84	119	.068	.2226	.1208	-.017	.462
Climate	Equal variances assumed	.00	.953	.09	186	.931	.0098	.1126	-.212	.232
	Equal variances not assumed			.09	127	.931	.0098	.1128	-.213	.233

(table continues)

Table 8 (continued)

		Levene's Test for Equality of <u>Variance</u>		<u>t-test for Equality of Means</u>					95% Confidence Interval of the <u>Difference</u>	
		<i>F</i>	<i>p</i>	<i>t</i>	<i>df</i>	<i>2-Tail Sig</i>	<i>M</i> <i>Difference</i>	<i>SE</i> <i>Difference</i>	<i>Lower</i>	<i>Upper</i>
Display	Equal variances assumed	.195	.659	2.38	186	.019*	.3143	.1323	.053	.575
	Equal variances not assumed			2.32	119	.022	.3143	.1357	.046	.462

* significant at .05 level.

Intrinsic Versus Extrinsic Orientation Scale (Modified)

The grade level means for each of the Intrinsic vs. Extrinsic Orientation Scale subscales were calculated (see Table 9) and then plotted on individual line graphs that already contained means from previous studies of grades 3-9 students (Harter, 1980) (see Figure 3). It can be seen that the means generally continue trends established in earlier grades.

Confirming Harter's initial findings (1981), the intercorrelations among Preference for Challenge, Independent Mastery and Curiosity are relatively high (see Table 10). However, the intercorrelation between Independent Mastery and Independent Judgment, (i.e., .47) in this study appears to be somewhat stronger than that reported for the younger participants of earlier studies (Harter, 1981).

Reliability coefficients for each of the five subscales were .87, .80, .64, .61 and .74 for Challenge, Mastery, Curiosity, Judgment and Criteria respectively, again much in line with Harter's original investigations (Harter, 1980).

Table 9

Means for Intrinsic vs. Extrinsic Subscales by Grade Level

	Challenge		Curiosity		Mastery		Judgment		Criteria	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
10	2.365	.727	2.585	.481	2.546	.720	2.851	.406	2.694	.582
11	2.234	.754	2.438	.595	2.419	.653	2.885	.533	2.714	.620
12	2.475	.658	2.603	.542	2.584	.601	3.006	.547	2.672	.635

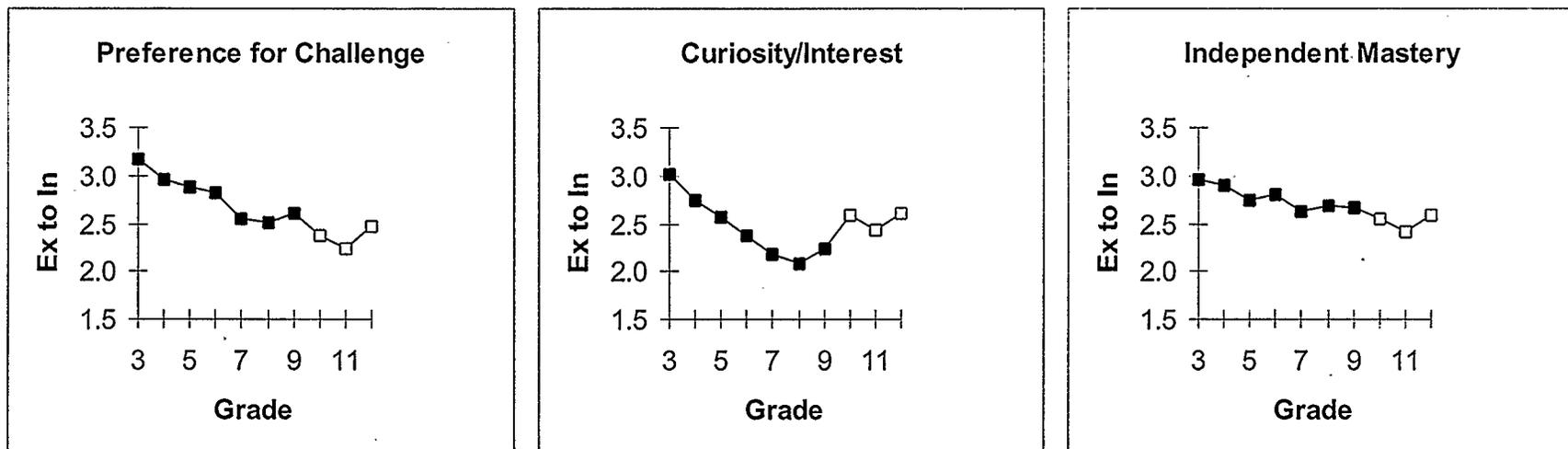
N for all subscale groups were Gr.10 = 49, Gr.11 = 67, Gr.12 = 65, with the exception of Grade 10 Judgment and Criteria groups for which N = 48.

Table 10
*Intercorrelations Among the 5 Subscales for Intrinsic vs. Extrinsic
 Orientation Scale (Modified)*

	Preference Challenge	Curiosity Interest	Independent Mastery	Independent Judgment
Curiosity Interest	.65			
Independent Mastery	.63	.45		
Independent Judgment	.40	.35	.47	
Internal Criteria	.37	.28	.43	.27

Figure 3

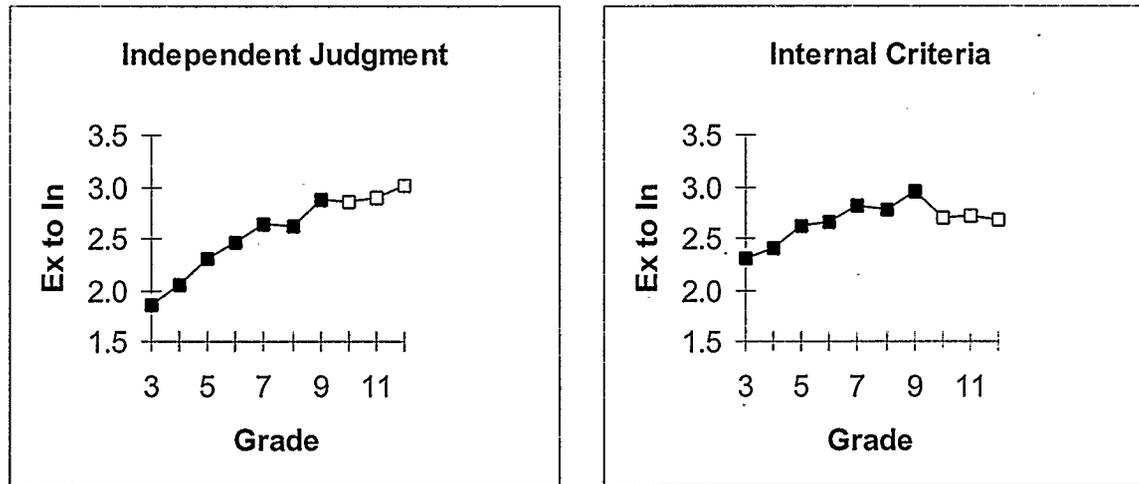
*Intrinsic vs. Extrinsic Subscale Means by Grade Level. Grades 3 to 6 from Harter (1980),
Grades 10 to 12 from Current Study*



(figure continues)

Note. From "A Scale of Intrinsic Versus Extrinsic Orientation in the Classroom - Manual", 1980, by Susan Harter, Department of Psychology, University of Denver, Denver, CO. Copyright 1980 by Susan Harter. Adapted with permission.

Figure 3 (continued)



Note. From "A Scale of Intrinsic Versus Extrinsic Orientation in the Classroom - Manual", 1980, by Susan Harter, Department of Psychology, University of Denver, Denver, CO. Copyright 1980 by Susan Harter. Adapted with permission.

Self-Regulation Questionnaire (Modified)

Table 11 provides the means by grade level for the motivational subscales obtained from the modified Self-Regulation Questionnaire (Ryan & Connell, 1989), while Figure 4 illustrates the distribution of means over the three grades. Three of the subscales represent varying degrees of self-determined extrinsic motivation ranging from external regulation, the least self-determined, through introjected regulation to identified regulation, the most self-determined. The fourth subscale represents intrinsic motivation, which by definition, would be the most autonomous or self-determined. These results are quite consistent with those reported by Ryan and Connell (1989) with respect to both size and relative rank of means. Ryan and Connell in their study of students in grades 3 to 6 found means for the subscales to range from a high of 3.23 for the identified category through 2.85, 2.71 to 2.32 for the external, introjected and intrinsic categories respectively.

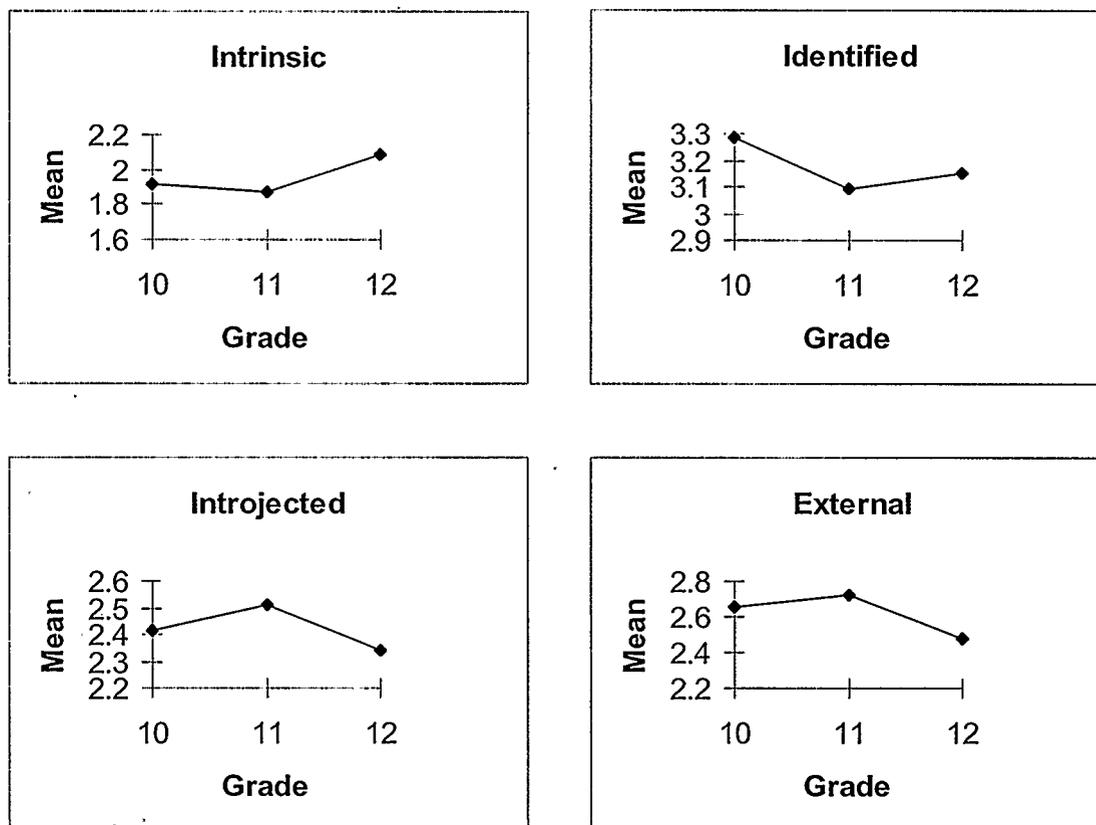
Table 11

Means of Self-Regulation Questionnaire Subscales by Grade Level

	Intrinsic <u>Motivation</u>		Identified <u>Regulation</u>		Introjected <u>Regulation</u>		External <u>Regulation</u>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
10	1.920	.738	3.288	.531	2.415	.784	2.660	.665
11	1.877	.560	3.094	.549	2.515	.663	2.721	.657
12	2.083	.713	3.152	.622	2.341	.728	2.477	.656
Total	1.961	.671	3.169	.573	2.426	.722	2.618	.664

N for all subscale groups were Gr.10 = 53, Gr.11 = 69, Gr.12 = 66 and Total = 188.

Figure 4

Self-Regulation Questionnaire Subscale Means by Grade Level

In order to determine if there were any differences in the means by sex of subjects, i.e., in degree of self-determined motivation expressed by males compared to females, Levene's Test for Equality of Variances and t-tests for Equality of Means were calculated using the four subscale sex means. No significant differences were found.

Intercorrelations for the four subscales are produced in Table 12. Again, the pattern obtained here agrees with Ryan and Connell's (1989) reported results and supports the theoretical construct of increasing self-determination along a continuum from external, through introjected, identified and intrinsic categories. As one would expect from the theory, and with two exceptions, it can

be observed that for any particular category there exists maximum correlation with adjacent categories along the continuum and progressively decreasing correlation with categories further removed along the continuum. It might be noted that the two correlations in Table 12 that do not uphold the general pattern were determined to be not significant.

Table 12
*Intercorrelations Among the Self-Regulation Questionnaire
(Modified) Subscales*

	External	Introjected	Identified	Intrinsic
External	1.00			
Introjected	.28***	1.00		
Identified	.04	.52***	1.00	
Intrinsic	.11	.40***	.42***	1.00

*** significant at .001 level. Intrinsic-External, $p = .130$;

Identified-External, $p = .616$.

N = 188.

Ryan and Connell (1989) initially predicted positive correlations between Harter's (1980) Mastery Motivation subscale (obtained by combining the Curiosity, Mastery, and Challenge subscales), and their own Intrinsic and Identified subscales. They predicted a negative correlation between Mastery Motivation and their External subscale, and no correlation between Mastery Motivation and their Introjected subscale, the two of which they felt bore no conceptual similarity. Subsequent correlational calculations from their study as well as data collected in this study (see Table 13) support their predictions.

Table 13

*Correlations Between Self-Regulation Categories**(Ryan & Connell, 1989) and Mastery Motivation (Harter, 1980)*

	External	Introjected	Identified	Intrinsic
Mastery Motivation	-.28**	.11	.43**	.35**

** significant at .01 level. p (Mastery Motivation-Introjected Regulation) = .138

N = 181

**Interaction of Perceived Autonomy Scale
with Self-Regulation Questionnaire (Modified)
and Intrinsic Versus Extrinsic Orientation Scale (Modified)**

The first step in examining the relationship between students' perceived autonomy in class and their motivational orientation was to determine the correlations of the means obtained for each of the 18 Perceived Autonomy Scale items with the means obtained on Ryan and Connell's Relative Autonomy Index and those obtained for Harter's Motivational index and Informational index. These correlations are presented in Table 14. Fifteen of the 18 Perceived Autonomy items show a positive correlation with the Relative Autonomy Index, 11 show a positive correlation with the Mastery Motivation subscale and four show a positive correlation with the Informational subscale. As well, overall, the Perceived Autonomy Scale, PAut, shows correlation with all three dependent variables. Also to be noted is that two of the four factors that were included with the scale as control items, namely satisfaction with the decision making process in the classroom, DSatis, and enjoyment of the subject under study in the class, SubEnj, showed positive correlation with both the Relative Autonomy Index and the Mastery Motivation subscale. Interestingly, the other two factors included as controls, enjoyment of teacher (i.e., TeaEnj) and enjoyment of other students in

the class (i.e., StuEnj) did not show any correlation with the motivational dependent variables.

Table 14

Raw Correlations Between Item Means on Perceived Autonomy Scale and Means for Relative Autonomy Index, Motivational Index and Informational Index

	RAI	HMOT	HINF		RAI	HMOT	HINF
N1	.18*	.08	.03	N13	.05	.09	.05
N2	.29**	.21**	.07	N14	.18*	.13	.06
N3	.12	.12	.09	N15	.17*	.08	.05
N4	.24**	.23**	.08	N16	.15*	.10	.04
N5	.16*	.20**	.24**	N17	.18*	.18*	.10
N6	.27**	.17*	.16*	N18	.32**	.22**	.12
N7	.12	.19*	.11	PAut	.35**	.30**	.19*
N8	.25**	.19*	.09	DSatis	.24**	.30**	.19*
N9	.16*	.05	.03	TeaEnj	.13	.13	-.00
N10	.31**	.22**	.21**	StuEnj	.06	-.02	-.02
N11	.22**	.26**	.11	SubEnj	.35**	.29**	.04
N12	.18*	.27**	.21**				

** significant at .01 level, * significant at .05 level.

Of course, the question of more crucial concern was whether or not any of the Perceived Autonomy items still showed a correlation after the effects of each of the four control factors was taken into consideration. In order to address this question hierarchical multiple regression analysis was conducted on each of the 18 perceived autonomy items with respect to each of the three dependent variables - Relative Autonomy Index, Motivation subscale and Informational

subscale controlling in each case for all four control variables - satisfaction with decision making process, enjoyment of teacher, enjoyment of other students and enjoyment of subject under study. Tables 15 - 17 contain a partial listing of results from the regression operation. Only results for those perceived autonomy variables that analysis showed to be significantly linked to the dependent variable after controlling for satisfaction with decision making process, enjoyment of teacher, enjoyment of other students and enjoyment of subject under study were selected for inclusion in each table.

The Perceived Autonomy Scale correlates most comprehensively with Ryan and Connell's (1989) Self-Regulation Questionnaire (modified) in that 8 of the 18 variables show significant relationship to the Relative Autonomy Index (RAI) after controlling for the other four independent variables. The Relative Autonomy Index, again, is a weighted summary score reflecting overall relative amount of self-determination with respect to doing homework and working on classwork.

Four of the 18 Perceived Autonomy Scale variables showed significant relationship to Harter's (1980) Mastery Motivation subscale after controlling for the other four independent variables. Three of these variables, N4, N5 and N11 had already been seen to have been linked to the Self-Regulation Questionnaire, while the fourth variable, N12 - determining whether or not to eat as I am learning, is uniquely related to this particular subscale. The Motivation subscale measures intrinsic and extrinsic motivation by trying to determine if a student likes "hard challenging work" vs. "easier assignments", works "to satisfy his/her own interest and curiosity" vs. doing "schoolwork in order to satisfy the teacher, obtain marks and grades", prefers "to do their own work and figure out problems on his/her own" vs. relying "on the teacher for help and guidance, particularly when it comes to figuring out problems and assignments" (Harter, 1980).

Table 15

Hierarchical Multiple Regression Partial Results for those Perceived Autonomy Variables Individually Significantly Related to the Dependent Variable Relative Autonomy Index (RAI) while Controlling for Enjoyment of Subject, Enjoyment of Other Students, Satisfaction with Decision Making and Enjoyment of Teacher

Variable Added	Final R^2	R^2 Change	B	SE	t	p
N2	.182	.028	.372	.151	2.464	.015*
N4	.186	.032	.323	.123	2.627	.009**
N5	.172	.020	.288	.139	2.079	.039*
N6	.182	.029	.348	.138	2.529	.012*
N10	.200	.048	.422	.128	3.289	.001**
N11	.178	.026	.281	.119	2.372	.019*
N14	.183	.031	.347	.133	2.605	.010*
N18	.206	.053	.460	.132	3.481	.001**

** significant at .01 level, * significant at .05 level.

Table 16

Hierarchical Multiple Regression Partial Results for those Perceived Autonomy Variables Individually Significantly Related to the Dependent Variable Motivation Sub-Scale (HMOT) while Controlling for Enjoyment of Subject, Enjoyment of Other Students, Satisfaction with Decision Making and Enjoyment of Teacher

Variable Added	Final R^2	R^2 Change	B	SE	t	p
N4	.179	.020	.067	.033	2.019	.045*
N5	.180	.021	.079	.037	2.131	.035*
N11	.183	.025	.072	.031	2.292	.023*
N12	.188	.029	.079	.031	2.510	.013*

* significant at .05 level.

Table 17

Hierarchical Multiple Regression Partial Results for those Perceived Autonomy Variables Individually Significantly Related to the Dependent Variable Informational Sub-Scale (HINF) while Controlling for Enjoyment of Subject, Enjoyment of Other Students, Satisfaction with Decision Making and Enjoyment of Teacher

Variable Added	Final R^2	R^2 Change	B	SE	t	p
N5	.088	.034	.082	.032	2.534	.012*
N10	.077	.024	.063	.030	2.102	.037*

* significant at .05 level.

Finally, only two of the 18 Perceived Autonomy Scale variables, N5 and N10, showed significant relationship to Harter's (1980) Informational subscale after controlling for the other four independent variables. N5 - determining which particular students to be included in participants' personal learning groups, is the only variable in the Perceived Autonomy Scale that is universally related to all three dependent variables.

Because the construct underlying the Perceived Autonomy Scale is conceived to be measurable along a continuum it was predicted that when correlated with the subscales of the Self-Regulation Questionnaire there would be a continuous increase in the correlation coefficient when moving from external regulation through introjected regulation and identified regulation to intrinsic motivation. This hypothesis was given some support in a correlation test (see Table 18).

Table 18
Correlations Between Self-Regulation Categories and Perceived Autonomy and Perceived Autonomy Revised

	External	Introjected	Identified	Intrinsic
PAut	-.21	-.02	.14	.26
	$p = .003^{**}$	$p = .802$	$p = .063$	$p < .001^{***}$
PautR	-.25	-.030	.17	.28
	$p = .001^{***}$	$p = .684$	$p = .020^*$	$p < .001^{***}$

*** significant at .001 level, ** significant at .01 level,

* significant at .05 level.

N = 188.

PAut in Table 18 represents the means for all 18 variables of the Perceived Autonomy Scale, while PAutrR represents only the means for those

eight variables that were previously shown to be significantly related to the RAI. The correlations illustrating the progression are significant for two of the four subscales in the first instance and three of the four subscales in the second instance. While the correlation coefficients with respect to Introjected Regulation maintain the pattern they are not significant.

Earlier analysis of the Perceived Autonomy Scale, without regard to the dependent variables (see Table 7), showed males reporting significantly greater amounts of perceived autonomy for display subscale variables than females. When the same sex analysis was rerun, including only those perceived autonomy variables in each subscale that were significantly related to the dependent variables one more sex differences became apparent. In particular, when sex means for pace variables N10, N11, N2, N18, labelled collectively as PaceModR and significantly linked to RAI were compared, males again reported significantly greater amounts of perceived autonomy (see Table 19).

Finally, hierarchical multiple regression was used to determine the effect of specific revised Perceived Autonomy subscales on the RAI and Mastery Motivation dependent variables without regard to sex. Having previously determined which individual perceived autonomy variables were significantly linked to the dependent variables this investigator desired to reinvestigate the extent of the same relationship but only for each subscale consisting of three or more of these significantly linked variables. The ClimModR subscale consists of climate variables N4, N5, N6 and N14 that were shown to be linked to the Relative Autonomy Index. The ClimModM subscale is made up of climate variables N4, N5 and N12 that have been linked to the Harter Motivational subscale dependent variable. The PaceModR subscale has previously been described in this paper. As can be seen in Tables 20 and 21 all three subscales show an established relationship with the particular dependent variable.

Table 19

Levene's Test for Equality of Variances and t-test for Equality of Means by Sex for Revised Pace Subscale

		Levene's Test for Equality of Variance		<u>t-test for Equality of Means</u>					95% Confidence Interval of the <u>Difference</u>	
		<i>F</i>	<i>p</i>	<i>t</i>	<i>df</i>	<i>2-Tail Sig</i>	<i>M</i> Difference	<i>SE</i> Difference	<i>Lower</i>	<i>Upper</i>
PaceModR	Equal variances assumed	1.302	.255	2.23	186	.027*	.2782	.1250	.032	.525
	Equal variances not assumed			2.15	117	.033	.2782	.1292	.022	.534

* significant at .05 level.

PaceModR = mean (N2, N10, N11, N18).

Table 20

Hierarchical Multiple Regression Partial Results for Modified Perceived Autonomy Subscales - Subscales Including only Variables Significantly Related to the Dependent Variable Relative Autonomy Index (RAI) while Controlling for Enjoyment of Subject, Enjoyment of Other Students, Satisfaction with Decision Making and Enjoyment of Teacher

Variable Added	Final R^2	R^2 Change	B	SE	t	p
PaceModR	.238	.085	.866	.193	4.495	<.001
ClimModR	.209	.057	.677	.188	3.601	<.001

Table 21

Hierarchical Multiple Regression Partial Results for Modified Perceived Autonomy Climate Subscale that Includes only Variables Significantly Related to the Dependent Variable Mastery Motivation Subscale while controlling for Enjoyment of Subject, Enjoyment of Other Students, Satisfaction with Decision Making and Enjoyment of Teacher

Variable Added	Final R^2	R^2 Change	B	SE	t	p
ClimModM	.201	.042	.136	.045	3.039	.003**

** significant at .01 level.

CHAPTER FIVE

DISCUSSION

Data Collection

The study proceeded smoothly once the student participants began to complete the questionnaires. This was due in no small part to the great degree of assistance the investigator received from colleagues, teachers and school administrators, who helped with the mechanics of collecting parent consent forms and who released class time to students so that they could participate in the study. Students typically had little difficulty completing the three questionnaires within the time allotted.

The consent forms proved to be somewhat problematic, however, as a number of students forgot to return them in time, and so were unable to complete the questionnaires. The investigator has encountered this phenomenon at other times in his teaching such as when he has had to collect consent forms and/or money from students for class field trips.

One minor difficulty did occur with respect to the printing of the questionnaire booklets. The investigator failed to be consistent with his formatting in that he provided a front page devoted exclusively to information and instructions for each of the Ryan and Harter scales but included both instructions and the first four scale items on the front page of his own scale. Perhaps because students encountered his scale only after the other two motivational scales had been completed and possibly because some students do not see, or omit to read, instructions, four of the 188 participants omitted the first page and proceeded directly to the second, *real* page.

The other scale that provided some challenge for students was Harter's which required them to first choose the left statement *or* the right statement *for each item* and then decide if it was sort of true or really true for them. Eight of the 188 respondents either did not respond at all or chose to go left or right at the beginning and then remained on that side of the questionnaire until they finished. This was in spite of the fact that the potential for confusion was caught early in

the first administration and extra care was taken to provide students with explicit verbal instructions.

That the students placed their responses directly on the questionnaire booklets yielded both advantages and disadvantages. Certainly any chance of mixing responses among the three questionnaires was eliminated. However, the procedure considerably lengthened the time for statistical coding and the input of data into the computer. An entry error rate of $< 0.2\%$ was incurred on the approximately 14,000 input items.

Properties of the Perceived Autonomy Scale

Initial Principal Component Analysis yielded a 5-factor solution that accounted for 62% of the variance. Examination of the variables loading onto each of the factors allows this investigator to suggest a tentative description of the underlying autonomy constructs associated with each of the five factors.

Factor 1 accounted for 16% of the rotated variance. It includes predominantly variables 8, 9, 2, 10 and 1 and appears to represent student feelings with respect to in-class personal time management (i.e., regulation of amount of teacher instruction, scheduling teacher instruction, choosing which particular topics to work on, how many topics to work on and the amount of time to devote to each topic). This basically confirms what many students have indicated to the investigator on his teaching course evaluations - that they like to go at their "own speed" (personal communication).

Factor 2, which accounted for 13% of the rotated variance includes predominantly variables 17, 15, 3 and 16. Underlying this factor appear to be ideas strongly associated with students' sense of self in respect to the choice of resources to support both their learning and demonstration of their learning (i.e., selection of resources to support personal learning, choosing the type of evaluation to be used in grade determination, choosing the personal work products to be used in grade determination, learning and expressing learning through appropriate "intelligences") (Gardner, 1983). Alternatively, and more

specifically, the factor might represent threats to self through assessment and evaluation practices.

Factor 3 also accounted for 13% of the rotated variance, but whereas Factor 2 seems to represent the intrapersonal of students' classroom learning Factor 3 appears to represent the interpersonal. In particular, it might be concerned with ideas of me or self in relation to other students while engaged in classroom learning. Variables included here were 5, 4, 6 and 12. Two of the variables (i.e., 4 and 5, choosing the number of other students and which particular students with whom to learn, respectively) can easily be identified as interpersonal learning variables. Variable 6, choosing the location in which learning will take place, may not appear to be interpersonal but based on this investigator's own classroom teaching experience and the experience of many of his colleagues it conceivably could be strongly interpersonal for students, depending on the opportunity for relating that may or may not be afforded by a particular location. Variable 12, determining whether or not to eat while learning, appears at first glance to be neither learning nor interpersonal, but then again the act of eating can satisfy a basic physiological or psychological need prior to effective learning while at the same time fulfilling the social function of sharing through eating together.

Factor 4 predominantly includes variables 11, 18 and 14 and accounted for 10% of the rotated variance. This factor could represent ideas associated with the interaction, or quite possibly the infringement, of school life on personal life outside of school (i.e., determining the amount of homework to be done or the length of time to take in completing assignments). Variable 14 (i.e., determining whether or not to listen to music) appears to be somewhat extraneous to the other two.

Factor 5 accounted for 9% of the rotated variance and includes variables 13 and 7, those associated with determining where to sit in class and whether or not to socialize in class, respectively.

The final 3-factor solution basically collapsed Factors 1 and 4, time management autonomy in and out of class, into one factor which, for the purposes of this study, has been named Pace (i.e., as in autonomy with respect to pacing within a particular class) (Chung & Davies, 1995). This also removed the problematic variable 14 from what otherwise seemed to be a fairly homogeneous grouping of variables.

Factors 3 and 5, loaded with “me in relation to others” autonomy variables was also collapsed into one factor which again, for reference within this study, has been named Climate (i.e., as in autonomy with respect to classroom social learning climate) (Chung & Davies, 1995). This factor, a little more understandably, also picked up the errant variable 14.

Factor 2 from the initial 5-factor solution remained intact and has been named Display (i.e., as in autonomy with respect to the resources and means by which to learn and display one’s learning within the class) (Chung & Davies, 1995).

Communalities on the 3-factor solution ranged from .348 - .626. Although it might be suggested that variables attached to some of the lower values be eliminated from the autonomy model the investigator’s ad hoc inspection does not support such a move at this time. Assuming validity of the 3-factor model, part of the problem might be due to limited experience of some participants with respect to specific autonomy constructs in the classroom. For example, item 1 of the Perceived Autonomy Scale, with the least communality, reads “In determining how much teacher instruction is required by me each day in this class I have ...”. This idea may be incomprehensible to a student if he or she has never experienced a range of autonomy with respect to the variable. Wider testing in classroom environments that afford a broad range of autonomy, if available, should be carried out before eliminating items from the scale. From a methodological stand point this might be achievable within many high schools by approaching classes, such as Art, Drama and Shops, but it may be more difficult to find Math, Science, English or Social Studies classrooms that provide

the needed range. At this point in support of retaining all variables in the scale for the time being, it might be reiterated that the assignment of all 18 variables to the hypothesized 3-factor model was predicted with 100% accuracy before conducting the principal component analysis, suggesting that there is some a priori validity to both the model and its included variables.

Nature of Students' Perceived Autonomy

The mean of 3.35 for climate autonomy variables, was significantly different from those for pace, 2.56, and display, 2.51 for this particular sample. Students in this study perceived themselves to have between some control and a lot of control for classroom variables associated with establishing a learning climate in relation to others, which was significantly different from their perceptions of having a little control to some control for those related to pacing of learning, assessment and evaluation practices. The overall autonomy mean (i.e., PAut) of 2.86 which is undifferentiated as to factors, represents perceived classroom autonomy of between 'a little control' and 'some control' but much closer to the latter.

Because comparative data addressing the same construct, in the same manner (i.e., perceived classroom autonomy in the high school by way of direct 1st person response) is generally not available, making comparisons to other high school situations would be difficult. DeCharms', Origin Climate Questionnaire (1976) looks more complexly at classroom climate largely by asking students to impute how controlling or autonomy supportive the teacher is perceived to be via a self-report scale. And Deci, et al (E. L. Deci et al., 1981) developed a scale to measure how control oriented vs. autonomy supportive teachers are towards children by asking the teachers to comment on the appropriateness of various teacher responses to common classroom behavioral situations.

Characteristics of the Intrinsic Versus Extrinsic Motivation Scale (Modified)

Intercorrelations among the four Harter subscales for this sample of students from grades 10 - 12 show some subtle changes when compared to those Harter obtained in her early reported studies of grades 3 - 9 (Harter, 1981). Generally speaking the correlations found within this study are higher than those for either her California sample or New York sample with the exception of that between independent judgment and internal criteria, which is lower for this study. Also the correlation between curiosity-interest and internal criteria is lower for this study than the value from Harter's New York sample. Although a factor analysis was not performed on the corresponding data from this study a cursory examination of the intercorrelations in Table 10 would seem to support Harter's two factor model - namely preference for challenge, curiosity-interest, and independent mastery comprising the mastery motivation supra-category and independent judgment and internal criteria forming the informational supra-category.

Of considerable more interest are the graphs (see Figure 3) showing the means for each of Harter's five subscales by grade level with the means obtained in this study for the higher grades tacked on. If one were to examine only the data for grades 3 - 9 an obvious systematic shift over time from intrinsic to extrinsic motivation for the challenge, interest and mastery subscales would be evident - as Harter, herself, pointed out (Harter, 1981).

What is immediately evident from an examination of the means from grades 3 - 12 though is the up-turn in all three means at grade 12. One might look for a reason in the fact that in the school jurisdictions represented by this study students in grade 12 write external examinations and this would be a motivating factor. Mitigating against this explanation, however, is the fact that the observed up-turns for grade 12 represent a change in direction towards the *intrinsic* end of the motivational continuum and it is questionable whether the

majority of grade 12 students perceive these examinations in an “informational” (E. L. Deci & R. M. Ryan, 1985) intrinsically motivating light.

Alternatively, this investigator suggests that the changes in direction might represent developmental changes taking place in late adolescence with respect to both “content of the self-representations” and ownership of “values” (Harter, 1999).

There is yet one more aspect to this issue that is suggested most strongly by the graphs for challenge and mastery. There in fact appears to be not one but three up-turns in intrinsic motivation - at grades 6, 9 and 12! These *might* represent developmental stages but on the other hand if the schools sampled in Harter’s studies are organized as elementary up to grade 6, junior high up to grade 9 and as in the schools of this investigation, senior high up to grade 12, these grades would represent exit points where students therein would be seniors for that organizational structure - perhaps a factor to be considered. Conversely, assuming the structures just described, these graphs contain dips or leveling in intrinsic motivation at the mid-points of these grade organizations - i.e., grade 5 and grades 7 or 8. Regardless of school structure these anomalies could be studied from either the position of the observed increases in intrinsic motivation or, alternatively, the observed decreases in intrinsic motivation.

And finally, because Harter’s scale was modified for this study and because it was employed at grade levels quite distant from those from which it was developed and for which it was designed, the observed trends for grades 10 - 12 may not be conceptually grounded. The investigator of this study does not believe this to be the case, however, in view of the correlations with data from both of the other two scales used in this study. The scale intuitively seems to be applicable (otherwise it would not have been selected for use in this study) and this investigator received no comment from any of the 188 student participants or 24 teachers questioning the suitability of its items.

Characteristics of the Self-Regulation Questionnaire (Modified)

Ryan and Connell's Self-Regulation Questionnaire proved to be the easiest for students to complete as evidenced by the comparative lack of invalid entries. The data obtained in this study at the high school level nicely support those obtained previously by Ryan and Connell (1989), even with the significant cutting of material from the scale required by this investigation. The pattern of means obtained by Ryan & Connell was repeated, ranging from a high for Identified Regulation and proceeding downward through External Regulation and Introjected Regulation to a low for Intrinsic Motivation.

Figure 4 shows that the more self-determined forms of motivations (i.e., Intrinsic Motivation and Identified Regulation) show the same up-turn at the grade 12 level that was evidenced in Harter's 3 mastery motivation subscales and the investigator's own Perceived Autonomy Scale (see Figure 1). Whether or not there is any underlying significance to these patterns of observations would require further investigation. Because the subscale means by grade level for Ryan and Connell's 1989 study are not immediately available it is not possible to make any interpretations with respect to any overall pattern for grades 3 - 12.

Again, interpretations involving the Self-Regulation Scale (Modified) require a cautionary note because of the modifications made to the original scale to suit the purposes of this study. The nature of these modifications, however, probably maintained the basic integrity of the scale as their only real effect was to cause the removal of two complete sections, thus reducing equally the overall number of items for each of the 4 subscales. One of the sections removed "Why do I try to answer hard questions in class?" was deemed to be inappropriate for the high school classroom, while the other section removed "Why do I try to do well in school?" was thought to be at an overly high hierarchical level (i.e., too much towards the contextual from the situational). As with Harter's scale Ryan and Connell's scale has, in this study, been utilized at grade levels quite distant from those from which it was developed and for which it was designed.

Effect of High School Students' Perceived Autonomy Within a Class On Their Motivational Orientation Towards That Class

The correlations obtained in this study (see Tables 14 - 17) link perceived autonomy most strongly to the Relative Autonomy Index, and somewhat less so to the Mastery Motivation subscale and Informational subscale. Although the coefficients may appear to be low, the concept of low is open to debate and discussion particularly depending on whether the context is "basic research" or "applied research" (Kerlinger & Lee, 2000).

Girden (2001) commented that "... failure to obtain a significant (correlation) coefficient may be due to a range of X values that is too restricted." This author previously voiced his observation and that of others in education that autonomy affording environments in schools may be few and far between. This in effect could provide the restriction that Girden speaks of. The fact remains that even after controlling for what could be considered four conceptually significant variables (i.e., satisfaction with decision making process, enjoyment of teacher, enjoyment of other students and enjoyment of subject under study) a number of perceived autonomy variables, and the Perceived Autonomy subscales which they comprise, demonstrated significant correlations with motivational constructs. Having said this though the author recognizes and accepts a parting comment from Girden: "A spurious correlation can be an overestimation if a third variable is common to the two being measured."

Sex Effects

On Perceived Autonomy and Motivational Orientation

Data obtained using the Perceived Autonomy Scale and the Self-Regulation Questionnaire were analyzed for sex effects and but for one notable exception with respect to perceived autonomy none were found. Males reported having greater amounts of perceived autonomy for classroom variables categorized as Display variables (see Table 7). They felt more autonomous than females in selecting specific resources that are used to support their learning, in deciding the type of evaluation used to determine their grade for the class, in

determining which of their work products are used in determining their class grade and in deciding the manner in which they will demonstrate to their teacher their understanding of concepts learned in class. A non-significant difference favoring perceived autonomy for males regarding pace variables was also observed.

That this study found no differences in motivational orientation between males and females does not appear to be coherent with the results of an investigation reported by Thibert and Karsenti (1996). These researchers studied 538 elementary school students, 1,519 high school students and 2,434 junior college students in the Montreal area of Quebec. They found that "... girls are more self-determined and less externally regulated and amotivated towards academic activities than boys ... throughout all levels of schooling, from grade 6 to college." To obtain an index of motivational orientation they used an adaptation of the Academic Motivation Scale developed by Vallerand, et al (1992). The scale was considered for use in this study because it was developed specifically for the high school level, but as it focuses more contextually on reasons for going to school in general, alternative instruments were chosen. It is possible that structural differences among the motivational instruments would explain the variance in sex effects between the two studies.

Summary

The discussion centered on a number of findings that related to the administration of the survey instruments, properties of the Perceived Autonomy Scale, the nature of students' perceived autonomy, characteristics of the two motivational orientation scales, the relationship between high school students' perceived autonomy in class and their motivation towards the class, and sex effects pertaining to perceived autonomy and motivational orientation.

Administration of the Survey Instruments

Participating classroom teachers and their students were cooperative and interested during the data collection process. The survey instruments were generally completed in the time allotted although confusion prevailed in some

students due to an inconsistency in the printing of the three instruments. Some students also found the response procedure of the Intrinsic versus Extrinsic Motivation Scale to be unfamiliar enough to require additional assistance with instructions.

Properties of the Perceived Autonomy Scale

A 3-factor grouping of the Perceived Autonomy variables was predicted at the outset and this was confirmed by Principal Component Analysis. The three resulting subscales contained variables that were identified as being pace variables, display variables or climate variables utilizing variable names proposed by Chung and Davies (Chung & Davies, 1995).

Nature of Students' Perceived Autonomy

Students in this sample perceived themselves to have relatively greater amounts of autonomy for variables associated with the display factor. Overall, based on a 5-point Likert scale ranging from an assigned value of 1- no control to a value of 5- total control students perceived themselves as having *some* control, represented by a mean of 2.86.

Characteristics of the Motivational Scales

The modified Intrinsic versus Extrinsic Motivation Scale (Harter, 1981) and Self-Regulation Questionnaire (Ryan & Connell, 1989) used in this study displayed properties remarkably similar to the those evidenced in earlier studies with younger students. This was true for stand alone data derived from each of the scales as well as that derived from cross scale comparisons. The one particularly interesting finding that emerged as a result of adding high school data from this study onto elementary and junior high school data from the previous studies, was the step-wise drop and up-turn pattern in Harter's preference for challenge and independent mastery subscales over grades 3 - 12.

Perceived Autonomy and Motivational Orientation

Correlations linking perceived classroom autonomy to motivational orientation towards that particular class were not high but were quite significant, even after controlling for specific competing variables. It was suggested as

partial explanation that the range of values related to perceived autonomy in the classroom might be restrictive. Research and popular educational writing tend to support this contention.

Sex Effects

Few sex effects were observed for either perceived classroom autonomy or motivational orientation. Exceptionally, males reported having greater amounts of perceived autonomy relative to display variables in the classroom. Other researchers in other locations (Thibert & Karsenti, 1996) found females to have relatively greater amounts of intrinsic motivation and to be less amotivated.

CHAPTER SIX

CONCLUSION

General Conclusions

This study set out to answer six research questions. Its impetus was born out of significant organizational and curricular changes that the investigator had been experiencing as a high school classroom teacher. The Perceived Autonomy Scale was developed expressly for the purposes of this study as a search of the literature revealed no instrument designed to assess perceived autonomy at the particular grade and hierarchical level desired.

The investigator believes that the study showed that perceived classroom autonomy is a viable, measurable construct, and that it may be predictive of motivational attributes as described and measured within the study. The study also suggests that males and females do not perceive classroom learning variables in the same autonomous light, more specifically, that perhaps in particular classroom contexts males perceive themselves to have more autonomy than females.

Educational Implications

Educational philosophy and theory supported by research has advanced the notion that autonomous learning is a worthwhile goal to be pursued. This study suggests that high school students' perceived autonomy with respect to classroom learning variables has links to students' motivational orientation. It also reinforces the idea that students' motivational orientations have state-like (vs. trait-like) qualities that are subject to influence and modification. The investigator believes that on both of these counts he and other educators are asked to examine their classroom structures and practices with a view to determining how students' perceptions of autonomy within the classroom might be enhanced. This assumes, naturally, that more self-determined forms of motivation are valued within the educational system, and recognizes that autonomy initiatives implemented at one level of the system may or may not find support at other levels.

An additional implication and burden of responsibility develops from Vallerand's hypothesized recursive relationship between motivation at one hierarchical level and the level above. If perceptions of autonomy indeed influence motivational orientation at the situational-contextual level of the classroom then one could expect motivational orientation at the next higher level, (i.e., the context of education in general), to be correspondingly influenced.

Ranking of the perceived autonomy variable means by sex did not reveal any differences for this particular sample. That males, however, perceived themselves to have relatively higher levels of autonomy with respect to Display subscale variables (i.e., resources and personal approaches used in learning and demonstration of learning) may ultimately require a differential approach, or a general modification that favors both sexes, for these particular classroom variables.

This investigation adds support to the perspectives on motivation offered by individuals such as Edward Deci, Richard Ryan, Robert Vallerand and others. Perhaps by building classrooms that attend to students needs for competency, relatedness and autonomy - that are a little more informational than controlling, educators can help foster more self-determined forms of motivation that will lead to more effective and satisfying learning.

And by asking the questions in a very public way as educational research of this nature seems to do, awareness, interest and curiosity as to the possibilities may be invoked within the greater educational context.

Limitations of the Study

The investigator has already alluded a number of times at other points in this report to what he considers to be a major limitation of this study, and that is what may be an overly restrictive range of values for the independent variable. Schools in general and high schools in particular are not noted for providing autonomy supportive classroom environments and this may affect the statistical properties of the scale.

Further, the Perceived Autonomy Scale was developed entirely by the investigator, relying on his own classroom experiences within a changing environment. While much time was devoted to its construction and revisions and although extensive input was received from students and to a lesser extent from other teachers, the scale might have been improved had it obtained broader input.

Likewise, the two motivational scales used in the study were developed for younger audiences, and although they displayed properties consistent with studies involving elementary and junior high school students one cannot help but wonder if more specifically developed scales would provide more valid and precise measurement of the constructs. Essentially researchers in this area are faced with the contradiction of wanting instruments that will show consistency over a broad range of grade levels when more grade or age specific instruments might be more appropriate. One answer might lie in developing a universal structure into which one could apply content appropriate to a particular age or grade. This may already be happening haphazardly in a backwards sort of way as researchers, such as the one in this study, modify existing scales to suit their purposes. Yet another solution would involve conducting meta-analyses from time to time of all the diverse products and their findings. This tact is certainly being used to develop motivational theories. Vallerand's hierarchical model consolidates many diverse constructs and findings.

Although the accurate predicting of a 3-factor solution for the Perceived Autonomy Scale supported what was considered to be an underlying conceptual construct the fairly significant amount of cross-loading that occurred suggests that the scale is not as clean as it might be.

A number of procedural limitations were brought to light in the actual administration of the survey instruments. There were participants who skipped the instruction page, containing four scale items, on the Perceived Autonomy Scale likely because the format had changed from the two previously completed scales. Also, a few students were confused by the structure of one of the scales,

pointing out the need for simplicity, even at the high school level. Another problem related to the return of parent consent forms and the consequent loss of sample size. Some students expressed a desire to complete the survey but had forgotten to return their signed forms so were denied permission to write. From a practical standpoint asking students to place their responses directly on their survey booklet consisting of the three scales probably eliminated loss and mixing of separate answer sheets but the subsequent data entry proved to be a significant task even for a sample size of 188.

Implications For Future Research

Throughout this research project the investigator has been provoked periodically by a read passage, a difficult problem, an inconsistency, a question asked of him, an observed pattern of events or a lingering doubt. It is from these moments that questions have arisen, questions that may ultimately provide direction for additional research.

One such question arising directly out of this study is: Would the Perceived Autonomy Scale exhibit different characteristics and statistical properties if it was administered under conditions affording an even potentially wider range of values for perceived autonomy? This might be achieved within schools that offer a particularly heterogeneous range of classroom environments or it might be achieved by searching for different schools that by charter or philosophy offer particularly homogeneous classroom situations.

Are there alternatives to the scheme used to classify classroom learning variables in this study? Is Chung and Davies' (1995) instructional theory of learner control (i.e., a non-motivational theory) really appropriate and useful for classifying these variables in motivational contexts? It may be. The investigator gave some effort to utilizing the other two hypothesized mediators to motivation (i.e., perceived competence and relatedness) for variable classification purposes but because he was immediately plagued with significant face value cross-loading didn't pursue it.

What other potentially significant variables might be controlled when analyzing the effects of perceived autonomy on motivational orientation? It was interesting to observe in Table 13 that enjoyment of teacher and enjoyment of other students did not correlate with any of the motivational scales but enjoyment of subject and satisfaction with the decision making process did!

In constructing self-report measures as were used in this study can psycho-social effects be distinguished from psycho-linguistic effects? And finally with respect to the scale itself: How might it be cleaned up and improved?

Another question suggested by this study is: What are the origins of the regularly repeating dips and rises observed over grades 3 - 12 in Harter's two motivational subscales? Are they developmental? Are they related to the grade structure of our schools? In particular: Why the sudden rise in grade 12 values for these two subscales?

Would factor analysis of data obtained from using Harter's scales at the high school level yield the same number of solutions obtained when it was used at the earlier grades? Examination of the subscale intercorrelations would suggest so, but it would be interesting to run nevertheless, especially in view of the progressions of values exhibited for the different subscales over grade levels.

And finally, with respect to all the scales: What is the potential for convergence or confounding of the variables? Even a close visual inspection, item by item might be useful in addressing this question.

On sex effects a couple of questions arise. For example: Why did more female students volunteer to participate in the study than did males?, Was this a sampling anomaly or is it typical? Also: What is the basis for the observed differences between males and females with respect to the Perceived Autonomy subscale?

Indirectly, other questions were prompted by this study. For example: What prevailing theories and-or folk theories of motivation do parents, teachers and students hold?, What techniques do teachers employ in order to enhance motivation in the classroom? To what extent do university teacher preparation

programs address motivation theory and its applications? And lastly: What are the barriers to implementing autonomy supportive classroom environments?

Educational Applications

Research has shown that autonomy supportive environments and those that support competence and relatedness enhance both intrinsic motivation as well as more self-determined forms of extrinsic motivation. This particular study suggests that greater levels of student perceived autonomy in the high school classroom are associated with more self-determined forms of motivation in respect to doing homework, working on classwork, approaching hard challenging work, working out of interest and curiosity, and working independently with minimal reliance on the teacher. Significantly, because other researchers have linked these more self-determined forms of motivation to increased conceptual learning and creativity in the classroom, as well as more positive affects and behaviors, it might be worthwhile to outline some ways in which an autonomy supportive classroom might be developed.

Firstly this investigator would like to emphasize emphatically, as have many of the researchers and educators already referenced, that supporting autonomy is not synonymous with permitting complete and unfettered freedom. Theory and research clearly make the point that individuals require enough guidance and structure to allow them to form a reasonable set of expectations with respect to the environment within which they operate. If this is not afforded them then amotivation, and its dysfunctional consequences, is likely to set in. Too much control on the other hand will produce its own set of negative effects. Schools and teachers, charged with tending to the cognitive development of students amidst strong and sometimes overriding emotional and behavioral influences, are faced with a challenge. How can they provide the right amount of structure for their students, collectively and individually, so as to facilitate the more effective self-determined forms of motivation?

Individually, each teacher might start by examining the existing paradigm within which he or she functions. To what extent is he or she autonomy oriented

vs. control oriented with respect to classroom structures and teacher-student relationships? This might initially require some exploration and study on the part of the teacher in order that he or she gains familiarity with the terminology, theory and research. Some teachers may find themselves intuitively oriented to autonomy, as DeCharms (1976) found some teachers to be intuitively Origin-like in their approach to teaching even without the benefit of motivational training. Teachers should not be surprised if they find themselves operating largely from a control orientation. Traditionally, many have been primarily and explicitly evaluated on how well they *maintain control* in the classroom.

This study suggests that classroom structures that relate to the pacing of learning (e.g., scheduling of teacher instruction, amount of time spent on learning a topic, amount of homework to be done and length of time to complete assignments), and to the establishment of the social learning climate (e.g., the number of students and the particular students to work with, room location, choice of whether or not to eat or socialize or listen to music) might be considered for evaluation with respect to autonomy support.

Teachers of Origin classrooms, which are autonomy supportive, work with their students to establish boundaries from within the social setting. Because the students are part of the process they do not see the boundaries as being arbitrary and begin to “internalize the rules” (DeCharms & Shea, 1976).

Setting limits typically conflicts with needs or feelings and teachers are encouraged to provide legitimacy for the need or feeling by acknowledging conflicting feelings and to provide as much choice as possible (E. L. Deci & R. M. Ryan, 1985).

Choice of language can be a significant factor that affects students’ perceptions of whether limits are communicated to them informationally (i.e., as autonomy supportive) or controllingly. Teachers might find it helpful to know that expressions such as *should* and *have to* have been perceived to be controlling. Koestner, et al (E. L. Deci & R. M. Ryan, 1985) demonstrated in their study of students in grades 1 - 2 that use of the word *should* when directions were

provided appeared to undermine intrinsic motivation. Similar awareness and care in the use of language can be extended to the communication of feedback to students whether it be verbal communication in the classroom or written assessments and evaluations as might appear on work products or report cards.

A number of educators and researchers, including Deci and Ryan (1985) and Kohn (1993; 1999) have addressed the issue of punishments and rewards and have provided considerable comment on their detrimental effects on intrinsic motivation. Furthermore, females and males apparently have the potential to perceive praise differently, perhaps because of "sex-role socialization practices" (E. L. Deci & R. M. Ryan, 1985). In particular the controlling aspect of praise may be more salient for females, leading to decreased levels of intrinsic motivation. Teachers interested in establishing autonomy supportive environments would be encouraged to use rewards, punishment and praise carefully, with the knowledge that these contingencies may produce effects other than desired.

The point has been made in this thesis that greater levels of student perceived autonomy are associated with more self-determined forms of motivation, and this in turn has been linked to increased conceptual learning and creativity, along with associated positive affects. Likewise it has been observed that perceptions of autonomy can be enhanced or restricted by social environments that are informational or controlling respectively. As students are influenced so are their teachers. Teachers that feel pressured by controlling others, in turn appear to become more controlling themselves (E. L. Deci & R. M. Ryan, 1985). Building autonomy supportive classrooms would most certainly benefit from, and may even require, the initiative and support of others from the wider educational community.

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APPENDIX A

STUDENT SURVEY
CLASSROOM LEARNING VARIABLES

(J. Nicolson, 2000)

Schooling is a complex process. Each day for each of your classes many decisions are made that determine *what* is learned, *how* learning will take place and the *kind of environment* in which learning will take place. Responsibility for these decisions rests with people in government, school authorities, teachers and of course yourself. **This survey is designed to give an indication of what you perceive to be the level of *your* control in making some of these decisions.** Learning variables that are not included in this survey are those that society has decreed to be nonnegotiable; i.e., setting of curriculum, requirement of attendance and socially acceptable behavior.

Instructions: Please indicate the extent to which you feel that *you* have control in your daily classroom decision making processes, by circling the letter of your response for each of statements 1 -18. Then complete statements 19 - 26. Please complete all statements on the scoring sheet, leaving none blank. Thank you again for assisting with this research project.

1. In determining how much teacher instruction is required by me each day in this class I have ...

- | | | | | |
|----------|-------------|---------|-------------|---------|
| a) total | b) a lot of | c) some | d) a little | e) no |
| control | control | control | control | control |

2. In determining just when each day in this class the teacher will provide my instruction I have ...

- | | | | | |
|----------|-------------|---------|-------------|---------|
| a) total | b) a lot of | c) some | d) a little | e) no |
| control | control | control | control | control |

3. In selecting the specific resources that are used to support my learning each day in this class (e.g., Internet, computers, library references, videos, other people) I have ...

- | | | | | |
|----------|-------------|---------|-------------|---------|
| a) total | b) a lot of | c) some | d) a little | e) no |
| control | control | control | control | control |

4. In determining the number of students that will be included in my learning group each day in this class (i.e., myself, or myself and one or more other students) I have ...

- | | | | | |
|----------|-------------|---------|-------------|---------|
| a) total | b) a lot of | c) some | d) a little | e) no |
| control | control | control | control | control |

5. In determining which particular students will be included in my learning group each day in this class I have ...

- | | | | | |
|----------|-------------|---------|-------------|---------|
| a) total | b) a lot of | c) some | d) a little | e) no |
| control | control | control | control | control |

6. In deciding the location in which my learning will take place each day in this class (e.g., classroom, library, computer room, learning resource room, hallways, lounge, cafeteria) I have ...

- | | | | | |
|----------|-------------|---------|-------------|---------|
| a) total | b) a lot of | c) some | d) a little | e) no |
| control | control | control | control | control |

7. In deciding where my learning will take place in relation to other students (i.e., seating plan), each day in this class I have ...

- | | | | | |
|----------|-------------|---------|-------------|---------|
| a) total | b) a lot of | c) some | d) a little | e) no |
| control | control | control | control | control |

8. In determining which of the course topics will be learned by me each day in this class I have ...

- | | | | | |
|----------|-------------|---------|-------------|---------|
| a) total | b) a lot of | c) some | d) a little | e) no |
| control | control | control | control | control |

9. In determining how many of the course topics will be learned by me each day in this class I have ...

- | | | | | |
|----------|-------------|---------|-------------|---------|
| a) total | b) a lot of | c) some | d) a little | e) no |
| control | control | control | control | control |

10. In determining how much class time will be used to learn a particular course topic in this class I have ...

- | | | | | |
|----------|-------------|---------|-------------|---------|
| a) total | b) a lot of | c) some | d) a little | e) no |
| control | control | control | control | control |

11. In determining the amount of homework that is to be done by me each day in this class I have ...

- | | | | | |
|----------|-------------|---------|-------------|---------|
| a) total | b) a lot of | c) some | d) a little | e) no |
| control | control | control | control | control |

12. In determining whether or not to eat as I am learning each day in this class I have ...

- | | | | | |
|----------|-------------|---------|-------------|---------|
| a) total | b) a lot of | c) some | d) a little | e) no |
| control | control | control | control | control |

13. In deciding whether or not to visit or socialize with the other students as I am learning each day in this class I have ...

- | | | | | |
|----------|-------------|---------|-------------|---------|
| a) total | b) a lot of | c) some | d) a little | e) no |
| control | control | control | control | control |

14. In determining whether or not to listen to music while learning each day in this class I have ...

- | | | | | |
|----------|-------------|---------|-------------|---------|
| a) total | b) a lot of | c) some | d) a little | e) no |
| control | control | control | control | control |

15. In deciding the type of evaluation that will be used to determine my grade for this class (e.g., quizzes, tests, assignments, peer evaluation, self evaluation, portfolios, learning logs, teacher observations) I have ...

- | | | | | |
|----------|-------------|---------|-------------|---------|
| a) total | b) a lot of | c) some | d) a little | e) no |
| control | control | control | control | control |

16. In determining which of my work products will be used in determining my grade for this class I have ...

- | | | | | |
|----------|-------------|---------|-------------|---------|
| a) total | b) a lot of | c) some | d) a little | e) no |
| control | control | control | control | control |

17. In determining the manner by which I demonstrate to my teacher my understanding of concepts learned in this class (e.g., in writing, verbally, pictorially, kinesthetically, musically, etc.) I have ...

- | | | | | |
|----------|-------------|---------|-------------|---------|
| a) total | b) a lot of | c) some | d) a little | e) no |
| control | control | control | control | control |

18. In determining the length of time taken to complete assignments for this class I have ...

- | | | | | |
|----------|-------------|---------|-------------|---------|
| a) total | b) a lot of | c) some | d) a little | e) no |
| control | control | control | control | control |

19. I am satisfied with the decision making control that I have in this class.

A - strongly agree B - agree C - neither agree nor disagree D - disagree E - strongly disagree

20. I enjoy the teacher in this class.

A - strongly agree B - agree C - neither agree nor disagree D - disagree E - strongly disagree

21. I enjoy the other students in this class.

A - strongly agree B - agree C - neither agree nor disagree D - disagree E - strongly disagree

22. I enjoy the subject I am studying in this class.

A - strongly agree B - agree C - neither agree nor disagree D - disagree E - strongly disagree

23. I am

A - Female B - Male

24. I am in grade

A - Ten B - Eleven C - Twelve

THANK YOU

APPENDIX B

INSTRUCTIONS TO THE CHILD

We have some sentences here and, as you can see from the top of your sheet where it says "In the Classroom," we are interested in what kinds of things you like to do in school. This is not a test. There are no right or wrong answers. Since kids are very different from one another, each of you will be putting down something different.

First let me explain how these questions work. There are two sample questions at the top. I'll read the first one out loud, which is marked (a), and you follow along with me. (Examiner reads first sample question.) This question talks about two kinds of kids.

- (1) What I want you to decide *first* is whether you are more like the kids on the left side who would rather play outdoors, or whether you are more like the kids on the right side who would rather watch T.V. Don't mark anything down yet, but first decide which kind of kid is most like you, and go to that side.
- (2) Now, the *second* thing I want you to think about, now that you have decided which kind of kid is most like you, is to decide whether that is only *sort of* true for you, or *really* true. If it's only *sort of* true, then put an X in the box under *sort of* true; if its *really* true for you, then put an X in that box, under *really* true.
- (3) For each sentence you only check one box. Sometimes it will be on one side of the page, and other times it will be on the other side of the page, but you can only check one box for each sentence. Do you

have any questions?

- (4) OK, lets try the second sample one, which is (b). (Examiner reads and goes through the same explanation above in points 1, 2, and 3.)
- (5) OK, those were just for practice. Now we have some more sentences which I'm going to read out loud. For each one, just check one box, the one that goes with what is true for *you*, what *you* are most like.

Note. From "A Scale of Intrinsic Versus Extrinsic Orientation in the Classroom - Manual", 1980, by Susan Harter, Department of Psychology, University of Denver, Denver, CO. Copyright 1980 by Susan Harter. Reprinted with permission.

In the Classroom
Pupil's Form
(Harter, 1980 - Reprinted with Permission)

Name _____ Age _____ Birthday (Month) _____ (Day) _____

Grade _____ Teacher _____ Boy or Girl (Circle which)

Sample Questions

	Really True for me	Sort of True for me		Sort of True for me	Really True for me		
(a)	<input style="width: 40px; height: 40px;" type="checkbox"/>	<input style="width: 40px; height: 40px;" type="checkbox"/>	Some kids would rather play outdoors in their spare time	BUT	Other kids would rather watch T.V.	<input style="width: 40px; height: 40px;" type="checkbox"/>	<input style="width: 40px; height: 40px;" type="checkbox"/>
(b)	<input style="width: 40px; height: 40px;" type="checkbox"/>	<input style="width: 40px; height: 40px;" type="checkbox"/>	Some kids like hamburgers better than hot dogs		Other kids like hot dogs better than hamburgers	<input style="width: 40px; height: 40px;" type="checkbox"/>	<input style="width: 40px; height: 40px;" type="checkbox"/>
1	<input style="width: 40px; height: 40px;" type="checkbox"/>	<input style="width: 40px; height: 40px;" type="checkbox"/>	Some kids like hard work because its a challenge	BUT	Other kids prefer easy work that they are sure they can do	<input style="width: 40px; height: 40px;" type="checkbox"/>	<input style="width: 40px; height: 40px;" type="checkbox"/>

	Really True for me	Sort of True for me			Sort of True for me	Really True for me	
2	<input type="checkbox"/>	<input type="checkbox"/>	When some kids don't understand something right away they want the teacher to tell them the answer	BUT	Other kids would rather try and figure it out by themselves	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	Some kids work on problems to learn how to solve them	BUT	Other kids work on problems because you're supposed to	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	Some kids almost always think that what the teacher says is O.K.	BUT	Other kids sometimes think their own ideas are better	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	Some kids know when they've made mistakes without checking with the teacher	BUT	Other kids need to check with the teacher to know if they've made a mistake	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>	Some kids like difficult problems because they enjoy trying to figure them out	BUT	Other kids don't like to figure out difficult problems	<input type="checkbox"/>	<input type="checkbox"/>

	Really True for me	Sort of True for me			Sort of True for me	Really True for me	
7	<input type="checkbox"/>	<input type="checkbox"/>	Some kids do their schoolwork because the teacher tells them to		Other kids do their school-work to find out about a lot of things they've been wanting to know	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	<input type="checkbox"/>	When some kids make a mistake they would rather figure out the right answer by themselves	BUT	Other kids would rather ask the teacher how to get the right answer	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>	<input type="checkbox"/>	Some kids know whether or not they're doing well in school without grades	BUT	Other kids need to have grades to know how well they are doing in school	<input type="checkbox"/>	<input type="checkbox"/>
10	<input type="checkbox"/>	<input type="checkbox"/>	Some kids agree with the teacher because they think the teacher is right about most things	BUT	Other kids don't agree with the teacher sometimes and stick to their own opinion	<input type="checkbox"/>	<input type="checkbox"/>
11	<input type="checkbox"/>	<input type="checkbox"/>	Some kids would rather just learn what they have to in school	BUT	Other kids would rather learn about as much as they can	<input type="checkbox"/>	<input type="checkbox"/>

	Really True for me	Sort of True for me			Sort of True for me	Really True for me	
12	<input type="checkbox"/>	<input type="checkbox"/>	Some kids like to learn things on their own that interest them	BUT	Other kids think its better to do things that the teacher thinks they should be learning	<input type="checkbox"/>	<input type="checkbox"/>
13	<input type="checkbox"/>	<input type="checkbox"/>	Some kids read things because they are interested in the subject	BUT	Other kids read things because the teacher wants them to	<input type="checkbox"/>	<input type="checkbox"/>
14	<input type="checkbox"/>	<input type="checkbox"/>	Some kids need to get their report cards to tell how they are doing in school	BUT	Other kids know for themselves how they are doing even before they get their report card	<input type="checkbox"/>	<input type="checkbox"/>
15	<input type="checkbox"/>	<input type="checkbox"/>	If some kids get stuck on a problem they ask the teacher for help	BUT	Other kids keep trying to figure out the problem on their own	<input type="checkbox"/>	<input type="checkbox"/>
16	<input type="checkbox"/>	<input type="checkbox"/>	Some kids like to go on to new work that's at a more difficult level	BUT	Other kids would rather stick to the assignments which are pretty easy to do	<input type="checkbox"/>	<input type="checkbox"/>

	Really True for me	Sort of True for me			Sort of True for me	Really True for me
17	<input type="checkbox"/>	<input type="checkbox"/>	Some kids think that what the teacher thinks of their work is the most important thing	BUT	For other kids what <i>they</i> think of their work is the most important thing	<input type="checkbox"/>
18	<input type="checkbox"/>	<input type="checkbox"/>	Some kids ask questions in class because they want to learn new things	BUT	Other kids ask questions because they want the teacher to notice them	<input type="checkbox"/>
19	<input type="checkbox"/>	<input type="checkbox"/>	Some kids aren't really sure if they've done well on a test until they get their papers back with a mark on it	BUT	Other kids pretty much know how well they did even before they get their papers back	<input type="checkbox"/>
20	<input type="checkbox"/>	<input type="checkbox"/>	Some kids like the teacher to help them plan what to do next	BUT	Other kids like to make their own plans for what to do next	<input type="checkbox"/>
21	<input type="checkbox"/>	<input type="checkbox"/>	Some kids think they should have a say in what work they do in school	BUT	Other kids think that the teacher should decide what work they should do	<input type="checkbox"/>

	Really True for me	Sort of True for me			Sort of True for me	Really True for me	
22	<input type="checkbox"/>	<input type="checkbox"/>	Some kids like school subjects where its pretty easy to just learn the answers	BUT	Other kids like those school subjects that make them think pretty hard and figure things out	<input type="checkbox"/>	<input type="checkbox"/>
23	<input type="checkbox"/>	<input type="checkbox"/>	Some kids aren't sure if their work is really good or not until the teacher tells them	BUT	Other kids know if its good or not before the teacher tells them	<input type="checkbox"/>	<input type="checkbox"/>
24	<input type="checkbox"/>	<input type="checkbox"/>	Some kids like to try to figure out how to do school assignments on their own	BUT	Other kids would rather ask the teacher how it should be done	<input type="checkbox"/>	<input type="checkbox"/>
25	<input type="checkbox"/>	<input type="checkbox"/>	Some kids do extra projects so they can get better grades	BUT	Other kids do extra projects because they learn about things that interest them	<input type="checkbox"/>	<input type="checkbox"/>
26	<input type="checkbox"/>	<input type="checkbox"/>	Some kids think its best if they decide when to work on each school subject	BUT	Other kids think that the teacher is the best one to decide when to work on things	<input type="checkbox"/>	<input type="checkbox"/>

	Really True for me	Sort of True for me			Sort of True for me	Really True for me	
27	<input type="checkbox"/>	<input type="checkbox"/>	Some kids know they didn't do their best on an assignment when they turn it in	BUT	Other kids have to wait til the teacher grades it to know that they didn't do as well as they could have	<input type="checkbox"/>	<input type="checkbox"/>
28	<input type="checkbox"/>	<input type="checkbox"/>	Some kids don't like difficult schoolwork because they have to work too hard	BUT	Other kids like difficult schoolwork because they find it more interesting	<input type="checkbox"/>	<input type="checkbox"/>
29	<input type="checkbox"/>	<input type="checkbox"/>	Some kids like to do their schoolwork without help	BUT	Other kids like to have the teacher help them do their schoolwork	<input type="checkbox"/>	<input type="checkbox"/>
30	<input type="checkbox"/>	<input type="checkbox"/>	Some kids work really hard to get good grades	BUT	Other kids work hard because they really like to learn things	<input type="checkbox"/>	<input type="checkbox"/>

Note. From "A Scale of Intrinsic Versus Extrinsic Orientation in the Classroom - Manual", 1980, by Susan Harter, Department of Psychology, University of Denver, Denver, CO. Copyright 1980 by Susan Harter. Reprinted with permission.

APPENDIX C

INSTRUCTIONS

The following survey consists of a number of statements that relate to classroom learning. As you can see from the title 'In This Class' I am interested in determining how you see yourself with respect to each of these variables in this particular class. There are no right or wrong answers. Since students are different from one another each of you will be putting down something different.

There is one sample question at the top. It talks about two kinds of students.

- (1) What I would like you to decide *first* is whether you are more like the students on the left side who would rather play video games, or whether you are more like the students on the right side who would rather watch T.V.
- (2) The *second* thing I want you to think about, now that you have decided which kind of student is most like you, is whether that is only *sort of* true for you, or *really* true. If it's only *sort of* true, then put an X in the box under *sort of* true; if its *really* true for you, then put an X in that box, under *really* true.
- (3) For each question you only check one box. Sometimes it will be on one side of the page, and other times it will be on the other side of the page, but you can only check one box for each sentence. If you have any questions about this procedure please ask.
- (4) Once you understand the procedure please complete each of the actual questions that follow the sample. Please complete all questions and, remember, check only one box for each question.

In This Class
(Harter, 1980 - Modified with Permission)

Sample Question

	Really True for me	Sort of True for me		BUT		Sort of True for me	Really True for me
(a)	<input style="width: 50px; height: 50px;" type="checkbox"/>	<input style="width: 50px; height: 50px;" type="checkbox"/>	Some students in the class would rather play video games in their spare time	BUT	Other students in the class would rather watch T.V.		
1	<input style="width: 50px; height: 50px;" type="checkbox"/>	<input style="width: 50px; height: 50px;" type="checkbox"/>	Some students in the class like hard work because it is a challenge	BUT	Other students in the class prefer easy work that they are sure they can do	<input style="width: 50px; height: 50px;" type="checkbox"/>	<input style="width: 50px; height: 50px;" type="checkbox"/>
2	<input style="width: 50px; height: 50px;" type="checkbox"/>	<input style="width: 50px; height: 50px;" type="checkbox"/>	When some students in the class don't understand something right away they want the teacher to tell them the answer	BUT	Other students in the class would rather try and figure it out without the teacher's help	<input style="width: 50px; height: 50px;" type="checkbox"/>	<input style="width: 50px; height: 50px;" type="checkbox"/>

	Really True for me	Sort of True for me			Sort of True for me	Really True for me	
3	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class work on problems in order to learn how to solve them	BUT	Other students in the class work on problems because they have to	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class almost always rely on the teacher's knowledge	BUT	Other students in the class sometimes think their own ideas are better	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class know when they've made mistakes without checking with the teacher	BUT	Other students in the class need to check with the teacher to know if they've made a mistake	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class like difficult problems because they enjoy trying to figure them out	BUT	Other students in the class don't like to figure out difficult problems	<input type="checkbox"/>	<input type="checkbox"/>

	Really True for me	Sort of True for me			Sort of True for me	Really True for me	
7	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class do their classwork because the teacher tells them to		Other students in the class do their classwork to find out about things	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="checkbox"/>	<input type="checkbox"/>	When some students in the class make a mistake they would rather figure out the right answer by themselves	BUT	Other students in the class would rather ask the teacher how to get the right answer	<input type="checkbox"/>	<input type="checkbox"/>
9	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class know whether or not they're doing well in class without grades	BUT	Other students in the class need to have grades to know how well they are doing in class	<input type="checkbox"/>	<input type="checkbox"/>
10	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class agree with the teacher because they think the teacher is right about most things	BUT	Other students in the class don't agree with the teacher sometimes and stick to their own opinion	<input type="checkbox"/>	<input type="checkbox"/>

	Really True for me	Sort of True for me			Sort of True for me	Really True for me
11	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class would rather just learn what they have to	BUT	Other students in the class would rather learn about as much as they can	<input type="checkbox"/>
12	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class like to learn things on their own that interest them	BUT	Other students in the class think its better to do things that the teacher thinks they should be learning	<input type="checkbox"/>
13	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class read things because they are interested in the material	BUT	Other students in the class read things because the teacher wants them to	<input type="checkbox"/>
14	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class need to get their report cards to tell how they are doing	BUT	Other students in the class know for themselves how they are doing even before they get their report cards	<input type="checkbox"/>

	Really True for me	Sort of True for me			Sort of True for me	Really True for me	
15	<input type="checkbox"/>	<input type="checkbox"/>	If some students in the class get stuck on a problem they ask the teacher for help	BUT	Other students in the class keep trying to figure out the problem on their own	<input type="checkbox"/>	<input type="checkbox"/>
16	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class like to go on to new work that's at a more difficult level	BUT	Other students in the class would rather stick to the assignments that are pretty easy to do	<input type="checkbox"/>	<input type="checkbox"/>
17	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class think that what the teacher thinks of their work is the most important thing	BUT	For other students in the class what they think of their work is the most important thing	<input type="checkbox"/>	<input type="checkbox"/>
18	<input type="checkbox"/>	<input type="checkbox"/>	Some students ask questions in this class because they want to learn new things	BUT	Other students in the class ask questions because they want the teacher to notice them	<input type="checkbox"/>	<input type="checkbox"/>

	Really True for me	Sort of True for me			Sort of True for me	Really True for me	
19	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class aren't really sure if they've done well on a test until they get their papers back with a mark on it	BUT	Other students in the class pretty much know how well they did even before they get their paper back	<input type="checkbox"/>	<input type="checkbox"/>
20	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class like the teacher to help them plan what to do next	BUT	Other students in the class like to make their own plans for what to do next	<input type="checkbox"/>	<input type="checkbox"/>
21	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class think they should have a say in what work they do in class	BUT	Other students in the class think the teacher should decide what work they should do	<input type="checkbox"/>	<input type="checkbox"/>
22	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class like topics where its pretty easy to just learn the answers	BUT	Other students in the class like those topics that make them think pretty hard and figure things out	<input type="checkbox"/>	<input type="checkbox"/>

	Really True for me	Sort of True for me			Sort of True for me	Really True for me	
23	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class aren't sure if their work is really good or not until the teacher tells them	BUT	Other students in the class know if its good or not before the teacher tells them	<input type="checkbox"/>	<input type="checkbox"/>
24	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class like to try to figure out how to do assignments on their own	BUT	Other students in the class would rather ask the teacher how it should be done	<input type="checkbox"/>	<input type="checkbox"/>
25	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class do extra work so they can get better grades	BUT	Other students in the class do extra work because they learn about things that interest them	<input type="checkbox"/>	<input type="checkbox"/>
26	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class think its best if they decide when to work on each topic to be studied in class	BUT	Other students in the class think that the teacher is the best one to decide when to work on things	<input type="checkbox"/>	<input type="checkbox"/>

	Really True for me	Sort of True for me			Sort of True for me	Really True for me	
27	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class know they didn't do their best on an assignment when they turn it in	BUT	Other students in the class have to wait til the teacher grades it to know that they didn't do as well as they could have	<input type="checkbox"/>	<input type="checkbox"/>
28	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class don't like difficult classwork because they have to work too hard	BUT	Other students in the class like difficult classwork because they find it more interesting	<input type="checkbox"/>	<input type="checkbox"/>
29	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class like to do their classwork without help	BUT	Other students in the class like to have the teacher help them do their classwork	<input type="checkbox"/>	<input type="checkbox"/>
30	<input type="checkbox"/>	<input type="checkbox"/>	Some students in the class work really hard to get good grades	BUT	Other students in the class work hard because they really like to learn things	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX D

WHY I DO THINGS

(Ryan & Connell, 1989 - Reprinted with Permission)

Name: _____ Age: _____

Grade: _____ () Boy or Girl () Teacher: _____

A. Why do I do my homework?

1. Because I want the teacher to think I'm a good student.

Very true	Sort of true	Not very true	Not at all true
-----------	--------------	---------------	-----------------

2. Because I'll get in trouble if I don't.

Very true	Sort of true	Not very true	Not at all true
-----------	--------------	---------------	-----------------

3. Because I don't like it when I don't understand the subject.

Very true	Sort of true	Not very true	Not at all true
-----------	--------------	---------------	-----------------

4. Because it's fun.

Very true	Sort of true	Not very true	Not at all true
-----------	--------------	---------------	-----------------

5. Because I will feel bad about myself if I don't do it.

Very true Sort of true Not very true Not at all true

6. Because I want to understand the subject.

Very true Sort of true Not very true Not at all true

7. Because that's what I'm supposed to do.

Very true Sort of true Not very true Not at all true

8. Because I enjoy doing my homework.

Very true Sort of true Not very true Not at all true

9. Because it's important to me to do my homework.

Very true Sort of true Not very true Not at all true

B. Why do I work on my classwork?

1. So that the teacher won't yell at me.

Very true Sort of true Not very true Not at all true

2. Because I want the teacher to think I'm a good student.

Very true Sort of true Not very true Not at all true

3. Because I want to learn new things.

Very true Sort of true Not very true Not at all true

4. Because I don't like it when I fall behind.

Very true Sort of true Not very true Not at all true

5. Because I'll be ashamed of myself if it doesn't get done.

Very true Sort of true Not very true Not at all true

6. Because it's fun.

Very true Sort of true Not very true Not at all true

7. Because that's the rule.

Very true Sort of true Not very true Not at all true

8. Because I enjoy doing my classwork.

Very true

Sort of true

Not very true

Not at all true

9. Because it's important to me to work on my classwork.

Very true

Sort of true

Not very true

Not at all true

C. Why do I try to answer hard questions in class?

1. Because I want the other students to think I'm smart.

Very true Sort of true Not very true Not at all true

2. Because I'd be ashamed of myself if I didn't try.

Very true Sort of true Not very true Not at all true

3. Because I enjoy answering hard questions.

Very true Sort of true Not very true Not at all true

4. Because that's what I'm supposed to do.

Very true Sort of true Not very true Not at all true

5. Because it bothers me when I don't try to answer the question.

Very true Sort of true Not very true Not at all true

6. To find out if I'm right or wrong.

Very true Sort of true Not very true Not at all true

7. Because it's fun to answer hard questions.

Very true Sort of true Not very true Not at all true

8. Because it's important to me to try to answer hard questions in class.

Very true

Sort of true

Not very true

Not at all true

D. Why do I try to do well in school?

1. Because that's what I'm supposed to do.

Very true Sort of true Not very true Not at all true

2. So my teachers will think I'm a good student.

Very true Sort of true Not very true Not at all true

3. Because I enjoy doing my school work well.

Very true Sort of true Not very true Not at all true

4. Because I will get in trouble if I don't do well.

Very true Sort of true Not very true Not at all true

5. I don't like it when I don't do well.

Very true Sort of true Not very true Not at all true

6. Because I'll feel really bad about myself if I don't do well.

Very true Sort of true Not very true Not at all true

7. Because it's important to me to do well in school.

Very true Sort of true Not very true Not at all true

I try very hard to do well in school.

Very true

Sort of true

Not very true

Not at all true

Note. *Self-Regulation Questionnaire - Academic* by Richard M. Ryan and James P. Connell, University of Rochester, NY. Reprinted with permission.

KEY
WHY I DO THINGS

VALUES:

Very true (4) Sort of true (3) Not very true (2) Not at all true (1)

Items from each sub-scale (EX, IJ, ID & IN) are averaged to form four subscale scores.

WHY I DO MY HOMEWORK IN THIS CLASS?

- | | |
|-------|-------|
| 1. IJ | 5. ID |
| 2. EX | 6. EX |
| 3. IN | 7. IN |
| 4. IJ | 8. ID |

WHY DO I WORK ON MY CLASSWORK IN THIS CLASS?

- | | |
|-------|-------|
| 1. EX | 5. IN |
| 2. IJ | 6. EX |
| 3. ID | 7. IN |
| 4. IJ | 8. ID |

Relative Autonomy Index (RAI):

Multiply the External scale by -2, the Introjected scale by -1, the Identified scale by +1 and the Intrinsic scale by +2. Add the weighted scores.

APPENDIX E

INSTRUCTIONS

I am asking you to respond to the following sets of statements in order to help me determine why you do your homework in this class and why you do your classwork in this class. There are no right or expected or wrong answers. Because students are different from one another each of you will be responding in your own way.

1. Please read each statement and then mark the answer sheet with the letter of the response that applies to you:
2. Make sure that you have **marked only one response** for each number.

THANK YOU

WHY I DO THINGS IN THIS CLASS

(Ryan & Connell, 1989 - Modified with Permission)

J. Nicolson

A. Why do I do my homework for this class?

1. Because I want others in the class (i.e., teacher or students) to think I'm a good student.

(a)	(b)	(c)	(d)
Very true	Sort of true	Not very true	Not at all true

2. Because I'll get in trouble with the teacher if I don't.

(a)	(b)	(c)	(d)
Very true	Sort of true	Not very true	Not at all true

3. Because it's actually fun.

(a)	(b)	(c)	(d)
Very true	Sort of true	Not very true	Not at all true

4. Because I will feel badly about myself if I don't do it.

(a)	(b)	(c)	(d)
Very true	Sort of true	Not very true	Not at all true

5. Because I want to understand the material.

(a)	(b)	(c)	(d)
Very true	Sort of true	Not very true	Not at all true

6. Because my teacher requires me to.

(a)	(b)	(c)	(d)
Very true	Sort of true	Not very true	Not at all true

7. Because I enjoy doing my homework.

(a)	(b)	(c)	(d)
Very true	Sort of true	Not very true	Not at all true

8. Because it's important to me to do my homework.

(a)	(b)	(c)	(d)
Very true	Sort of true	Not very true	Not at all true

B. Why do I work on my classwork in this class?

1. So that the teacher won't get upset with me.

(a)	(b)	(c)	(d)
Very true	Sort of true	Not very true	Not at all true

2. Because I want others to think I'm a good student.

(a)	(b)	(c)	(d)
Very true	Sort of true	Not very true	Not at all true

3. Because I want to learn new things.

(a)	(b)	(c)	(d)
Very true	Sort of true	Not very true	Not at all true

4. Because I'll be ashamed of myself if it doesn't get done.

(a)	(b)	(c)	(d)
Very true	Sort of true	Not very true	Not at all true

5. Because it's fun.

(a)	(b)	(c)	(d)
Very true	Sort of true	Not very true	Not at all true

6. Because that's the rule.

(a)	(b)	(c)	(d)
Very true	Sort of true	Not very true	Not at all true

7. Because I enjoy doing my classwork.

(a)	(b)	(c)	(d)
Very true	Sort of true	Not very true	Not at all true

8. Because it's important to me to work on my classwork.

- | | | | |
|-----------|--------------|---------------|-----------------|
| (a) | (b) | (c) | (d) |
| Very true | Sort of true | Not very true | Not at all true |

Note. *Self-Regulation Questionnaire - Academic*, 1989, by Richard M. Ryan and James P. Connell; University of Rochester, NY. Modified with permission.

APPENDIX F

(School Letterhead)

November 27th, 2001

Dear (Name of School Principal),

Thank you for supporting my professional studies in permitting me to conduct my MA research study in (Name of School). It is quite gratifying to finally get this project under way. While it has been a particularly intriguing and stimulating learning journey for me personally to date I hope that perhaps now I might be able to learn something that might have a little wider application or implication - I'm sure the wish of all graduate students engaged in research and study.

I will provide a letter of information to each participating teacher (copy attached) and will ask participating teachers to provide parents with an information letter and two copies of a consent form, one of which is to be returned to the teacher signed by the parent (copies attached).

I will provide you with a summary of the research findings after completion of the study and if the study is published a copy of the article.

I plan to provide teachers with their and their students' information/consent letters this week and begin to administer the questionnaires next week. Should you have any questions or concerns at any point in the study please do not hesitate to talk to me.

Sincerely,

Jim Nicolson

(School Letterhead)

November 27th, 2001

Dear Colleague,

Thank you for agreeing to participate in my U of C MA thesis research project.

Educational philosophy, theory and research together with our own practice support the notion that autonomous learning is a worthwhile goal to be pursued, yet as educators we have perhaps been frustrated in what seems to be a lack of progress in this regard. Individuals such as Edward Deci, Richard Ryan, Robert Vallerand and others offer a possible path by which we might move a little closer to the desired outcome. Essentially they suggest that by attending to students' basic needs for 'competency', 'relatedness' and 'autonomy' through classrooms that are 'informational' in nature, we can help foster more self-determined forms of motivation that could lead to more effective and satisfying learning. Murphy and Alexander (2000), however, found that only 14.3% of the sample of studies included in their review of motivational literature considered high school students. I hope, as a high school teacher, that my study will provide some insight into the relationship between perceived autonomy and orientation to motivation within the classroom at the high school level.

I have developed a perceived autonomy scale which I would like to present to your students, along with modified orientation to motivation scales designed by Richard Ryan & James Connell, and Susan Harter.

My primary research question to be addressed by this study is:

What is the effect of students' perceived autonomy on their motivational orientation towards class?

Secondarily, I would like to examine the interrelationships among the one autonomy and the two motivation scales as well as search for gender effects with respect to both perceived autonomy and orientation to motivation.

Every attempt will be made to ensure anonymity. Student names will not be recorded at any time during the study. Teachers' names will neither be recorded nor used other than to initially indicate willingness to participate in the study.

Thank you again for offering to participate in this study.

Sincerely,

Jim Nicolson



FACULTY OF EDUCATION
Graduate Division Educational Research

November 27th, 2001

Dear Parent/Guardian:

My name is Jim Nicolson. I am a student in the Graduate Division of Educational Research at the University of Calgary, conducting a research project. I have received approval from (Name of) School Division to carry out this research and would like to invite your daughter/son to participate in my study "Perceived Student Autonomy and Motivational Orientation."

This letter is to provide information regarding my research project, so that you can make an informed decision regarding your daughter/son's participation. The purpose of this study is to try to determine if there is any relationship between the amount of control students believe themselves to have over their day to day learning in class and their motivation towards their class. A number of students from a variety of classes in the various high schools will be participating in the study. **Please fill out and return the enclosed consent form whether or not you wish your daughter/son to participate.**

If you agree to have your daughter/son participate, she/he will be asked to complete three questionnaires. One consisting of 25 items is designed to investigate her/his perceived autonomy within the class and will be completed by all participants. In addition, each participant will be asked to complete two other

questionnaires each designed to measure slightly different aspects of motivational orientation. These questionnaires range from 16 to 30 items. The questionnaires will be completed during school hours and will require approximately 30 minutes to complete.

Participation in this study will involve no greater risks than those ordinarily experienced in daily life. Anonymity is assured in that neither students nor their teachers will be required to provide their names as part of this project. Even if you give permission for participation your daughter/son is free to withdraw at any time during the questionnaire process for whatever reason. Results which will be reported in published articles or my graduate thesis will ensure your daughter/son's complete anonymity. The questionnaires will themselves be destroyed within a reasonable time after conclusion of the project.

If you have any questions, please feel free to contact me at (Phone Number) or my supervisor Dr. Anthony Marini in the Faculty of Education at University of Calgary, 220-5375. Two copies of the consent form are provided. Please return to your school a signed copy, which indicates your decision concerning your daughter/son's participation in this research. The other copy can be retained for your records.

Thank you for your cooperation.

Sincerely,

Jim Nicolson

(NAME OF) HIGH SCHOOL**CONSENT FORM**

Research Project Title: **Perceived Student Autonomy and Motivational Orientation**

Investigator: **Jim Nicolson, Graduate Division of Educational Research, University of Calgary**

The information requested on this form is being collected pursuant to the *School Act - Freedom of Information and Protection of Privacy*. Information acquired through this form has been approved by the (Name of) School Division and will be kept secure and access to the information restricted to the researcher and his research assistant.

This consent form, a copy of which has been given to you, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your daughter/son's participation will involve. If you would like more detail about something mentioned here, please ask. Please take time to read this information form carefully and to understand any accompanying information.

I/We understand that my/our daughter or son will be completing three student questionnaires, during a regularly scheduled class, which will take approximately 30 minutes to complete. Your daughter/son's classroom teacher will explain to

your child the research and his or her involvement. (Parents or guardians must sign/co-sign for children).

I/We understand that this study will not involve any greater risk than those ordinarily occurring in daily life.

I/We understand that neither my daughter/son's name nor their teacher's name will be recorded on any of the questionnaires or anywhere else in this project, ensuring participant anonymity.

I/We understand that no personally identifying information will be released to teachers or used to report the data in any published reports.

I/We understand that all data, will be kept in a locked file cabinet and destroyed within three years after publication of the results.

Your signature on this form indicates that you have understood to your satisfaction the information regarding your daughter/son's participation in the research project and that you agree or disagree to have your daughter/son participate as a subject. In no way does this waive your legal rights nor release the investigator, or involved institutions from their legal and professional responsibilities. Your daughter/son is free to withdraw at any time. If you should have further questions concerning matters related to this research, please contact:

Jim Nicolson (Phone Number)

If you have any questions concerning this project you may also contact the supervising professor, Dr. Anthony Marini in the Faculty of Education at University of Calgary, 220 - 5375. If you have any questions or issues

concerning this project that are not related to the specifics of the research you may also contact the Research Services Office at 220 - 3782 and ask for Mrs. Patricia Evans.

THANK YOU FOR YOUR CONSIDERATION.

PLEASE INDICATE YOUR DECISION CHOICE BELOW:

I hereby give my consent for my daughter/son:

_____ to participate in this study:

(Please Print Full Legal Name of Daughter/Son)

YES _____

NO _____

Signature of Parent/Guardian

Date

*A copy of this consent form has been given to you to keep for your records and reference.

APPENDIX G

Educational Research Project

J. Nicolson, U of C

December, 2001

Dear Student:

Thank you for offering to participate in this research project. Your time and interest in doing so are much appreciated.

You will be completing three questionnaires. As you come to each one please take time to read the introductory information and instructions and then complete the questionnaire as best as you can.

***NOTE:** Please DO NOT place your name or your teacher's name anywhere on this Questionnaire Booklet. Names are not required as part of the study - more general relationships are being examined.

THANK YOU AGAIN.

J.N.