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**The Interaction of Goal Orientation and Interest
On Students' Use of Self-Regulated Learning Strategies**

Katherine A. McWhaw

A Thesis

in

The Department

of

Education

**Presented in Partial Fulfillment of the Requirements
for the Degree of Master of Arts at
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ABSTRACT**The Interaction of Goal Orientation and Interest
On Students' Use of Self-Regulated Learning Strategies****Katherine A. McWhaw**

Goal orientation and interest are two motivational components of self-regulated learning that have been found to be positively correlated with the frequent use of learning strategies. The focus of this study was to examine if these two motivational components interact to affect students' use of learning strategies. Ninety-four grade 11 students participated in this study. This study was a 2x2 between-groups factorial using a post-test only control design. There were two independent variables; goal orientation and task interest. There were three dependent variables: student's total score on main-idea selection, additional cognitive strategies, and of metacognitive strategies. There were significant ($p < .05$) main effects for task interest and goal orientation on the main-idea selection measure. Students who reported having a high interest in the task were able to select more main ideas from the text than students with low interest in the text. Similarly, students who were offered a reward for finding the main ideas outperformed students who were encouraged to adopt an intrinsic goal orientation. There was also a main effect ($p < .05$) for interest on the metacognitive strategies measure. High interest students had higher metacognitive scores than low-interest students. These results suggest that interest is an important motivator for the selection of main ideas and in the use of metacognitive strategies. These results also suggest that when interest is low, offering a reward to students may help them to select the main ideas from text.

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Introduction

Self-regulated learning has been defined as the degree to which learners are metacognitively, motivationally, and behaviourally active participants in their own learning (Zimmerman, 1986). Self-regulated learners employ a variety of cognitive and metacognitive strategies to achieve learning goals and approach learning tasks strategically (Como & Mandinach, 1983; Paris & Oka, 1986; Pintrich, 1989; Zimmerman & Martinez-Pons, 1986). They also employ resource management strategies such as selecting or arranging physical environments to support their learning and to manage their time effectively (Pintrich & Garcia, 1991). In addition, they are apt to seek peer or teacher assistance if they run into learning difficulties (Pintrich & Garcia, 1991; Zimmerman & Martinez-Pons, 1986). Moreover, self-regulated learners are motivated learners who report having high self-efficacy, positive attributions, and an intrinsic motivation to learning (Borkowski, Carr, Rellinger, & Pressley, 1990; Pintrich & Garcia, 1991; Zimmerman & Martinez-Pons, 1990).

By contrast, students who have been described as low in self-regulation do not use as many cognitive and metacognitive strategies, nor do they use these strategies as often as their high self-regulating counterparts (Pintrich, 1989; Pintrich & Garcia, 1991; Zimmerman & Martinez-Pons, 1986). With respect to their motivation, students described as low self-regulators have low self-efficacy and an extrinsic motivation to learning (Zimmerman & Martinez-Pons, 1990; Pintrich & Garcia, 1991). Furthermore, low self-regulating students are not as academically successful as those described as high

self-regulating. Research conducted over the last ten years has consistently found a significant positive correlation between academic achievement and self-regulated learning among elementary, high school, and college students, including graduate students (Mandinach & Corno, 1985; Lindner & Harris, April 1992; Pokay & Blumenfeld, 1990; Pintrich, 1989; Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1986). The conclusion drawn from this research is that self-regulated learners possess “skill” in processing information combined with particular motivational orientations or “will” that result in superior academic performance (Pintrich & De Groot, 1990; Zimmerman, 1990).

Importance of Self-Regulation

The link between self-regulation and academic achievement is an important one considering the concern expressed by both government and industry that students throughout North America are not achieving as well as they should to prepare themselves for their roles in the new global economy (Economic Council of Canada, 1992; Premier’s Council Report, 1990; Nation at Risk, 1983). The Economic Council of Canada reported that 30% of young people do not complete high school in Canada. Twenty-eight percent of young adults between the ages of 16 and 24 who have at least ten years of schooling cannot understand a simple newspaper article while 44% cannot perform the necessary calculations to add up a restaurant bill. With respect to reading comprehension and language skill, the Economic Council of Canada reports that there is a marked deterioration in current achievement levels in Canada as compared to 25 years ago. Similar results were reported in a well-known American study conducted in the 1980’s

(Nation at Risk, 1983). These decreases in academic achievement are coming at a time when the global economy is changing from one that depends increasingly on human intellect rather than on brawn (Economic Council of Canada, 1992; Jones & Idol, 1990).

How are the skills and qualifications of employees in the new economy to be developed? According to Reich (1990), while employees will need to continuously learn on the job, the foundation for this ability will depend on the “learning skills and attitudes developed long before” (p. 202). Therefore, it will be the education system that will provide the foundation skills that will constitute a platform for lifelong learning (Premier’s Council Report, 1990).

Today’s students will need “more” and “better” education to fully participate and to be successful in the new emerging economy (Reich, 1990). With respect to more schooling, one report estimated that in the near future 50% to 60% of all new jobs will require a minimum of seventeen years of schooling (Report of the Task Force on Elementary and Secondary School Profiles, 1994). By the year 2000, the proportion of new jobs requiring a grade 12 education or less will drop to 36% from today’s level of 55% (Premier’s Council Report, 1990).

Both The Premier’s Council Report on People and Skills in the New Global Economy (1990) and the Report of the Task Force on Elementary and Secondary School Profiles (1994) submitted to the Ontario and Quebec provincial governments respectively also specified what constitutes a “better” education for the emerging economy. The Ontario report recommended that the understanding of mathematics and science become priority areas in a common curriculum for all schools. This report also recommended that

schools train students to analyze, synthesize and evaluate information rather than just having students remember factual information. The ability to analyze, synthesize, and evaluate information are seen as very important skills needed to solve problems in real-world settings where innovation is seen as key to the firm's success. The Quebec report specified six major areas of learning that all students should master at the elementary and secondary school levels: language, mathematics, life in society, science and technology, physical education and the arts.

Furthermore, the Ontario report laid out specific recommendations for reforming its educational system to close the perceived gap between what graduates will need to know and do to participate in the new economy and what they know and do now. In addition to specifying the content to be learned, the Ontario report recommended the enhancement of career education, the creation of a common curriculum, the emphasis on evaluating student progress, the revamping of teacher training, and the provision of leadership in school administration. Though these recommendations are important and useful in specifying the changes needed in the content and the quality of the knowledge students must learn throughout their primary and secondary education, these recommendations fall short of addressing how the student is to learn this new content or how to motivate the student to learn. The Ontario report, however, acknowledged that schools must instill in students a desire to learn. Indeed, some of these recommendations, such as the revamping of teacher training and the provision of leadership in school administration assume that changes at the top of the education hierarchy with teachers and administrators will automatically improve the performance of those at the bottom of the

hierarchy, the students. Yet, “learning is not a passive act; it requires the time and active involvement of the learner” (Bishop, 1990, p. 246).

Moreover, if tomorrow’s graduates are to work in an environment where they will need to learn new skills in a rapid and efficient manner to contribute to their firm’s competitive advantage through continuous improvements and innovations in products and services, then it will be incumbent upon schools to develop the skills and motivation that will allow students to continue to learn by themselves. However, it will also be incumbent upon those individuals, such as instructional designers, who are responsible for designing training programs for industry to understand how learning skills and attitudes interact to affect the success of employee training. There may be many employees being trained today who have not had the opportunity to develop the skills necessary to continuously learn on the job while in school. Students and employees will need to learn how to become active participants in their own learning.

Problem Statement

As we have seen, research into self-regulation has focused on the active and personally-initiated metacognitive and cognitive learning strategies that learners use to process information combined with particular motivational orientations or “will” that students employ to improve learning outcomes and environments (Pintrich & Schrauben, 1992; Zimmerman, 1990a). This research has focused on the linear relationships between single motivational variables such as self-efficacy (Zimmerman & Martinez-Pons, 1990),

attributions (Borkowski, Carr, Rellinger, & Pressley, 1990), control beliefs (Pintrich, 1989) and goal orientation (Pintrich & Garcia, 1991).

However, in order to obtain a thorough theoretical understanding of self-regulated learning, it has been suggested that research into self-regulation should also examine the interaction between different motivational variables and students' knowledge of and use of these strategies (Pintrich & Schrauben, 1992; Schunk, 1994). Developing these multivariate profiles of student motivation and cognition (Pintrich & Schrauben, 1992) would also be useful in designing effective interventions to help students become more self-regulated which in turn could help them become more academically successful since research has also shown a consistent positive correlation between students high in self-regulation and academic achievement (Pokay & Blumenfeld, 1990; Pintrich, 1989; Pintrich & De Groot, 1990; Zimmerman & Martinez-Pons, 1986).

The effectiveness of combining training in a specific cognitive strategy with providing students with multiple sources of motivational information was demonstrated in a study conducted by Schunk and Rice (1987). In this study, elementary school children who were poor readers were taught to find main ideas in text. This strategy training was combined with motivational training which focused on helping the children feel a measure of control over their learning. Results of this study showed that children who received this additional motivational instruction had higher self-efficacy and performance scores in reading compared to children who received the strategy training only. Furthermore, children who received motivational instruction in both control beliefs

and attributions to the use of the strategy had higher self-efficacy and reading performance scores than children who received the control beliefs instruction only.

Though this study demonstrated the advantages of combining a multivariate approach to student motivation with cognitive strategy instruction as opposed to a linear approach to student motivation, our understanding of self-regulation is limited if it is restricted to examining the effects of self-efficacy, control beliefs and attributions for success. An understanding of how these motivational components operate alone or together is not sufficient for gaining a complete understanding of self-regulated learning because these components only focus on students' beliefs about their competence and control in various learning situations. While an understanding of these motivational components provide a positive answer to the question "Can I do the task?", they ignore the question of "Why am I doing the task?" (Pintrich, 1989). Other researchers such as Alexander (1995), Nicholls (1990), Pintrich (1989) and Schiefele (1991) have proposed that this latter question can only be addressed through studying the effects of interest and/or goal orientation on students' use of learning strategies.

Nicholls (1990) proposed that students' feelings of competence are related to their general perceived ability in performing academic tasks. Students can only feel competent when they believe they are more able than their peers. Since not all students can be above-average according to Nicholls, researchers should concentrate on students' feelings about the value of what they are studying rather than on how competent they feel about what they are doing. However, according to the social cognitive perspective, people with the same set of skills may "perform poorly, adequately, or extraordinarily depending on

their beliefs of efficacy” (Bandura, 1990, p. 315). In contrast to Nicholls’ general view of academic competence, self-efficacy is considered to be domain specific in that it is defined as students’ beliefs that they can perform in a particular task domain. Therefore, a student may have high self-efficacy in one academic domain such as mathematics but have low self-efficacy in a different domain such as learning another language.

How do individuals develop self-efficacy? Bandura (1986) hypothesized that people develop their self-efficacy beliefs through mastery experiences, through modeling other people’s behaviour, and through social persuasion from significant others that they can perform successfully. An individual’s self-efficacy is developed over time through these various experiences. Though Bandura outlined three ways in which self-efficacy develops over time, he maintained that people develop their beliefs about efficacy primarily through mastery experiences in which they have successfully completed similar tasks in the past.

The social cognitive perspective’s emphasis on self-efficacy as the key to understanding student motivation (Zimmerman & Martinez-Pons, 1992) offers only a partial explanation of self-regulated learning because of its focus on mastery experiences in a particular domain. In other words, the social cognitive perspective would most likely not be able to predict or explain how students would employ learning strategies in domains in which they have little or no experience. For example, a student about to enter college may select to study a course in psychology and to employ learning strategies to understand the course because they find it interesting rather than because they have been successful in studying psychology in the past. In this case the students’ beliefs about why

they are studying the psychology may offer a more reasonable explanation of why they would employ learning strategies to understand the course rather than their beliefs about whether they can be successful at studying psychology. At the college level, students can choose to follow specific programs in the sciences or the arts. Within each program, they must take a number of core courses, but they are also free to take the electives of their choice from within their own program or from other programs as well. Research has shown that interest in a particular topic or subject is positively correlated with the frequent use of cognitive and metacognitive strategies (Pintrich & Garcia, 1991; Pokay & Blumenfeld, 1990; Schiefele, 1991).

However, interest alone cannot completely explain students' willingness to employ learning strategies at the college level. Research has shown that even when students have more freedom to pursue courses of study that interest them at the college level, they may have learning difficulties. At the CEGEP or college level, many students have learning difficulties. Between 35% and 40% of students do not graduate with a CEGEP diploma (Larose & Roy, 1993). Moreover, 40% of these students leave CEGEP during their first year. Twenty-five percent of first-year students do not succeed in about 50% of their courses. Thirty percent do not complete their course of study within the two-year time period allotted for pre-university studies. The main reasons students cite for their difficulties in CEGEP are a lack of motivation and organization (Terrill, Ducharme, & Plante, 1994). Yet college life places special demands on students because they are faced with more choice and control in the college environment (Pintrich & Garcia, 1994). Students also receive less feedback from instructors on how they are

doing because feedback is often limited to a few assignments or tests during the semester (Zimmerman, in press). Therefore, if students are to be successful at the college level, they need to be able to regulate and control their motivation as well as having the necessary learning strategies to process the vast amounts of information they are presented with in their courses.

One possible explanation for the difficulty in performance among college and CEGEP students may be due to other motivational influences on their use of learning strategies. In addition to interest, research has demonstrated that the goals students adopt as they approach different learning tasks influences their use of learning strategies. Pintrich and Garcia (1991) found that college students who had an intrinsic goal orientation to learning used more learning strategies more often than students who had an extrinsic goal orientation to learning. According to Pintrich and Garcia, students who adopt an intrinsic goal orientation to learning focus on mastery, challenge, and understanding of the material. By contrast, students with an extrinsic goal orientation to learning focus on grades, rewards, or approval from others. In addition to interest, understanding goal orientation and how it influences students' use of learning strategies also offers an answer to the question "Why am I doing the task"? (Pintrich, 1989).

The general expectancy-value theory of self-regulation (Pintrich, 1989; Pintrich & Garcia, 1991; Pintrich & Schrauben, 1992) proposes that in addition to self-efficacy and control beliefs, interest (or task value) and goal orientation are two important motivational components that facilitate students' use of learning strategies. While this model provides us with an explanation of how each of these motivational components,

interest and goal orientation, affect students employment of learning strategies, it does not explain from a theoretical standpoint how these two motivational components interact to influence the employment of these learning strategies.

Pintrich and Schrauben (1992) have suggested that goal orientation may guide the general direction of the behaviour of the student while interest may influence the strength or intensity of this behaviour but they do not offer an explanation of how and why this might occur. Does this mean that when students adopt an intrinsic goal orientation and have high interest in a topic, they would be more willing to employ learning strategies than students who also have high interest in the topic but have an extrinsic goal orientation to learning? What happens when students have low interest in a topic? What motivational orientation is most conducive to employing learning strategies when interest is low? This study was designed to answer these questions.

As the general expectancy-value theory is the only theory of self-regulated learning to include both interest and goal orientation as important motivators of students' use of self-regulated learning strategies, the research for this thesis will proceed from this perspective. In the next section a more thorough explanation of this theory will be presented. The next section begins with a brief history of the research into self-regulation giving some background as to the rationale for proceeding from the general expectancy-value theory. In addition, other theories of self-regulation will be described and the reasons given as to why my research did not proceed from these perspectives.

Theoretical Perspectives

Historical Background

Self-regulated learning is a complex construct that is situated “at the intersection of several fields of research (e.g., motivation, cognition, and metacognition)” (Alexander, 1995, p 189). The research into academic self-regulation that has been conducted during the last ten years can be seen as a continuation or evolution of work that began in the early 1970’s on the importance of learning strategies to students’ academic performance (Brown, Bransford, Ferrara, & Campione, 1983). While these early studies demonstrated that children’s performance on specific learning tasks improved substantially after training in cognitive strategies such as rehearsal, categorization, and elaboration, students did not continue to use these strategies on their own in different situations even after extensive training. The failure of these training studies led researchers to consider alternative explanations for children’s failure to use these strategies on their own and across a variety of situations.

Researchers began focusing in the mid-1970’s on the concept of metacognition (Flavell, 1971; Flavell & Wellman, 1977). Metacognition was defined as an executive control process that involved planning, monitoring, and regulating or overseeing the use of cognitive strategies (Brown et al, 1983). There was also a recognition by some researchers in the early 1980’s that poor academic performance could also be the result of one’s feelings about oneself as a learner or one’s feelings about particular learning tasks rather than just a failure to employ cognitive strategies (Brown et al, 1983). In other

words, students' motivation to learn was recognized at this time as an important factor in explaining performance on learning tasks.

Based on the research described above, a complete model of self-regulated learning should incorporate cognitive strategies and metacognitive strategies or a "skill" component and motivational components or "will" component (Pintrich & De Groot, 1990; Zimmerman, 1990a). The theories or models of self-regulated learning which include all three of these components, cognitive strategies, metacognitive strategies, and motivation are the phenomenological model, the social cognitivist model, and the general expectancy-value model. Though these three models all include cognitive and metacognitive strategies, they differ on which motivational components they include in their models. An examination of the different components of motivation will be presented later on in this section.

Other models of self-regulated learning are not included in this discussion because they are not complete models of self-regulation. In other words, they do not include cognitive, metacognitive or motivational components in their models. These models are the operant (Mace, Belfiore & Shea, 1989), the constructivist (Paris & Brynes, 1989) and the Vygotskian (Rohrkemper, 1989).

The operant model focuses only on the covert behavioural strategies that students use during learning and does not include metacognitive strategies. This model assumes that students' feelings about particular topics or tasks are not relevant or important motivators of human performance. Adherents of this model (Mace, Belfiore & Shea,

1989) propose that all behaviour is motivated by the environment or more precisely the external reinforcer the learner comes into contact with following a certain behaviour.

The Vygotskian model (Rohrkemper, 1989) focuses on how children develop “inner” speech to help them take charge of their own emotions, motivation, and thinking and how significant others in the child’s life such as parents or teachers can influence the development of this “adaptive” learning. While this model acknowledges the importance of motivation and thinking in learning, the model does not define the precise nature of this motivation nor does it elaborate on what is meant by thinking.

Like the Vygotskian perspective, the constructivist model (Paris & Byrnes, 1989; Paris & Newman, 1990) focuses on the development of self-regulation in children. Unlike, the Vygotskian model, the constructivist model provides a more complete explanation of how self-regulation develops over time with respect to children’s motivation and strategy use. Constructivists consider self-regulation to be multi-faceted and comprised of several components. These components are personal theories that children develop over time about their self-competence, effort, academic tasks, and strategies. Furthermore, according to the constructivists, children’s personal theories about schooling are an integrated, coherent set of beliefs that motivate action. The difficulty with this model is that it does not specify how children’s personal theories of self-competence and effort affect student’s personal theories about academic tasks or employment of learning strategies to accomplish these tasks. In other words, the constructivists do not differentiate between the “skill” and “will” components of self-

regulated learning. Another problem with the constructivist approach is that it does not define the strategies it includes in its model as either cognitive or metacognitive.

Phenomenological Theory

In contrast to the constructivist model, the phenomenological model of self-regulated learning incorporates a “skill” and “will” explanation of the development of self-regulated learning. The phenomenological approach is based upon the assumption that the experience of consciousness and of self are real and that an individual’s perceptions, cognitions, and emotions are considered to be the primary influence on the way information is processed, interpreted and acted upon (McCombs, 1989).

From this viewpoint, “will” is defined as a self-actualized state of motivation which is based upon the following: (a) self-system awareness and value, (b) personal self-development and self-determination goals, (c) affect and mood. The “self” generates this motivation through the evaluation of the personal meaningfulness and relevance of the learning activity with respect to an individual’s personal goals which is similar to the definition of interest. The self also generates this motivation through the individual’s beliefs about his/her own competencies and abilities which is similar to the concept of self-efficacy. These beliefs about the self are both global and domain specific. The global beliefs can be defined as the “individual’s belief and perceptions of their ability to direct and control their cognition, affect, motivation, and behaviour in learning situations in general” (McCombs, 1989, p. 61). The domain-specific belief is defined similarly but with respect to a particular learning situation or context. According to the

phenomenological perspective (McCombs, 1989), how an individual performs in a specific learning situation or domain is dependent upon his/her global belief as a self-regulated learner.

The metacognitive and cognitive strategies students employ in different learning situations are considered to be under the direction and control of the “I” or self as agent. The self as agent is defined as a “generative, uncontaminated consciousness that is by nature, goal directed, purposeful, and teleological in nature” (McCombs, 1989, p. 55). When an individual develops a healthy self-system, academic self-regulation will also develop. The self-system and self-regulation cannot develop naturally if impeded by environmental or genetic factors. What are these “contaminating” environments or genetic factors? The phenomenologists (McCombs & Marzano, 1990) do not specify the nature of these genetic or environmental factors. However, one can infer what these environmental factors may be from the interventions proposed by McCombs and Marzano (1990) to support the development of the self-system within the classroom.

They recommend that students be provided with opportunities for choice and decision making within the classroom and with tasks that are challenging and that stimulate their curiosity. Moreover, classrooms need to be restructured so as to emphasize non-competitive goal structures and support a learning goal orientation rather than a performance goal orientation.

These two motivational components, the students’ feelings about the task and the goal structure of the classroom are important components that support the use of cognitive and metacognitive strategies as we shall see when we examine the general

expectancy-value theory of self-regulated learning. The difficulty with the phenomenological model is that it does not explain why providing children with interesting and challenging tasks and a supportive goal structure within the classroom leads to the development of a healthy self-system and, hence, self-regulation while the lack of these motivational components leads to the development of a faulty self-system. If we accept that a healthy self-system can only develop under ideal motivational conditions, does this imply that children who are not provided with challenging and curiosity-provoking tasks on a regular basis develop a faulty self-system? Does this mean that children whose classrooms emphasize performance goals where marks are a salient part of their evaluation can never develop a healthy self-system? The reality of most classrooms is that children must work on tasks that are not challenging or personally meaningful to them and must participate in classrooms where their work is evaluated through the use of grades

The research to be conducted for this thesis did not proceed from the phenomenological model because according to this viewpoint a students' motivation to employ learning strategies in a given situation depends upon their global beliefs as self-regulated learners and the theory does not offer a thorough explanation of how these global beliefs develop.

Social Cognitive Theory

The social cognitive model of academic self-regulation is based on the general social cognitive theory developed by Bandura (1986). Bandura (1986) proposed that people's behaviour is a product of self-generated and external sources of influence. The social cognitivist model of self-regulated learning includes various self-processes such as metacognition and motivational beliefs such as self-efficacy (Zimmerman, 1989b). If we could imagine a continuum, the behaviourist or operant model of self-regulation would appear at one end because of its total emphasis on the environmental influences on behaviour while the phenomenologist perspective represents the other end of the continuum with its emphasis on an individual's perceptions and experience of consciousness as the primary influence on behaviour. The social cognitive model would appear between these two ends of the continuum because it incorporates both self-generated and external influences on an individual's behaviour. Unlike the phenomenological viewpoint, however, the social cognitivists do not focus on mental phenomenon, such as self-perceptions, unless this phenomenon is manifested overtly in some form during social and behavioural functioning (Zimmerman, 1989a). It follows then, that the social cognitivists define self-regulated learning as learning in which students are "metacognitively, motivationally, and behaviourally active participants in their own learning process" (Zimmerman, 1986, p. 308).

This definition of self-regulated learning is based upon a triadic view of academic learning (Zimmerman, 1989b; Schunk, 1989). The triad is composed of self-processes, environmental influences and behavioural influences each acting upon each other in a

reciprocal manner. Each one of the nodes of this triad is composed of several different factors or variables which are also believed to be reciprocally interdependent (Zimmerman & Martinez-Pons, 1992). A list of these different variables can be found in Table # 1. This table is adapted from Zimmerman and Martinez-Pons (1992).

Table 1

Triadic Influences in a Self-Regulated Learning Strategy System

Personal Influences	Behavioural Influences	Environmental Influences
Goals	Self-observation	Academic outcomes
Self-efficacy	Self-judgment	
Metacognition	Self-reaction	
Knowledge		
Affect		

With respect to the personal variables, social cognitivists propose that students have such goals as acquiring skill and knowledge, finishing work, or obtaining good grades (Schunk, 1994). Metacognition refers to students' awareness of the strategic relations between regulatory processes and learning outcomes (Zimmerman & Martinez-Pons, 1992). In other words, the self-regulated learner is aware of the feedback loop between his behaviour and specific outcomes. Students are assumed to have knowledge of the different strategies but this is distinguished from the capability for using them consistently and persistently. Affective influences, such as anxiety or elation, are seen to either impair or facilitate the use of these learning strategies according to Zimmerman & Martinez-Pons (1992). Self-efficacy "refers to beliefs of personal capabilities for different levels of attainment in a particular task domain" (Zimmerman & Martinez-Pons,

1992, p. 186). According to the social cognitivists, self-efficacy is hypothesized to play an important role in this triadic model of self-regulated learning (Shunk, 1994; Zimmerman & Martinez-Pons, 1992).

The behavioural factors or influences in self-regulated learning are self-observation, self-judgment, and self-reaction (Schunk, 1989; Zimmerman, 1990b). Self-observation has been defined by Bandura (1986) as a person's deliberate attention to aspects of one's behaviour. Self-judgment refers to comparing one's present performance with one's goal or goals and self-reaction refers to students' evaluations about their progress in learning (Schunk, 1994). For example, if a student believes that he has made sufficient progress (self-evaluation) in writing a term paper (self-judgment), he might reward himself by taking the rest of the night off and going out with friends (self-reaction). This example demonstrates the reciprocal influence these factors have on each other within the behavioural node of the triad. The social cognitivists propose that in addition to the reciprocal influence of the major nodes of the triad, each of the factors or influences within these nodes are also reciprocally interdependent. For example, self-reactions can either be environmental, behavioural, or personal (Zimmerman & Martinez-Pons, 1992). Academic outcomes are considered an environmental factor in self-regulation which includes grades, social esteem, or post-graduate opportunities.

The model described above presents a description and explanation of self-regulated learning in an "ideal" sense. The social cognitivists contend that the model can also explain how self-regulated learners differ from their more passive counterparts (Zimmerman, 1989a). There are three major differences between those students

described as self-regulating and those who are considered to be more passive in their approach to learning or less self-regulating. (Zimmerman, 1990a). First, they differ in their use of self-regulated learning strategies. Second, they differ in their self-efficacy perceptions of skill and performance. Finally, they differ in their commitment to academic goals though this model does not specify the nature of this difference.

In this model, strategies are defined as “actions and processes directed at acquiring information or skill” (Zimmerman, 1989b, p. 329). Strategies are considered different from processes but help to optimize processes. For example, record-keeping is a strategy that students might use to self-monitor their performance (Zimmerman, 1990b). Strategies can be both overt and covert.

The social cognitivists (Zimmerman, 1990a) assume that all learners use self-regulated learning strategies to some degree but the main difference between students who can be described as self-regulated and those who are more passive in their approach to learning is the awareness of how specific strategies influence learning outcomes. In other words, the self-regulated learner is aware of the feedback loop between his behaviour and specific learning outcomes and attributes successful learning to the use of these particular strategies. Schunk (1994) has termed this feedback loop as students’ attributions for the causes of their success or failures on specific academic tasks and proposes it is related to students’ beliefs that they have control over their learning environments.

Another key difference between self-regulated learners and their more passive counterparts is the willingness of the self-regulated learner to employ strategies to achieve

academic goals. This willingness or motivation to employ strategies is based upon a student's self-efficacy beliefs. As presented earlier, self-efficacy refers to a student's belief that he/she can perform in a particular task domain (Zimmerman & Martinez-Pons, 1992). Self-efficacy is usually measured by asking students to estimate their likelihood of solving particular problems in certain domains (Zimmerman, 1990a). Social cognitivists believe that students' perception of self-efficacy is key to motivating their efforts to learn (Zimmerman & Martinez-Pons, 1992). High self-efficacy leads people to mobilize a high level of effort especially in the face of obstacles and/or difficulties (Bandura, 1990).

How do individuals develop self-efficacy? Bandura (1986) hypothesized that people develop their self-efficacy beliefs through personal mastery experiences, through modeling others' behaviours, and through social persuasion from significant other that they can perform successfully. A person's self-efficacy is developed over time through these various experiences. However, a person's self-efficacy is not fixed or unchangeable. A person's negative self-efficacy can change to a positive one if they receive positive performance feedback when engaged in a specific activity (Bandura, 1986). The various training interventions conducted by the social cognitivists have focused on teaching students to observe, judge, and react to their learning progress using a variety of strategies which have helped to increase their feelings of self-efficacy (Schunk, 1989; Schunk, 1994). The social cognitive model, as presented above, is a complete model of self-regulated learning which incorporates a motivational component, a metacognitive component, and a cognitive strategies component referred to in this model as behavioural influences. The cognitive and metacognitive strategies can be

learned and brought under the control of the learner. Though this model seems to fulfill the necessary requirements for the research to be undertaken for the purposes of this study, this model was not adopted because it proposes that self-efficacy is the ultimate source of a student's motivation to learn (Zimmerman, 1990a) and does not support the premise that this motivation can also stem from a student's interest in a task or topic (Zimmerman, 1994). While the construct of self-efficacy seems to offer a positive answer to the question "Can I do this task"? it ignores the question "Why am I doing this task"? The general expectancy-value model of self-regulated learning which will be presented in the next section is a model that integrates both of these questions into explaining how motivation affects students use of learning strategies.

General Expectancy -Value Theory

The general expectancy-value theory of self-regulated learning incorporates both "will" and "skill" components (Pintrich & Schrauben, 1992). It is based on a model of student motivation developed by Eccles (1983) to explain why some students achieve and some do not given equivalent histories of successes and failures in a particular subject domain. A major assumption of Eccles' model is that it is not reality itself that determines a student's expectancies, values, and behaviour, but rather the interpretation of that reality (Eccles, 1983). The interpretation of this reality is based on a student's causal attributions for success, the perception of the student's own needs and values as well as the perception of the characteristics of the task. The model developed by Eccles does not explain how students' expectancies and values affect their use of learning

strategies. The general expectancy-value model of self-regulated learning is an adaptation of the model developed by Eccles to explain how students' expectancies and values affect their use of learning strategies (Pintrich, 1989). The general expectancy-value model also assumes that both motivation and the learning strategies students use are influenced by the instructional process and that these "environmental" features "provide the social context that partially shapes, defines, and activates relevant aspects of students' motivations and cognitions" (Pintrich & Schrauben, 1992, p. 152).

Learning Strategies Component

The general expectancy-value model draws on information-processing theory to explain how students employ these different strategies. According to information-processing theory, learning strategies are defined as the thoughts and behaviours that students engage in to influence the encoding process and retrieval of information (Weinstein & Mayer, 1986). As may be seen from Table 2, the "skill" component of the general expectancy-value theory of self-regulated learning is composed of three major categories of strategies: cognitive strategies, metacognitive strategies, and resource management strategies.

Table 2

Strategy (Skill) Component of General Expectancy-Value Model

Cognitive Strategies	Metacognitive Strategies	Resource Management Strategies
Rehearsal strategies	Planning	Help seeking
Elaboration strategies	Monitoring	Time management
Organizational Strategies	Regulating	Environmental management

Rehearsal strategies involve the use of recitation, clustering, imagery, and mnemonic techniques for memory tasks. In processing text, rehearsal strategies can be highlighting or underlining text. Elaboration strategies include paraphrasing, summarizing, creating analogies, generative note-taking, and question asking and answering. Organizational strategies include selecting the main idea from text, outlining the text or material to be learned, and using techniques such as networking or mapping to organize ideas. According to Pintrich & Schrauben (1992) while rehearsal strategies are useful for memory tasks, elaboration and organization strategies may be required for more complex tasks that require comprehension or understanding of material.

Metacognitive strategies include planning, monitoring, and regulating cognition. Planning involves setting goals for studying, skimming a text before reading, generating questions before reading a text, and doing a task analysis of a problem. Pintrich and Schrauben (1992) contend that monitoring and regulation strategies are closely related.

For example, a student monitors his attention while reading a text to ensure understanding of the text. When the student realizes through his monitoring activities that he has not understood a portion of the text, the student will go back and reread a portion of the text. This rereading is a regulation strategy. Another regulation strategy involves slowing the pace of reading when confronted with difficult or unfamiliar text.

Resource management strategies relate to the variety of strategies students use to manage their environments and resources within the environment. This includes behaviour such as finding a conducive place to study or seeking help when necessary. The resource management strategies are general strategies that may help or hinder students' efforts for completing tasks but are not tied directly to student performance (Pintrich & Schrauben, 1992).

Motivational Component

Student performance is directly influenced by students' use of cognitive and metacognitive strategies (Pintrich & Schrauben, 1992). The "will" component or the various motivations included under this component are assumed to facilitate the use of these strategies. This view of the role of motivation in the general expectancy-value model of self-regulated learning is in marked contrast to the social cognitivist perspective which views the motivational, behavioural, and metacognitive components interacting and reciprocally affecting each other. The general expectancy-value model is also different from the phenomenological model which proposes that the cognitive and metacognitive components are under the direct control of the "self-system". The "will"

or motivational component in the general expectancy-value model is composed of two major sub-components; an expectancy component and a value component as can be seen in Table 3. (Pintrich 1989).

Table 3

Motivational (Will) Component of General Expectancy-Value Model

Expectancy Component	Value Component
Self efficacy	Goal orientation
Control beliefs	Task value

The expectancy components include “student beliefs about their ability to perform a task, their judgments of self-efficacy and control, and their expectancy for success at the task” (Pintrich, 1989, p. 123). This definition is similar to the social cognitivist view of self-efficacy in self-regulated learning but is somewhat broader in that it has been defined in the general expectancy-value model as students’ beliefs they are able to learn and understand their course material in general rather than their beliefs about performance on a specific task (Pintrich & Schrauben, 1992). Control beliefs refers to students’ perceptions of internal control for learning. In other words, students believe that the environment is responsive to their actions rather than being controlled by the environment or powerful others. Self-efficacy and control beliefs are believed to be domain specific rather than traits of the individual. Though these two motivational subcomponents are considered important in influencing students’ use of learning strategies, they focus on

students' beliefs about whether they can do the task rather than on their reasons or goals for doing the task.

Goal orientation.

Researchers adopting a general expectancy-value model of self-regulated learning propose the reasons or goals students have for engaging in a learning task are either intrinsically or extrinsically motivated (Pintrich, 1989; Pintrich & Garcia, 1991; Pintrich & Schrauben, 1992). Students who adopt an intrinsic goal orientation to learning focus on mastery, learning, challenge, or curiosity (Pintrich, 1989). In contrast, students who have an extrinsic goal orientation approach learning tasks with a focus on grades, rewards, and approval from others. The social cognitive model also includes students' goals for learning such as grades, social esteem or opportunities for post-graduate study but these goals are similar to an extrinsic goal orientation (Zimmerman & Martinez-Pons, 1992). Pintrich (1989) proposes that the difference between intrinsic and extrinsic goal orientation in the general expectancy-value model parallels Harter's (1981) distinction between intrinsic and extrinsic goal orientation, Ames' (1984) mastery versus performance goals, and Nicholls' (1984) task-involved versus ego-involved goals. Moreover, the distinction between these two orientations can be seen as a cognitive extension of Deci and Ryan's (1985) intrinsic motivation theory which emphasizes an individual's need to master the environment (Pintrich & Garcia, 1991). As can be seen from Table 4, the descriptions of the intrinsic goal orientations put forward by these

Table 4

Comparison of Goal Orientation Theories

<u>Reference</u>	<u>Type of Goal Orientation</u>	<u>Characteristics</u>
Pintrich (1989)	Intrinsic	Focus on mastery, challenge, learning, curiosity
	Extrinsic	Focus on grades or rewards or approval from others
Deci & Ryan (1985)	Intrinsic	Behaviours are engaged in volitionally.
	Extrinsic	Behaviour controlled by some external variable.
Harter (1981)	Intrinsic	Interest in learning, mastery, curiosity, challenge
	Extrinsic	Obtain teacher approval and/or grades
Nicholls (1984)	Task-involved	Learning for its own sake
	Ego-involved	Perform better than others or to establish one's ability is superior
	Work Avoidant	Involves a desire to put forth as little effort as possible and get away with it
Dweck (1986)	Learning	Increase one's own competence.
	Performance	Seek to gain favourable judgement about competence.
Ames (1984)	Mastery	Develop new skills Emphasis on effort Comparing oneself with prior achievement
	Performance	Concern about how one compares with others.

theorists are quite similar in that there is an emphasis on learning for its own sake.

However, the descriptions of the extrinsic goal orientations are different. Pintrich's (1989), Harter's (1981) and Deci and Ryan's (1985) definitions focus on externally controlled variables that can be readily identified. These include rewards or grades or approval from others. For example, "A college student may become very involved in a course due to the adoption of an extrinsic goal of obtaining a high grade as well as an intrinsic goal based on mastery or challenge of the material". (Pintrich, 1989, p. 122). In this example, the focus is on the reward itself and not how the reward makes one feel about one's competency with respect to others.

The descriptions offered by Ames (1984), Dweck (1986) and Nicholl's (1984) seem to involve the consequences of attaining a reward (or other externally-controlled variable). According to Dweck, students with a performance goal seek to gain favourable judgments about their competence and avoid negative judgments because they believe intelligence or ability are fixed traits over which they have little control. Ames' (1984) performance-oriented students are concerned with how they compare with others. Nicholls' (1984) description of ego-involved students are those who want to perform better than their peers in order to demonstrate superior ability.

One of the reasons it is important to understand the differences in the definitions of the extrinsic goal orientation is because those theorists who focus on rewards do not believe that having an extrinsic goal orientation is detrimental to academic performance in contrast to other theorists who emphasize the consequences of reward. How this difference affects the way in which extrinsic goal orientation has been operationalized

and the conclusions reached about its effects on academic performance will be presented in the section, Review of the Literature.

In this study, extrinsic goal orientation is defined as a focus on rewards and grades rather than on social comparison or approval from others as per the general expectancy-value theory of self-regulated learning. Intrinsic goal orientation is defined as a focus on challenge, mastery, or understanding of the material to be learned. Both of these goal orientations are concerned with the product of learning. In other words, what does one want to accomplish when learning. When students adopt an intrinsic goal orientation, they are more concerned with the internal product of learning; to understand or to master the topic. When they adopt an extrinsic goal orientation, students focus on the external product; rewards or grades or approval from others.

Though it is acknowledged by proponents (Pintrich & Garcia, 1991; Pintrich & Schrauben, 1992) of the general expectancy-value model of self-regulated learning that students can have both an extrinsic and an intrinsic goal orientation, they also propose that students who are more intrinsically motivated not only work harder and persist longer at academic tasks but employ cognitive and metacognitive strategies more often than students who tend to be extrinsically motivated.

Why do students adopt different goal orientations? The general expectancy-value model does not offer a developmental explanation for this difference in goal orientations. The difference in these orientations seems dependent on the domain and on the characteristics of the environment. According to Pintrich and Schrauben (1992), "Goal orientation refers to students' general goals for their learning in a specific course or class"

(p. 157). Moreover, they propose that goal orientation is influenced by the environmental or structural characteristics of the classroom such as the nature of the tasks, reward structures, and students' perception of choice and control. Pintrich and Schaubren, recommend, for example, that students will adopt an intrinsic goal orientation by changing the authority structure within the classroom to allow for more student choice and in developing evaluation methods that focus on improvement and not on social comparison.

Task value.

In addition to goal orientation, the expectancy-value perspective includes task value as an important motivational component of self-regulated learning. Task value refers to students' beliefs about the importance of the task, the intrinsic interest in the task and the utility value of the task (Pintrich, 1989). For example, if a student envisions for himself a career as a psychologist, then a psychology course may be perceived as very important to the student (Pintrich & Schrauben, 1992). Interest is defined as an individual's general attitude or liking of the task or course. Utility value refers more to a students' perception that the course is useful to them and to their major or career and refers to the "ends" or instrumental motivation compared to interest which is considered to be a "means" or "process" motivation (Pintrich, 1989). According to Deci (1992) a student may take a specific course because it is instrumental or important for some extrinsic reason. In this case, the student may not be taking the course because they like the topic or because they find it important. Therefore, the student is not deemed to be

acting out of interest when the focus is on the utility value of the course. The other difficulty with utility value is that its definition is similar to extrinsic goal orientation in that the emphasis is on attaining or receiving some external goal or reward

Schiefele (1991) whose definition of interest is similar to Pintrich's (1989) definition of task value proposes that individual interest is always related to specific topics, tasks, or activities. According to Schiefele (1991) interest is made up of three components: feeling-related, value-related, and intrinsic character. The feeling-related characteristic refers to the positive feeling associated with the topic or task. The value-related characteristic refers to the attribution of personal significance to the object. In other words, does the involvement in the task contribute to one's personality development, competence, or understanding of important problems. The third component of interest is the intrinsic character of the task which is defined as involvement in the task for its own sake and not for any external reason, such as passing an exam. This third component seems closer in definition to "intrinsic" motivation as defined by Deci (1971) and is different from Pintrich's (1989) utility value component. For the purposes of my study, then, interest will be defined in accordance with Schiefele's (1991) definition and the first two components of task value as defined by Pintrich (1989). According to these definitions, then, the student is concerned with the process of learning in terms of the positive or negative feelings they have about a topic and the feelings of importance they attribute to the topic. Moreover, "individual interest is conceived as a relatively enduring preference for certain topics, subject areas, or activities" (Schiefele, 1991, p. 302). It is different from situational interest which is an emotional state induced by certain

situational stimuli and which is more short-lived than individual interest (Hidi, 1990; Schiefele, 1991).

Proponents of the general expectancy-value model of self-regulated learning (Pintrich & Schrauben, 1992) hypothesize that students who are interested in their courses and judge them to be important will employ more cognitive and metacognitive strategies more often than students who are not as interested in their course or who do not feel the course is important to them.

Summary

The general expectancy-value model of self-regulated learning is a complete model in that it incorporates both “skill” and “will” components. The skill components include metacognitive, cognitive, and resource management strategies. The cognitive and metacognitive strategies directly affect student performance while the resource management strategies are supportive of students’ efforts for completing tasks.

With respect to the “will” component, the general expectancy-value model includes an expectancy component which addresses the question of “Can I do the task”? and a value component which focuses on “Why am I doing the task”?

Control beliefs and self-efficacy are the expectancy components that address the former question. Self-efficacy, in particular, is based upon how students have performed in the past within the same domain. Self-efficacy as the only source of a student’s motivation to learn offers a limited explanation of student behaviour because students

often take courses in which they have little prior experience. This is especially true for college students.

Goal orientation and interest are the value components of motivation which address the latter question. Goal orientation may be either intrinsic or extrinsic. Intrinsic goal orientation is defined as a focus on mastery, challenge, or understanding. Extrinsic goal orientation is defined as a focus on rewards, grades, or approval from others. However, in the general expectancy-value theory the emphasis is on rewards or grades rather than on social comparison. Intrinsic goal orientation is assumed to be more supportive of students' use of learning strategies than an extrinsic goal orientation.

Interest or task value refers to students general liking of a course or topic and their feelings that the course or topic is important for them. Utility value is also a component of task value but is defined as a more "extrinsic" component of task value. Furthermore, students may feel a course is useful for them but do not like it or feel it is important. When this happens, the student is deemed not to be acting out of interest. Therefore, in my study, task value or interest, as it will be called, will be defined as the feelings of importance and general liking of a course or topic. According to the general expectancy-value theory, students with high interest in a course or topic are assumed to use more learning strategies than students with low interest in the topic.

Researchers proceeding from the general expectancy-value theory of self-regulated learning (Pintrich & Schrauben, 1992) have proposed that goal orientation may guide the general direction of the behaviour while interest may influence the strength or intensity of the behaviour. While this theory does not offer an explanation of how and

why this might occur, it does suggest that goal orientation is a more influential component of students' use of learning strategies than interest. The question of whether and how goal orientation and interest interact to affect students' use of learning strategies warrants further investigation in order to obtain a more thorough understanding of self-regulated learning and will be the focus of my study.

For this reason and the above-mentioned reasons, the research to be undertaken for this study will proceed from a general expectancy-value perspective and will focus on how goal orientation and interest interact to influence students' use of learning strategies.

Review of the Literature

This review of the literature begins with a summary of recent research on interest and task value and their effects on self-regulated learning strategies. Next, a summary of the research on goal orientation and learning strategies will be provided. Finally, a summary of the research on how goal orientation and interest interact to affect the use of learning strategies will be presented. From these summaries it will become evident that while research has demonstrated that interest and goal orientation are important motivational components of self-regulated learning, there is a paucity of research on how these two motivational components work together to influence students' use of learning strategies. Specifically, the research to date has not demonstrated how having an extrinsic or an intrinsic goal orientation affects students' employment of learning strategies when they have either high interest or low interest in a topic or domain. The focus of the research to be undertaken for this thesis will focus on this interaction between goal orientation and interest on students' use of learning strategies. The specific hypotheses relating to this interaction will be provided at the end of this review of the literature.

Interest

Interest, as a motivational component of academic learning is not new to the educational literature. Dewey (1913) proposed that interest-based learning differed qualitatively from learning based only on effort. According to Dewey, learning based on effort resulted in trained knowledge lacking any purpose or worth while interest-based learning was an active, propulsive state based on real objects which had high personal meaning for the learner (Schiefele, 1991). The general expectancy-value model of self-regulated learning also includes interest or task value as an important motivational component of academic learning. The difference between the general expectancy-value model and the Dewey's model is that the former offers an explanation of how interest affects learning through the use of learning strategies while the latter does not make this link. Researchers (Pintrich, 1989; Pintrich & Garcia, 1991; Pintrich & Schrauben, 1992) proceeding from the general expectancy-value model propose that when task value or interest is high, students will use more learning strategies and use them more often than when interest is low.

Research conducted over the last decade has provided support for this hypothesis. In a study by Pintrich (1989), college students studying English, Biology, or Psychology in three different educational institutions were asked to rate their task value for one of these courses on the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich, Smith, Garcia, McKeachie, 1991). They were also asked to rate their use of various learning strategies. The results from this study (Pintrich, 1989) showed a significant positive correlation between high task value and the use of the cognitive strategies;

rehearsal, elaboration, and organization. There was also a significant positive correlation with the metacognitive strategies; planning, monitoring, and regulating. There was a significant positive correlation for effort management though there was no correlation for the other resource management strategies such as time management, study environment, and help-seeking. Pokay and Blumenfeld (1990) found similar results in a study conducted with high school students enrolled in a geometry course. In this study, high task value was significantly correlated in a positive way with both cognitive and metacognitive strategies early and late in the semester. In a study with German university students, Schiefele, Winteler, & Krapp (cited in Schiefele, 1991), found a significant positive correlation between interest and the use of elaboration and information seeking strategies. Interest did not correlate with the use of organizational strategies or time management. There was a significant negative correlation between rehearsal strategies and interest. This study, however, did not examine the correlation between interest and metacognitive strategies. Interest in this study was measured by three subscales which assessed students' feeling-related and value-related valences and the intrinsic nature of their major.

In summary, these studies support the hypothesis that students who are interested in a particular course or concentration of courses (one's major) will use more strategies than students who are less interested in the course. In particular, students with high interest used more cognitive and metacognitive strategies than students with low interest. In contrast, resource management strategies were not related to interest except for information-seeking and effort management strategies. Though these studies generally

supported the hypothesis stated above, these studies also had some important differences as to which particular strategies were linked with interest. The studies by Pintrich (1989) and Pokay and Blumenfeld (1991) found a significant positive correlation between the use of all types of cognitive strategies while the study by Schiefele, Winteler, and Krapp (cited in Schiefele, 1991) found a significant positive correlation between interest and the elaboration strategies only and a significant negative correlation between interest and rehearsal strategies.

One of the reasons for the different results may be that the Pintrich (1989) and the Pokay and Blumenfeld (1991) studies used similar instruments to measure both interest and learning strategies while the Schiefele, Winteler, and Krapp study (cited in Schiefele, 1991) used a different measure for interest though the cognitive strategies measure in the latter study was very similar to the first two studies. The results may also have been different because the first two studies were conducted with American students while the latter with German university students. There may have been a cultural difference that affected the students' preferences for using certain types of strategies (Purdie & Hathie, 1996). Though these studies provide evidence for the correlation between interest and the use of cognitive and metacognitive strategies, they are limited in providing actual data on how interest affects the use of strategies because the students were asked to self report on which strategies they use most often and then these measures of strategy use were correlated with their interest in a particular course. A more precise method of assessing which strategies students actually use may be to examine how interest affects the use of learning strategies on specific learning tasks.

A series of studies designed to assess the influence of interest on text processing conducted by Schiefele (1990) and Schiefele, Winteler, & Krapp (cited in Schiefele, 1991), provided actual data on which strategies students used in reading a specific text. These studies will be described here in some detail as they provide rich data on how interest affects the use of learning strategies on a specific learning task as well as addressing issues such as the effects of prior knowledge and ability on interest in a particular topic.

Students' prior knowledge is important to study because it is a possible confound in the measurement of interest. For example, in a study conducted by Alexander, Kulikowich and Schulze (1994) students with more subject-matter knowledge gave higher ratings for interest on a specific text than students with less subject-matter knowledge. Prior knowledge can also affect students' reading comprehension. In a study of doctoral students in anthropology and chemistry, Affenbach (1990) demonstrated that these expert readers were able to construct the main ideas from text more often when reading texts about familiar topics. Research on the separate influences of ability and interest on the use of learning strategies is required because advocates of the self-regulated model of learning have proposed that self-regulation is separate from ability (Zimmerman & Risenberg, in press) and, therefore, a more hopeful model for changing student behaviour (Pintrich & Garcia, 1994). Two studies (Schiefele, 1990; Schiefele & Krapp, cited in Schiefele, 1991) were designed to assess the influence of prior knowledge and ability on interest and reading comprehension.

In the first study (Schiefele, 1990) fifty-three German male university students majoring in computer science were given a short summary of a psychology text and asked to rate their interest in the text on a questionnaire. The Likert questionnaire assessed students' feeling-related and value-related valences. The sample was divided into two groups, a high-interest group and a low-interest group, based on a median split of the total score for this questionnaire. Students were also assessed for prior knowledge and ability. Prior knowledge was assessed through the five open-ended questions based on the text and an association test. Ability was assessed using subscales of the WILDE-Intelligence-Test which evaluated short-term memory (STM) capacity, verbal intelligence, and reasoning and fluency. Two to four weeks after this pre-testing stage, students were given a five-page article on "Psychology of Emotion" taken from a psychology text. After reading the text, the students were given twelve questions to answer to assess their comprehension of the text. Six of these questions were simple questions which asked students about concrete details contained in the text. Three questions were considered complex in that they pertained to extensive passages in the text and three questions were considered deep comprehension questions because they required students to recombine or compare different aspects of the text. The results from this study were a main effect for interest. Prior knowledge was not correlated with the measures of comprehension. Ability as measured by the intelligence test correlated only with the simple questions. The most important results of this study as they relate to learning strategies is that students in the high-interest group underlined and made notes in the margin of the text

and said they tried to paraphrase the text in their own words more often than low-interest students.

In the second study, Schiefele and Krapp (cited in Schiefele, 1991) asked eighty-one male university students in Germany students to read a text entitled "Communication". As in the first study, students were asked to rate their interest on the text using the same Likert-type questionnaire. They were also given a prior knowledge test and an intelligence test. This study differed from the first study in that the students in the second study were asked to freely recall as much as the text as possible instead of answering questions about the text. The dependent variables used to assess the effect of interest on comprehension were the number of inferred propositions, the number of completely and incompletely recalled main ideas and the degree of coherence of the recall protocol. Results from this study were a significant correlation between prior knowledge and interest though this correlation was modest ($r=.26$). The correlation between general intelligence and interest was not significant. Results from the dependent measures on comprehension showed a significant positive correlation between production of inferences, number of correctly recalled main ideas and coherence of the recall. With respect to learning strategies, there was a significant positive correlation between the number of underlined words and notes made in the margin and the self-report of the paraphrasing of ideas. Similar results pertaining to the use of the above-mentioned learning strategies were also obtained in the first study (Schiefele, 1990). These learning strategies encompassed rehearsal strategies (underlining), elaboration strategies (paraphrasing) and organizational strategies (main ideas).

The two studies described above on text processing support the general expectancy-value hypothesis that high interest in a topic facilitates the use of learning strategies. Moreover, it was demonstrated that the correlation between interest and the use of learning strategies is independent of ability. Mixed results were obtained on the measure of prior knowledge. One of the reasons for this difference is that students in the second study had more prior knowledge of their topic compared to students in the first study. The study by Affenbach (1990) mentioned above in which students with extensive domain-specific knowledge had higher interest ratings than students with less domain knowledge lends supports to this explanation. Therefore, it is possible that prior knowledge influences interest when it is extensive.

Based on these text-based studies as well as the correlational study described above Schiefele (1991) concludes that interest is an important motivator for the use of learning strategies that facilitate deep processing . However, these studies were also limited for the following reasons. First, the finding that the recall of main ideas was correlated to interest was a measurement of retrieval rather than an analysis of the actual main ideas students selected while processing the text (Schiefele, 1990). It is important to know how interest affects students' actual selection of main ideas from text because being able to select main ideas from text or "the ability to separate the important from the unimportant" is essential to effective comprehension (Dole, Duffy, Roehler & Pearson, 1991, p. 244). Yet, research has show that finding the main ideas in a text is a difficult task (Pressley, Ghatala, Woloshyn, & Pirie, 1990).

Second, though paraphrasing was found to be positively correlated with interest in both studies, there was no direct measure of paraphrasing. Instead, students were asked to self-report on whether they paraphrased or not. Another limitation of these studies is that the metacognitive learning strategies were not assessed. These strategies include planning, monitoring, and regulating cognition. According to Pressley and Ghatala (1990) these strategies, especially monitoring, are considered vital for the understanding of text. Therefore, a study is required that will include behavioural measures of main idea selection and paraphrasing as well as the measurement of the metacognitive strategies to assess the effects of interest on students' of learning strategies while processing text.

Though Schiefele (1991) concludes that interest is an important motivator for the use of learning strategies he also concedes that the differences observed between the high-interest and low-interest subjects in the first study could be due to other motivational factors. He states: “. . .the subjects with low interest are equally capable of correctly answering a question of understanding, but are simply not motivated to go through the trouble to do so” (Schiefele, 1990, p. 335). What other motivational factors could be involved? As presented earlier, the general expectancy-value model of self-regulated learning proposes that the goals students have towards learning, either intrinsic or extrinsic, are also important motivators for students' use of learning strategies. In the next section, a selected review of the research on goal orientation and learning strategies will be presented.

Goal Orientation

Researchers proceeding from the general expectancy-value model of self-regulated learning propose that students who adopt an intrinsic goal orientation to learning employ cognitive and metacognitive strategies more often than students who tend to have an extrinsic goal orientation (Pintrich, 1989; Pintrich & Garcia, 1991; Pintrich & Schrauben, 1992). In the general expectancy-value model, intrinsic goal orientation is defined as an approach to learning which focuses on mastery, challenge, or curiosity. Extrinsic goal orientation is defined as an approach to learning tasks with a focus on grades, rewards, or approval from others.

Results from studies of college students found a significant positive correlation between reported high levels of intrinsic goal orientation and frequent use of rehearsal, organization, metacognition, and effort management strategies (Pintrich, 1989; Pintrich & Garcia, 1991) It was also found that students who reported being high in intrinsic goal orientation performed at higher levels on exams, essays, and final grades compared to students low in intrinsic motivation (Pintrich, 1989). These findings confirmed results from earlier studies that found students who adopted an intrinsic goal orientation reported using learning strategies more often than students who adopted an extrinsic goal orientation (Meece, Blumenfeld & Hoyle, 1988; Nolen, 1988). These studies lend support to the general expectancy-value model hypothesis that an intrinsic goal orientation facilitates the frequent use of a variety of learning strategies compared to an extrinsic goal orientation.

Yet, having an extrinsic goal orientation is not necessarily detrimental to the facilitation of using learning strategies according to Pinrich and Garcia (1991). In their (1991) study, they examined the interactions between intrinsic and extrinsic goal orientation. Results from this study showed that students who were classified as high intrinsic/low extrinsic had the highest reported use of metacognitive and cognitive strategies such as elaboration and organization, while the lowest average level of elaboration/organization strategies and metacognitive strategies was in the low intrinsic group regardless of extrinsic orientation. However, students who had high extrinsic but low intrinsic goal orientation showed higher levels of cognitive and metacognitive strategy use than students who were low in both intrinsic and extrinsic goal orientations. Pintrich and Garcia (1991) interpreted these above-mentioned results as follows. Students' frequent use of metacognitive and cognitive strategies seemed to be most facilitated when students adopted an intrinsic goal orientation. When students did not adopt this goal orientation, an extrinsic goal orientation also facilitated the use of metacognitive and cognitive strategies though not to the same degree as the intrinsic goal orientation.

By contrast, Nolen (1988) and Meece, Blumenfeld, and Hoyle (1988) conclude that having an extrinsic-type goal orientation is not conducive in facilitating the use of learning strategies. The difference in the conclusions reached by the proponents of the general expectancy-value model of self-regulated learning and the above-mentioned researchers may be due to how each researcher defined the extrinsic-type goal orientation. As presented in the section on theoretical perspectives, the general expectancy-value

model defines extrinsic goal orientation as an approach to learning that focuses on grades, rewards, or approval from others (Pintrich, 1989; Pintrich & Garcia, 1991). This definition focuses on an externally-controlled variable which can be readily identified (see Deci, 1971). The definitions offered by Nolen (1988) and Meece et al (1988) involve the consequences of attaining a reward. Nolen's definition of ego involvement involves a desire for superior performance relative to other people. Meece et al's definition of ego-goals concern students' demonstration of high ability or pleasing the teacher. Though the definitions provided by Nolen and Meece et al do not explicitly state that students are oriented towards receiving grades or rewards, their definitions imply that this is indeed the case for how else could student's demonstrate superior ability or please the teacher unless they focused on obtaining rewards such as high grades.

But does the desire to receive high grades necessarily mean that students do so merely to please the teacher or to demonstrate superior performance by outperforming others? This may be the case for some students. However, it may also be that some students perceive grades as feedback in letting them know how they are progressing towards their learning goals. Furthermore, being high in both goal orientations may be very adaptive, especially for older students whose work is primarily evaluated through grades (Pintrich & Garcia, 1991). In other words, grades may serve as feedback in terms of how much effort a student is putting in and how much effort may be needed or as feedback on how effective are the learning strategies being employed to achieve learning goals. Therefore, having an extrinsic goal orientation is not necessarily detrimental to facilitating the use of learning strategies.

What is the nature, though, of these goal orientations? Are they global traits of the individual or are they domain or situation specific? Pintrich and Schrauben (1992) have suggested that goal orientation is considered to be more global and “carried by the person as they confront different tasks” (p. 174.). Nolen (1988) proposed that goal orientation is a fairly stable trait because she found that general motivational scales were positively correlated with task-specific motivational measures in her study. In contrast other studies have presented evidence which showed that being intrinsically motivated is differentiated into different subject domains as well as being a general orientation (Gotfried, 1985, 1990). In the (1985) study, Gotfried demonstrated that intrinsic goal orientation is differentiated into subject domains when it is correlated with non-cognitive measures such as academic anxiety and the perception of academic competence. On the other hand, a measure of general intrinsic goal orientation was correlated with achievement. How are these results to be interpreted with respect to self-regulation? It may be that students have a predominant goal orientation, either intrinsic or extrinsic, as they approach learning tasks in general. Yet, this goal orientation may be affected or modified by the particular domain in which they are learning and, hence, their employment of cognitive and metacognitive strategies. Furthermore, students’ goal orientation may be influenced or modified by their learning environment. How the learning environment affects students use of learning strategies is important to understand if the educational community is to design interventions that will facilitate the use of these strategies.

The general expectancy-value model of self-regulated learning has proposed that students' adoption either an intrinsic or extrinsic goal orientation is influenced by the environmental or structural characteristics of the learning environment such as the nature of the tasks, reward structures, and student perception of choice and control (Pintrich & Schrauben, 1992). Research has shown that the goal orientation students' adopt is influenced by the environment. In a study of high-achieving high school students, Ames and Archer (1988) found that students perceived their classes as having either a predominantly mastery or intrinsic goal orientation or a predominantly performance or extrinsic goal orientation. Meece (1991) found that students' adoption of an intrinsic or mastery orientation was related to differences in teachers' approaches to learning. In this study, Meece investigated the characteristics of the classroom environment to explain differences in fifth and sixth grade students' goal orientations in relation to teacher differences. Students who reported having a mastery orientation had teachers who promoted meaningful learning and emphasized the intrinsic value of learning. The use of grades or evaluations were not emphasized. In contrast, students who did not adopt an intrinsic goal orientation had teachers who emphasized grades and who concentrated their learning activities on the transmission of recall of simple facts and information. With respect to the effects of goal orientation on the use of learning strategies, the Ames and Archer (1988) study found that students who perceived their classes as having a predominantly mastery orientation reported using more learning strategies than students who felt their classes mostly emphasized performance goals.

Students' goal orientation can also be influenced by instructions provided to students in an experimental setting. A study conducted with elementary school children (Graham & Golen, 1991) was designed to examine the effects of the manipulation of two motivational variables, task involvement versus ego involvement, on information processing variables. One group, designated the task-involved group, was told to concentrate on the task at hand and to enjoy mastering it. In the second group, the children were told that the experimenter would know how well they did on the task in comparison to other children of the same age. Results from this study showed that when the task required deeper levels of processing, task-involved children had better recall than ego-involved children.

In summary, students adoption of an intrinsic goal orientation facilitates the use of cognitive and metacognitive strategies to a greater extent than the adoption of an extrinsic goal orientation. Yet, having an extrinsic goal orientation is not detrimental to students' use of learning strategies. Students' intrinsic goal orientation has been found to be a general orientation but can also be differentiated into subject domains. Therefore, goal orientation can also be domain specific. The goal orientations students' adopt are also influenced by the environment, either in the classroom or in the laboratory. Students' perception of the learning orientation in the classroom is correlated with the use of cognitive and metacognitive strategies. What is not known is how the adoption of an intrinsic or extrinsic goal orientation interacts with interest in a particular domain on students' use of learning strategies. The focus of the next section is to present selected research on the interaction between goal orientation and interest.

Goal Orientation and Interest

Research to date has found a positive correlation between high interest (Pintrich, 1989; Pokay & Blumenfeld, 1990; Schiefele, 1991), intrinsic goal orientation (Ames & Archer, 1988; Pintrich, 1989; Pintrich & Garcia, 1991) and students' use of learning strategies. However, this research has examined the linear relationships between each of these motivational components and self-regulated learning strategies. There is a paucity of research on how these two motivational components operate together to influence students' use of these strategies.

A study by Pintrich & Garcia (1991) found a significant positive correlation between adoption of an intrinsic goal orientation and task value but no correlation between task value and an extrinsic goal orientation. Moreover, as the levels of intrinsic goal orientation increased so did the levels of task value, use of cognitive and metacognitive strategies also increase. While these results provide us with information on the correlations among task value, intrinsic goal orientation, and learning strategies, we cannot conclude with any degree of certainty that the combination of high task value and intrinsic goal orientation causes students to use more learning strategies than a combination of high interest and an extrinsic goal orientation. This study also does not give us any information as to which goal orientation is more supportive of the use of learning strategies when interest is low.

Unfortunately, the literature to date on self-regulated learning does not provide us with information on how these two motivational components operate together to

influence students' use of learning strategies. However, there are a number of studies that have examined how the use of rewards affects students' interest when this interest is high (Deci, 1971; Greene, Sternberg, & Lepper, 1976; Lepper & Greene, 1975; Lepper, Greene & Nisbett, 1973) in a topic or activity and when interest is low (Calder & Staw, 1975; Loveland & Olley, 1979; McLoyd, 1979). In my study, extrinsic goal orientation is defined as a focus on grades or rewards rather than on social comparison. Moreover, the definition and/or operationalization of the term intrinsic motivation used in these studies is similar to the definition of interest used in my study. These studies, then, may provide us with information that would be helpful in formulating a hypothesis on whether goal orientation and interest interact to affect students' use of learning strategies. This review of the literature begins with an examination of the studies that looked at the effects of reward when interest is high in a topic or activity.

Rewards and High Interest

One of the earliest and most well-known studies on the effects of rewards on intrinsic motivation or interest is Deci's (1971) study. In this study, Deci defined intrinsic motivation as performing an activity for no apparent reason except the activity itself but operationalized this definition as interest in the particular activity. Deci chose a puzzle that he assumed would be intrinsically motivating to the participants in the study and then asked them at the conclusion of the experiment if they found the puzzle interesting and enjoyable. He also correlated their rating of the puzzle with the amount of time they spent on the task (the free-time measure). Therefore, Deci's definition of intrinsic

motivation is more similar to interest than to intrinsic goal orientation. Deci hypothesized that students who were given a reward for playing with the puzzle would spend less time on it than students who were not offered the reward. The results of his study confirmed this hypothesis.

Another early study which supported Deci's (1971) conclusion was conducted by Lepper, Greene, and Nisbett (1973). Lepper et al examined the effect of rewards on pre-school children's initial high interest in a drawing activity. The children who were selected for the study were observed spending the most amount of time drawing prior to the commencement of the experiment. Lepper et al hypothesized that subjects who expected a reward would show less subsequent intrinsic interest in a target activity than subjects who did not receive a reward. The results showed that children in the expected reward condition spent less time playing with the drawing materials than children in the other conditions which included a no-reward and an unexpected reward condition. Similar results on the negative effect of reward on high interest were obtained in subsequent studies (Greene, Sternberg, & Lepper, 1976; Lepper & Greene, 1975).

These results were explained in terms of the over-justification hypothesis. According to the over-justification hypothesis, a person will attribute his behaviour to controlling circumstances such as the offer of rewards rather than attributing their behaviour to their own "dispositions, interest, and desires" (Lepper, Greene, & Nisbett, 1973, p. 129). In other words, when an individual is already motivated to do something which interests them such as painting or reading, offering rewards for this interesting activity will cause them to shift their perceptions from self-initiating behaviour to the

external-controlling rewards. Therefore, they will tend to discount their interest in the activity because the reward offers a stronger justification for doing the task (Eisenberger & Cameron, 1996). As a result, there will be a decrease in initial high interest in an activity when a reward is offered.

Therefore, one can conclude from these studies that when individuals have high interest in an activity or topic, offering them a reward will lead to a decrease in interest in the activity and a subsequent decrease in involvement in the activity. While these studies examined the effects of reward on non-academic activities such as solving puzzles or drawing, we can infer from these results how rewards could affect the use of learning strategies when students have high interest in a topic. How reward interacts with interest to affect students use of learning strategies will be provided in the summary.

The preceding discussion and review of the literature focused on the effects of goal orientation when interest is high. What are the effects of goal orientation when interest is low? The next section will review the literature on the effects of reward when interest is low compared to when interest is high. A review of the literature revealed few studies that have dealt with this question.

Rewards and Low Interest

An early study by Calder and Staw (1975) conducted with college students looked at how rewards affected students' enjoyment ratings for a high interest puzzle compared to a low interest puzzle. The results of this study showed that the introduction of money as a reward significantly decreased the students enjoyment ratings for the high interest

puzzle but not for the low interest puzzle. A study by Loveland and Olley (1979) found that children who were classified as having high interest in a drawing activity lost interest in the activity when offered a reward while the low-interest children who received a reward for engaging in the activity gained interest.

Similar results were reported by McLoyd (1979) who examined the effects of rewards on children's interest in reading storybooks. McLoyd found that children who had high initial interest in a story subsequently lost interest when offered a reward. In contrast, low interest children gained interest when offered a reward. The reward that was offered was not based on any assumption by the researcher as to which rewards would be valued by the children. In this study, the children were given a choice of rewards and McLoyd rated these rewards as high-value and low-value rewards. When comparing the effects of these rewards, McLoyd found that children who had low interest in the activity spent more time with and read significantly more words in the high-value reward condition than in the low-value and no-reward conditions. Therefore, this study demonstrates when examining the effects of rewards on behaviour, it is important to take into account the individual's preference for the reward.

The conclusion that can be drawn from these above-mentioned studies is that offering rewards when interest is low can be beneficial in increasing interest in the target activity. Lepper and Hodell (1989) state that when tangible rewards are based on performance and give students clear positive information about their competence, the rewards are not likely to undermine interest. A recent meta-analysis (Cameron & Pierce,

1994) which reviewed 96 experimental studies conducted over the last twenty years on the effects of reward on interest supports Lepper and Hodell's hypothesis.

In this review, intrinsic motivation was defined as doing an activity for no apparent reward except the activity itself. Studies which included both free-time measures and self-report measures of interest were included in the meta-analysis and were considered to be examples of "intrinsic motivation". Extrinsic motivation was defined as an externally controlled variable which could be readily identified.

The conclusions reached through this meta-analysis were as follows. First, offering a reward does not decrease intrinsic motivation or interest in general. With respect to different types of rewards, it was found that verbal praise enhances intrinsic motivation. Tangible rewards had no effect if the subjects did not expect to receive a reward. Expected tangible rewards were shown to increase intrinsic motivation when subjects were offered a reward for performance to a set of standards. There was a small negative effect when tangible rewards were promised without regard to the standard of performance. In this case, the reward may be seen as a bribe for participation rather than as serving as feedback about the student's competence and ability (Lepper & Hodell, 1989). One can conclude from this meta-analysis that offering someone a reward for performance when they have an interest in the activity is not detrimental to their interest in the activity. Moreover, when the reward is dependent upon attaining a certain standard of performance, interest in the activity may increase. However, since the meta-analysis did not compare the effects of reward on high interest versus low interest, it cannot be

concluded with any certainty that offering a reward is as beneficial for individuals with high interest in a topic or activity compared to low-interest individuals.

Summary

According to the general-expectancy-value theory of self-regulated learning, goal orientation and interest are two important motivational components that influence students' use of learning strategies. Intrinsic goal orientation is assumed to be more supportive of strategy use than extrinsic goal orientation. Similarly, high interest is assumed to be more supportive of learning strategies than low interest. The research described in this Review of the Literature provides support for these two hypotheses.

Researchers (Pintrich, 1989; Pintrich & Garcia, 1991; Pintrich & Schrauben, 1992) proceeding from a general expectancy value theory of self-regulated learning have also proposed that goal orientation guides the general direction of student behaviour while interest may influence the strength or intensity of the behaviour. However, they have not explained how and why this may occur. Their hypothesis could be interpreted as follows. If goal orientation guides the general direction of the behaviour, then goal orientation could be considered to be a more important influence on students' use of learning strategies than interest. In other words, interest would appear to be subordinate to goal orientation in a hierarchy of motivational components. Therefore, one could infer from the general expectancy-value theory that it is the type of motivational component which is important in determining the general direction of the behaviour. In this case, goal orientation which is a product-type motivation is more influential and important on

students' use of learning strategies than interest which is a process-type motivational component.

One could also infer from this theory that if goal orientation guides the general direction of the behaviour, intrinsic goal orientation would be more supportive of the use of learning strategies than extrinsic goal orientation when interest is high. The research presented in the Review of the Literature provides only indirect support for this hypothesis. Pintrich and Garcia concluded from their (1991) study that having an intrinsic goal orientation led to greater use of self-regulated learning strategies compared to having an extrinsic goal orientation. In addition, high task value was correlated with having an intrinsic goal orientation but not with an extrinsic goal orientation.

The overjustification hypothesis provides an explanation and research as to why a focus on rewards may decrease interest. According to this hypothesis (Lepper, Nisbett & Greene, 1973), when individuals are offered rewards for something they already have high interest, the reward provides a stronger reason or overjustification for engaging in the activity than the interest itself. Therefore, the person attributes their interest to the reward and not to their own interest and their interest then decreases.

In this case, then, it is the source of the motivation which is important. Interest can be considered to be an internal source of motivation because it stems from own' one desires or needs. When someone is offered a reward, this external source of motivation will cancel out or negate the internal source of motivation.

If we apply the overjustification hypothesis to the use of learning strategies, we could make the following prediction. When students have high interest in a topic and

they approach learning this topic with a focus on mastery, challenge, or understanding, they will use more learning strategies than when they are offered a reward because the interest in the topic and the adoption of an intrinsic goal orientation are complementary. Schiefele (1990) writes that when a person is interested in a topic, they want to learn about it for its own sake and do not need the inducements of a reward. Moreover, the student will attribute their motivation to their own interests and goals and not to some external-controlled variable such as rewards. However, when a student is offered a reward for doing an activity, they would attribute their motivation to the reward and not their own interest. Therefore, the offer of the reward would diminish their interest and, hence, their use of learning strategies.

The overjustification hypothesis does not offer an explanation of how reward affects interest when it is low. One of the criticisms of the overjustification hypothesis is that it has only focused on the detrimental effects of reward on interest when that interest is high (Zimmerman, 1985).

With respect to the operation of goal orientation on low interest and the use of learning strategies, the general expectancy-value theory would also suggest that students who have an extrinsic goal orientation and have low interest in the text would use these strategies less often than students who have low interest but an intrinsic goal orientation. However, other researchers have suggested that offering a tangible reward to students who have low interest in a topic or activity may prompt them to develop interest (Lepper & Hodell, 1989; Zimmerman, 1985). The studies presented in the Review of the Literature lends support to this hypothesis (Calder & Staw, 1975; Loveland & Olley,

1979; McLoyd, 1979). The reward, however, should be contingent upon reaching some level of performance if it is to be effective (Cameron & Pierce, 1994).

The above-mentioned studies and the meta-analysis did not examine the effects of rewards on the use of learning strategies when interest is low. We can infer from these studies that offering a reward to students when their interest is low in a topic or activity may help to increase their interest and support the use of learning strategies.

Consequently, their use of learning strategies should be greater when they are rewarded than when they are encouraged to adopt an intrinsic goal orientation. In the latter condition it might be very difficult for students to use learning strategies because they will not derive motivation from the topic or activity itself or from the offer of a reward. Moreover, the combination of these two sources of motivation are “underjustified” (Zimmerman, 1985) in that there is a lack of an internal and external source of motivation. In the former condition, the student may not be interested in the topic or activity itself, but the offer of a reward might compensate for this lack of interest and encourage them to use learning strategies. While in this case, the internal source of motivation is lacking, there is an external source of motivation which may justify their involvement with the task or topic.

Goals and Design of the Present Investigation

Proceeding from a general expectancy-value perspective of self-regulated learning, the aim of this study was to investigate whether goal orientation and interest interact to affect students' use of learning strategies. One of the objectives of this study was to determine which motivational component is more influential on student behaviour. In other words, is it goal orientation or interest which guides the general direction of the behaviour? Is it goal orientation or interest which determines the strength or intensity of the behaviour? Answers to these questions would provide information which would clarify how these motivational components interact to influence student use of learning strategies as suggested by the general expectancy-value theory of self-regulated learning.

Another objective of this thesis was to study self-regulation experimentally. Most of the literature to date in self-regulation has been correlational (Pintrich, 1989; Pintrich & Garcia, 1991; Pokay & Blumenfeld, 1990, Schiefele, 1991; Zimmerman & Martinez-Pons, 1986; Zimmerman & Martinez-Pons, 1991). This approach is well suited in identifying the strength of the relationships between the various motivational components and learning strategies involved in self-regulated learning. However, it is only through experimental studies where the independent variable (or variables) is manipulated by the experimenter that firm conclusions can be drawn about the variable's causal effects on the dependent variable (Gay, 1992). Therefore, experimental studies are needed to obtain a theoretical understanding of the combined influence of goal orientation and interest on students' use of learning strategies.

Moreover, if researchers are going to recommend to teachers and trainers ways to increase student's use of self-regulated learning strategies, solid evidence gained through experimental studies is vital as the teaching of these strategies in the classroom will involve considerable time and effort (Borkowski et al, 1990). Teachers need to know understand how motivation affects the use of learning strategies so that they can design learning environments that facilitate the use of these strategies. For example, they need to know how to encourage a student to use learning strategies when their interest in a topic is low and when it is high. Should they encourage this student to adopt an intrinsic or extrinsic goal orientation in learning this topic? The main goal of this thesis was to provide answers to these questions.

This study examined the cognitive and metacognitive strategies students used while processing text in which they are assumed to have little prior knowledge. The focus was on the cognitive and metacognitive strategies because these were found to be more often correlated with both interest and goal orientation than the resource management strategies. The focus was on identifying the main ideas in the text as the central cognitive strategy as the research to date has not shown how interest and goal orientation interact to affect the use of this vital learning strategy for reading comprehension. Additional cognitive strategies, such as rehearsal and elaboration, and metacognitive strategies were also measured.

The specific hypotheses for this study are as follows:

Students who have high interest in a text and are encouraged to adopt an intrinsic goal orientation will use more cognitive and metacognitive strategies than students who have high interest in the text but are offered a reward. Students with low interest who are

offered a reward will use more cognitive and metacognitive strategies than students who have low interest but are encouraged to adopt an intrinsic goal orientation. Specifically, students in the high interest/intrinsic goal condition and the low interest/reward condition will select more main ideas from text, use more rehearsal and elaboration strategies, and use more metacognitive strategies than students in the high interest/reward and low interest/intrinsic goal orientation conditions.

Method

Participants

One hundred and eleven grade eleven students from a high school located in a middle-class suburb of Montreal, Canada consented to participate in this study. The school was selected by the local school board in consultation with the principal. The economics classes were selected by the principal in conjunction with the researcher because all students in grade 11 were required to take this course. The classes were mixed ability.

The average age of the students was 16 years old. There were 51 female and 60 male students. Thirty-five percent of the students had received their elementary school education in English only, 47% had followed the French immersion program, and 15% had studied in French only at the elementary school level. Three percent of the students had neither studied in English or in French at the elementary school level. The average score for the students' assessment of their reading ability in English was "4" on a five-point scale; "4" representing very good and "5" excellent. Eighty-seven percent of the students planned to go on to college or CEGEP after graduation from grade eleven.

Grade 11 students were chosen for this study because it was assumed that these students had some experience in the selection of main ideas from text and would also have the required vocabulary to understand a first-year college text in psychology. This population was also chosen because it was expected that they would have little or no prior knowledge of the contents of the text as compared to first-year CEGEP students who may

have been enrolled in a psychology course or had friends who were. The study was conducted in the winter semester with two visits during a two-week period when the five classes were held on the same day though at different times. The days and times for each session was selected by the principal in consultation with the teachers and the researcher.

Though 111 students consented to participate in the study, there was sufficient data for analysis of only 94 students. Seventeen students were eliminated from the study because they were not present for the testing session on selection of main ideas. An examination of the demographic information on these seventeen students revealed that the missing values were scattered randomly throughout the data.

Design and Variables

The design for this study was a 2x2 between-groups factorial post-test only control group design with students randomly assigned to the goal orientation condition. This design is robust to all sources of threats to internal validity (Campbell & Stanley, 1963). The testing session for the study occurred on the same day for all subjects. Though subjects were lost from the first session where interest and demographic information was collected, the treatment conditions for the study were only assigned on the day of the testing session.

There were two independent variables: goal orientation (intrinsic versus extrinsic) and interest (high versus low). The manipulated variable was goal orientation. Interest was a classification variable in which students were classified as either high interest or low interest based on a questionnaire.

There were three dependent variables: two behavioural measures and one self-report measure. The two behavioural measures were the total of main ideas selected and written down by the student and a composite score of additional cognitive strategies used by the students in processing the text. The self-report measure assessed students' use of metacognitive strategies. Students' mid-term grade average served as the covariate. Demographic information was collected for descriptive purposes and as a way of validating the interest measure.

Materials

A thirty-minute workshop was designed to instruct students in finding main ideas because research has shown that finding main ideas in text is a difficult task even for adults (Pressley et al, 1990). The training materials for the workshop were a student handout given to each student in the study and an instructor's script used for training the students. A description of each is given below.

Training Materials

Student handouts.

All the students in the study were given a handout which consisted of seven pages of material (See Appendix A). The handout was given out as a part of a workshop all students received in the selection of main ideas prior to the testing session. A description of how the workshop was conducted is included in the Procedures section.

The first two pages of the seven-page handout consisted of four examples. The examples were used to illustrate how to select or construct main ideas from text. Example # 1, Example # 2, and Example # 3 were taken from Reading and Study Skills (Grant, 1989) which was written to help college students learn to use different learning strategies. Example # 1 was taken verbatim from this text. Example # 2 was changed by dropping certain sentences and rewriting others to make them clearer in meaning. Example # 3 was changed by dropping a clause from one sentence because the language was considered to be too technical for high school students. Example # 4 was extracted from a text entitled Psychology, second edition (Wade & Tavris, 1990). The passage was taken verbatim from the text. However, three out of the six original paragraphs were dropped. This was done to keep the passage short while still retaining the essential meaning of the passage so that the workshop could be completed in the allotted time of 30 minutes. Three concept maps were also handed out with the examples. Concept map # 1 listed as Handout # 1 relates to example #1. Concept map # 2 listed as Handout # 2 relates to example # 2. These concept maps were created by the researcher. The third concept map, Handout # 3, was taken verbatim from the Grant (1989) text. There was no concept map for example # 4. Concept maps were used to visually illustrate how the subordinate ideas were related to the main ideas. The handout included a summary of what students had been taught during the workshop.

The examples, the concept maps, the summary sheet as well as the instructor's script (to be described in the next section) were shown to a consultant for her comments and suggestions for improvement. The consultant had many years experience in the

design of workshops for adults and had recently completed a self-directed module on the selection of main ideas from text for a major banking association. She suggested that a glossary of unfamiliar terms and definitions contained in the examples be provided to the students. She felt that the concept maps were an excellent way to show students the hierarchical relationships between main ideas and supporting ideas. Her comments on the instructor's script are included in the next section.

The material which included the four examples and the summary sheet were piloted in a workshop with 14 students from a second year biology class at the CEGEP level. On average, the students rated their reading ability of English as good. This represented the mid-point between poor and excellent on a five-point scale. Prior to attending CEGEP, four of the students had studied in English, two had studied in French, and three had followed a French immersion program. Two students had received their education in a language other than English or French and three students did not answer the question. The students found all the examples easy to understand. They were provided with space at the end of the questionnaire to write down any words they did not understand. The glossary included in the handout package for the study participants was made up of these terms.

Instructor's script.

The instructor's script (see Appendix B) for the workshop on finding main ideas in text was based on Grant (1989) and Hiles (1992). Both of these authors included instructions on how to find main ideas in text when the main idea is the topic sentence or

the last sentence or when the reader has to construct the main idea from the information given because it is not explicitly stated. In this study, a main idea was defined as the central thought or message in a paragraph or in a section of text containing several paragraphs. This definition is consistent with other definitions that define the main idea as the most important idea (Brown & Smiley, 1977; Dole et al, 1991; U. Schiefele, personal correspondence, September 1995).

The first three examples on finding main ideas in the topic sentence of a paragraph, the last sentence of a paragraph, and the construction of main ideas from the information given was based on material in Grant (1989) but rewritten to fit a workshop format of asking students questions and prompting them to provide the answers. The instructions on how to find the main idea in Example # 4 was developed by the researcher. Example # 4 was taken from the same text that was used for the testing session and was included to show students that the main idea is not always found in every paragraph. Sometimes it is necessary to read several paragraphs before finding the main ideas which was the case in this example and in the passage used in the assessment session.

The consultant mentioned in the previous section was asked to give her comments and suggestions on the workshop. She suggested that students be told that the supporting details to a main idea answer the following questions: why, what, where, when, and how. This suggestion was incorporated into the workshop script.

The instructor's script and the handout materials were piloted with the same group of 14 students mentioned in the last section to see if they found the workshop helpful and

to see whether it could be delivered in 30 minutes. Thirty minutes would be all the time allotted to the researcher to run the workshop with the study participants. The researcher was able to run through the script in 30 minutes during this pilot study.

After the workshop had been completed, the students were asked to fill out a questionnaire regarding the examples and the usefulness of the workshop. Students were asked three questions regarding the workshop:

1) Did you have a clear understanding of what is a main idea before you took this workshop?

- Nine students answered “no” while five students answered yes to this question.

2) Did this workshop help you to better understand what is a main idea?

- All fourteen students answered “yes” to this question.

3) Did this workshop help you to better understand how to find main ideas in a paragraph or in a section of text?

- All fourteen student answered “yes” to this question.

Considering that all the students found the workshop to be helpful even for those who reported that they had a clear idea of what is a main idea, it was decided by the researcher to provide a workshop to the study participants on finding main ideas in text prior to having them actually select the main ideas during the assessment session.

Assessment Material

Text used for assessment.

The participants in this study were given a text passage (see Appendix C) to read from an introductory psychology text used at the CEGEP level. The text passage entitled “What is Psychology?” was taken from “Psychology, Second Edition” (Wade & Tavris, 1990). The behavioural measures and the self-report measures used to assess their use of different cognitive and metacognitive strategies was based on this text passage. The passage was chosen for the following reasons.

First, in order to have a basis of comparison with the research conducted by Schiefele (1990) on the effects on interest on text processing, a psychology passage was selected for this study as well. Schiefele chose a psychology passage for two reasons. The first reason was that interest in the topic should display a large variance. This could be accomplished according to Schiefele by selecting a topic outside the subject’s major. The second reason for choosing a psychology text was that the subjects should have a limited prior knowledge of the topic so as to avoid any confounding of interest and prior knowledge.

In this study, the psychology passage was chosen because it was assumed that none of the subjects had followed a course in psychology or read a psychology textbook and, thus, would satisfy the two criteria proposed by Schiefele. An introductory passage was chosen from the text to ensure that the subjects could easily understand the text without having prior knowledge needed to understand the terms or concepts presented in the text. A passage taken from the later chapters in the book might have required

specialized vocabulary or content which would have to be learned during the course of study on psychology. Pilot testing of this passage showed that high-school students rated the passage easy to understand. Four high-school students were asked to read the text and to answer a brief questionnaire which asked them if they found the text interesting and if they found the text hard to read. All of the students found the text interesting to read. Three of the students found the text “easy to read” and one student found it “very easy to read” Three of the students were entering grade 11 in the fall and one was planning to go to CEGEP. Two of the students had English and their mother tongue and two students did not have English as their mother tongue.

This passage was also chosen because it would be exactly the type of text the students who planned to study psychology at the CEGEP level would be required to read and represents an ecologically valid task.

The passage was approximately 1000 words in length. The length of the passage was selected because it was approximately the same length of the passages used in Schiefele’s research. The passage was rewritten rather than photocopied from the book so as to eliminate “interesting features” such as graphs, photographs, tables, etc. so as to avoid the confound of situational interest and personal interest.

Measures

Classification Variable: Interest

There were two measures available to assess students' interest. The first measure, a subscale of the Motivated Strategies for Learning Questionnaire (Pintrich et al, 1991) assesses students' evaluations of the interest, importance, and utility value of a particular course. Moreover, this subscale includes utility value in its definition of task value and as presented earlier this definition of utility value is similar in meaning to extrinsic goal orientation. This third component of task value, utility value was not included in the definition of interest used for this study. Also, it would have been difficult to rewrite this subscale to assess students' interest in a specific text even if the definition was restricted to the first two components of task value, importance of the course to the student and interest.

Schiefele's (1990) measure, however, was developed to assess students' interest in a particular text. Therefore, students' interest in the text "What is Psychology?" was measured using a Likert scale developed by Schiefele (see Appendix D). The measure consists of two subscales. The first subscale consists of six scales that ask students how they expect to feel while reading the text passage. This subscale assesses the feeling-related valences of interest. Students rate themselves on a scale of zero (not at all) to seven (very) on four different feelings: "bored", "stimulated", "interested", and "involved". The reported reliability co-efficient for this subscale is $\alpha=.91$ (Schiefele, 1990). The second subscale assesses the value-related valence of interest or the topic's

personal meaning for the student. Again, students rate themselves on a scale of 0 (not at all) to 7 (very) on three different items: “meaningful”, “useful” and “worthless”. The reported reliability co-efficient for this subscale is $\alpha=.89$ (Schiefele, 1990). The total values for each subscale are added together to yield a total interest score (U. Schiefele, personal communication, July 17, 1995). Students were divided into a high interest or low interest group by means of a median split based on this total score.

Schiefele does not provide any evidence to support the validity of this measure to assess students’ interest. A method that could be used to assess the validity of this measure would be to see how it correlates with students’ future goals regarding their course of study or career plans. Schiefele (1991) defines interest as “the relatively enduring preference for certain topics, subject areas, or activities” (p. 302). Pintrich and Schrauben (1992) state that one component of task value is students’ perceptions that a course is important for their future goals. If we accept both of these definitions, then it follows that students who scored high on the interest measure for the text “What is Psychology?” would also have an enduring preference to study psychology at the college level and/or university level or to pursue a career as a psychologist. Students in this study were asked via a background questionnaire questions about their intentions to study psychology at the CEGEP level and the university level and their intention to pursue a career as a psychologist in the future. The answers to these questions were correlated with the interest measure. The results of this analysis are reported in the results section under “Interest”.

Ability and Background

The students' average mid-term grades were provided by the school and were used as covariates in the data analysis of this study. These grades served as covariates because it has been shown in previous research that students' GPA's and use of self-regulated learning strategies are positively correlated. One possible explanation for this positive correlation is that students who are academically successful consistently employ learning strategies because the use of these strategies has paid off in the past and continues to pay off in the present (Borkowski, et al, 1990). In other words academically successful students approach current learning tasks with a higher level of "skill" compared to their less academically successful peers. In order to partition out some of the influence of this past successful behaviour on the task required for this study, the mid-term grades served as covariates.

In addition to marks, descriptive data on the students' backgrounds were collected via a student background questionnaire (see Appendix E). Students were asked about their gender, age, language of instruction in elementary school, reading ability in English, courses of study at present, choice of CEGEP program, plans to study psychology at the college and university level and plans for a career as a psychologist. Students were also asked in this questionnaire if they had ever read anything from a psychology textbook. This last question was included to assess students' prior knowledge of psychology.

The students were also given a questionnaire to assess their goal orientation with respect to the economics course they were following. The questionnaire consisted of two subscales from the MSLQ. The first subscale consisted of four items which assessed the

students intrinsic goal orientation. The reported Cronbach's alpha for this scale was .74 (Pintrich et al, 1991). The second subscale consisted of four items which assessed students' extrinsic goal orientation. The reported Cronbach's alpha for this scale was .62 (Pintrich et al, 1991). The two subscales were combined into one questionnaire with the order of items randomly assigned (See Appendix F).

Cognitive Strategies

The cognitive strategies described in the general-expectancy value model of self-regulated learning were assessed in this study by two behavioural measures. These behavioural measures assessed students' actual use of three types of cognitive strategies while reading the text passage "What is Psychology?". These cognitive strategies consisted of rehearsal strategies, elaboration strategies, and organizational strategies.

These strategies have been measured in the general expectancy-value model using the MSLQ. The MSLQ is a self-report measure in which students are asked to rate certain statements about the use of particular cognitive strategies as "not at all true of me" (value=1) or "very true of me" (value=7) in specific course of study. This measure was not designed to assess students' use of cognitive strategies in processing a particular text. Therefore, the cognitive strategies subscale of the MSLQ was not used in this study. Instead, a measure was designed for this study to assess the actual use of cognitive strategies based on the general expectancy-value model of self-regulated learning and Schiefele's (1990, 1991) research. Only those cognitive strategies that could be directly measured were included as dependent measures.

Rehearsal strategies.

In the general expectancy-value model memorizing and reciting important concepts or terms as well as the highlighting or underlining of text are assumed to influence the attention and encoding processes. Because this study focused on the cognitive strategies students used while processing the text rather than on a retrieval task, only the highlighting or underlining of text was measured.

Organization strategies.

The organization strategies included in the general expectancy-value model consist of selecting main ideas from text, outlining the text or material to be learned, sketching a network or map of ideas, and identifying the prose or expository structures of the text. The selection of main ideas is considered to be an organizational strategy because students need to be able to select the most important information from text into working memory before they can construct the relationships among these main ideas (Weinstein & Mayer, 1986). The strategies that were observed and measured in the processing of the text in this study were the selection of main ideas.

Elaboration strategies.

These strategies include paraphrasing, summarizing, creating analogies, generative note-taking and question asking and answering. For this study, students' paraphrasing of the main ideas they had selected was measured. The notes students made

on the text were examined to see if they wrote down questions about the text as they read it or tried to connect ideas in the text.

Metacognitive Strategies

The metacognitive strategies were assessed in this study using a modified questionnaire based on the metacognitive strategies subscale of the MSLQ. The MSLQ subscale was developed to assess the planning, monitoring and regulating strategies students used in a particular course. Planning strategies were defined in the general expectancy-value model of self-regulated learning as those strategies which students employ to activate relevant prior knowledge. Planning strategies include goal setting and task analysis. Monitoring strategies are assumed to assist the learner to understand the material and help integrate it with prior knowledge. Tracking of one's attention as one reads and self-testing or questioning are examples of monitoring strategies. Regulating strategies are those strategies which help students to check and correct their behaviour as they proceed on a task.

The original subscale of the MSLQ consisted of 12 statements which rated on a Likert scale as 1 to 7 as being "not at all true of me" (value=1) to being "very true of me" (value =7). Cronbach's alpha for this measure was reported at .79 (Pintrich et al, 1991).

In order for this measure to assess students' use of metacognitive strategies during the processing of the text, it was rewritten and shortened to five items from twelve. The five items from the MSLQ that were retained and rewritten for this study were items # 36, 41, 54, 55, and 61. For example, item # 36 of the MSLQ is written as "When reading for

this course, I make up questions to help me focus my reading”. This statement was rewritten for this study as follows: “While reading this text, I made up questions to help me focus my reading”. The remaining four questions were rewritten in a similar manner by substituting the word “course” or “class” with “text”. The five questions retained for this study assessed the planning, monitoring, and regulating strategies used by the students while reading the text “What is Psychology?” Questions # 1 and # 4 assessed students’ monitoring strategies. Question # 2 assessed their regulation and Questions # 3 and # 5 assessed their planning strategies. The remaining seven questions from the MSLQ were not used for this study because they could not be adapted to answer questions about processing the text. Cronbach’s alpha for this modified subscale was calculated at .67. While this is considered to be a low figure for reliability, it falls within the range of reliabilities reported by Pintrich et al (1991) for the different subscales of the MSLQ. These reliability coefficients range from .52 to .93.

A sixth question was added to the questionnaire to obtain information on the students’ rating of the difficulty of finding main ideas in the text passage. This questionnaire, called the Learning Strategies questionnaire, is included as Appendix G.

Scoring Procedures

The first dependent measure was based on the score each student received for correct selection of main ideas from the text. Students were asked to read the text passage “What is Psychology?” and then to write down on a separate answer sheet the main ideas they had selected. Students’ written responses were compared to a main-idea

key prepared by two expert readers of the text, the researcher and a graduate student. Prior to preparing the main-idea key for the text passage used in the study, the two expert readers reviewed the workshop examples presented to the students to ensure that they would select ideas from the text in the same way as taught to the students. Next, they practiced the selection of main ideas on a different text passage selected from the same text used for the study. The practice passage entitled "Emotion" was approximately five and a half pages in length. The two expert readers allotted themselves 30 minutes to read and write down the main ideas from this practice text. They then compared their selection of the main ideas and discussed any disagreements between these two main-idea keys.

The two expert readers then each prepared a main-idea key for the assessment text "What is Psychology?". Each rater was required to write down the main ideas in sentence form verbatim from the text. The reliability in terms of percent agreement between the two raters was 86%. In cases of disagreement about the selection of the main ideas, the two raters reviewed the definitions and examples of main ideas and supporting ideas presented in the workshop to the students and discussed the reasons for the disagreement to come to a consensus. It was agreed between the two raters that there were 14 main ideas in the text. The main-idea key is included as Appendix H. No ideas were selected from the last paragraph because of a typographical error. It should be pointed out that main idea # 1 could be stated in three different ways to convey the same idea that "psychology studies the many contradictions and complexities of human life". In scoring students' written protocols, the raters agreed to give only one point for this idea even if

the student wrote all three sentences. It was agreed by the raters that students should realize in reading the text that these three sentences all have the same meaning. The rest of the main ideas were scored using the “Scoring Protocol for Cognitive Strategies” (see Appendix I) prepared by the researcher. Twenty percent of the students protocols were scored for reliability.

Students were given ‘1’ point for each main idea selected from the text that matched the main-idea key. Partial marks (1/2 point) was given for a partial main idea. In other words, a student only wrote half of the main idea sentence. For example if a student wrote down for main idea # 8 “Psychology’s main goals” they would receive a half point (1/2). If they wrote the full sentence, the student received a full point. Students were given a zero (0) point if the sentence was not listed on the main idea-key. Included in this non main-idea category were supporting ideas from the text, incorrect ideas, and irrelevant ideas. An example of a supporting idea from the text written down by one of the students and that was not counted as a main idea was “Lie detectors, as it turns out, are highly inaccurate”. An example of an incorrect idea as written by one of the students in the study was “ We use pshychology (sic) everyday to manipulate people, even if we didn’t think so”. Students also did not receive a point if part of the sentence was correct and the other half was not as in the following sentence: “Whereas psychology is a disaplin (sic) of learning not to pass judgement (sic) on a person until they have evidence to be checked and verified by others.” Irrelevant ideas were basically opinions students had about the text that did not correspond to the main ideas or to the meaning of the text such

as the following written by one of the students in the study: "I think that one of the main ideas was about having a Christian faith and how some people deal with it".

The maximum number of points a student could receive for this measure on main idea selection was 14. The raters each scored a sample of the total protocols which was about 20%. The inter-rater reliability for this sample was 82%. An examination of the disagreements between the raters revealed that one rater was overly generous in allotting points for the selection of main ideas. The two raters reviewed the definition of main ideas and came to a consensus as to what would be accepted a main idea. The rest of the protocols were divided equally between the raters for scoring. Students received a final score for main ideas based on the sum of each correct main idea they wrote on the main-idea answer sheet. This score was the first dependent measure.

Then, the main ideas written down by each student were scored for paraphrasing. One (1) point was given for each main idea taken from the text that the student wrote in his own words. Partial points (1/2 mark) was given if the student had written half of a main idea and paraphrased it in his/her own words. A paraphrased main idea was defined as a restatement of the main idea in the student's own words in which at least one other similar (in meaning) verb, noun, or adjective was used in place of the verbatim verb, noun, or adjective taken from the text. An example of a paraphrased main idea written by a student was for main idea # 2: "Controlling or adjusting behaviour is debated among psychologists". Another example for main idea # 14 is as follows: "The idea that everybody exerts behavioral control on others, a point used by the defenders of behavioral control". The same set of student protocols that were used for inter-rater reliability for

main-idea selection were also used for inter-rater reliability for the paraphrasing of main ideas. The inter-rater reliability for paraphrasing of main ideas was calculated at 85%. A review of the disagreements showed that one rater assigned points for paraphrasing where none should have been assigned. A review of the definition of paraphrasing written in the Scoring Protocol for Cognitive Strategies led to a consensus between the two raters on what would be accepted as a paraphrased main idea. The total maximum score a student could receive for paraphrasing was 14.

Students were given a copy of the text passage "What is Psychology?" and were told that they could make any notes or markings on the text. The students were asked to turn in these texts at the end of the testing session. The texts were examined for sentences that were either highlighted, underlined, or bracketed by the student. Students received one (1) full point or one half (1/2) point for each highlighted, underlined, or bracketed sentence. A more detailed description of the instructions given to the raters is included as Appendix I. The marked-up texts were examined for notes in the margins and one point was allotted for each note. The second dependent measure for cognitive strategies consisted of a total score that was comprised of a linear combination of a total score for paraphrasing plus a total score for underlinings plus a total score for notes made in the margins.

The third dependent measure was the total metacognitive score based on the self-report measure of the modified metacognitive strategies subscale of the MSLQ. The student were asked to fill out this self-report questionnaire which assessed their planning, monitoring, and regulating strategies while reading the text. They were asked to circle a

value which represented the statement that “is not at all true of you” (value = 1) to the statement that “is very true of you” (value = 7). The students were requested to do this for each of the five items or statements. The maximum score they could receive for this questionnaire was 35 and the lowest score was 5. If a student did not circle a response to one of the items, they were assigned the mean score for their group for that item. Tabachnick and Fidell (1996) recommend using the group mean to estimate the missing value because it is not as conservative as inserting the overall mean and not as liberal as using prior knowledge to estimate the missing value.

Procedures

The study was conducted over two separate visits during the winter term. Five classes of grade 11 students in economics participated in this study. During the first visit, which was conducted on the same day with all five classes, students were asked to fill out consent forms. Parental consent was not required as all the students met the minimum government requirement of 14 years of age to give consent. Students were told by the researcher that the study was designed to examine grade 11 students’ skill in finding main ideas and how this skill may be affected by students’ different approaches to learning. Students were not told that the study would analyze the effect of different motivational conditions on the use of these strategies. The students were then given the interest questionnaire to fill out. The students were then given the motivation questionnaire to fill out. Before completing each questionnaire, the research assistant read over the instructions written on each questionnaire with the students and then asked the students if

they had any questions about completing the questionnaires. The completion of these questionnaires took about twenty minutes.

Next, the students were given a workshop by the researcher on how to select main ideas from text. (This order was reversed for one class because it ran at the same time as another class). The teachers of these economics classes were present for the workshop but did not participate in the presentation of the workshop. The students were given a handout which consisted of seven pages which included four examples, three concept maps, a glossary, and a summary of the ideas covered in the workshop. The researcher followed the Instructor's Script for Workshop on Main Idea Selection for each class.

The workshop began by defining what is a main idea and why it is important to know how to find main ideas in text. Then the researcher asked the students to read each example in their handout. The students were then asked if they could select or construct the main idea for each example. If the students could not provide an answer, the researcher asked them to look at the concept maps provided in the handout. Students were told at this point to cover the supporting ideas and to focus on the main idea only. Then the researcher asked the students to find the supporting details for the main idea in each of the examples. After discussing with the students what they thought the main ideas were, they were asked to look at the concept map to see the supporting details as selected by the researcher. The workshop proceeded in this manner until all the examples had been worked through. At the end of the workshop, the researcher went over the summary of what had been taught and concluded the workshop by asking if there were any questions about the material presented. The workshop took 30 minutes to conduct.

Students were told that the researcher would be returning at a later date to conduct the second part of the study. However, students were not told which date this would be.

The second visit took place with all five classes on the same day one week after the first visit. During this session, students were randomly assigned to either an intrinsic motivation condition or an extrinsic motivation condition. The students received an instruction sheet which encouraged them to adopt either an intrinsic or an extrinsic goal orientation. In the intrinsic goal condition, students were encouraged to approach the task of selecting the main ideas as a challenge and to try to enjoy the task. The wording for the intrinsic goal orientation was based on similar wording given to students in an experimental study conducted by Graham and Golan (1991) which examined manipulated goal orientation on depth of information processing. The detailed instructions for this treatment condition is included as Appendix J. In the extrinsic goal condition, the students were told in the written instructions that if they were able to find 75% of the main ideas, they would receive a reward. The 75% level was chosen because it represented their average grade. They were provided with a reward menu in which they were asked to choose from among three rewards. The detailed instructions for extrinsic goal orientation is included as Appendix K. The choice of these rewards was made in consultation with the two economics teachers.

The order in which students completed the tasks and the time they had for each task was as follows. First, the students were asked to read the instruction sheet and choose a reward if they were in the reward condition. Students were told that after having read the instruction sheet they could start reading the text and writing down the main

ideas on the answer sheet provided to them (see Appendix L). They were told they would be given 30 minutes to complete this task. They were also told that the researcher would let them know when they had reached the half-way point in the allotted time. They would also be told when they had about five minutes remaining to complete the task. Once the 30 minutes had elapsed, the students were told to stop writing. They were asked to turn over their papers and to start answering the Learning Strategies Questionnaire. They were given ten minutes to complete this questionnaire. Once the students had completed this questionnaire, they were asked by the researcher to keep the proceedings and the material confidential so as to assure the integrity of the study.

Approximately one month later, the researcher met with the students in each of the five classes to hand out the rewards and to debrief the students on the purpose of the study. For ethical reasons, all the students received a reward regardless of their score on the main-idea exercise. At the request of the principal and the two economics teachers, the researcher informed the students about the preliminary results of the study in terms of percentage of students who were able to find the main ideas. Students were encouraged not to feel discouraged by the results because research has shown that extracting main ideas is a difficult task but that with practice many students could learn to master.

Results

Classification Variable: Interest

The histogram for this measure of interest revealed a normal distribution. The score for this measure ranged from 0 (lowest) to 49 (highest). The mean score for the entire sample was 26.6, slightly higher than the median split score of 24.5. A frequency count showed that there were 41 individuals classified as low interest and 66 classified as high interest. An examination of all the interest questionnaires revealed that 17 students had not completed the questionnaire in a consistent manner. In other words, the students gave the same rating for the reverse-coded items and the regular-coded items. The result of this inconsistency was that these 17 students received a high interest score when their actual interest may have been lower had they completed the questionnaire in a consistent manner. By dropping the reverse-coded items, there was a normal distribution on the remaining five items with an average score of 16.6. A subsequent frequency count showed 58 students classified as low interest and 49 students as high interest based on a median split of 17.5 . Based on these results, the decision was made to drop the two reverse-coded items and to classify students as either high or low interest based on the remaining five items. Two separate reliability analyses were conducted on the first set of items (2, 3, and 4) and on the second set of items (5 and 6). Cronbach's alphas for the first set of items was .82 and .80 for the second set. The correlation between both sets of items was $r = .66$, $p = .001$.

To examine the validity of the interest measure, a series of correlations were run between the measure and students' plans regarding the study of psychology at the CEGEP and university levels and career aspirations in psychology. The Pearson "r" correlations are displayed in Table 5.

Table 5

Correlations Between Interest and Study/Career in Psychology

	1	2	3	4	5
1 Total Interest Score	--	.46	.56	.41	.34
2 One Course at CEGEP		--	.48	.30	.35
3 Two Courses at CEGEP			--	.50	.48
4 Major in University				--	.68
5 Career as Psychologist					--

Note. All correlations at $p < .05$.

Four students who were present for the main-idea selection assessment task had not completed an interest questionnaire. The correlations displayed in Table 5 were used to estimate their interest score so that they could be classified into the high interest or low interest group. These four students were classified as either high or low interest based on their answer to the question in the student background questionnaire which asked if they planned to study at least one course in psychology at the CEGEP level. If they answered "yes" to this question, they were classified as high interest. If they answered "no" or did

not answer this question because they did not plan to go to CEGEP, they were classified into the low interest group. As a result, two students were classified as high interest and two were classified as low interest.

Ability and Background

A series of 2 (Interest) x 2 (Motivational Condition) ANOVA's were conducted to check for initial group differences on the mid-term averages and the background questionnaire. The groups were not equivalent on the measures of mid-term averages, having read something previously in a psychology text, and the self-report measure on intrinsic goal orientation in the economics class. There was a significant main effect for interest ($F(1,90) = 4.283, p = .041$) with students' mid-term average as the dependent measure. There was a significant main effect for interest ($F(1,90) = 10.76, p = .001$) with students' answer to the question "Have you ever read something in a psychology text?" as the dependent measure. For both of the above measures, students who had high interest in the text had higher grades and answered "yes" to the question that they had read something previously in a psychology text. There was a significant positive correlation ($r = .46, p = .001$) between marks and the selection of total main ideas. However, there was no significant correlation between marks and the metacognitive score ($r = .07, ns$). Having read something previously in a text was correlated with both selection of total main ideas ($r = .32, p = .002$) and the metacognitive score ($r = .33, p = .002$).

There was a significant interaction ($F(1,90) = 14.004, p = .001$) for students' self-report on intrinsic goal orientation in the economics class as the dependent measure. The

means and standard deviations for each group for the total intrinsic motivation score is listed in Table 6.

Table 6

Mean Scores for Self-report on Intrinsic Goal Orientation and Interest

Interest	Intrinsic			Extrinsic		
	M	SD	n	M	SD	n
Low	17.0	4.04	32	15.8	4.32	20
High	18.5	3.86	24	21.0	2.89	18

The measure for the self-report on intrinsic goal orientation in the economics class was positively correlated with the total metacognitive score ($r = .37, p = .001$) but not with the total score for the selection of main ideas ($r = .19, ns$) nor the total score for the additional cognitive strategies ($r = .09, ns$).

The inter-correlations among the dependent measures and marks, having read something previously in a psychology text, and self-reported intrinsic goal orientation are listed in Table 7.

Table 7

Inter-correlations among Dependent Variables and Covariates

	1	2	3	4	5	6
1 Total Main Idea Score	--	.40 *	.09	.46 *	.35 *	.19
2 Other Cognitive Strategies Score		--	-.03	.03	.11	.09
3 Total Metacognitive Score			--	.05	.30 *	.34 *
4 Average Mid-term Grade				--	.13	.18
5 Having Read Something in Text					--	.26 *
6 Intrinsic Goal Orientation						--

Note: All correlations marked with an asterisk are $p < .05$.

In deciding which of these covariates to use for the ANCOVA for each of the dependent measures, one wants a small number of covariates all correlated with the dependent variable(s) and none correlated with each other (Tabachnick & Fidell, 1996). Each additional covariate results in a loss of one degree of freedom for error and reduces the power of ANCOVA. Therefore, one wants to choose the most sensitive covariates that are not correlated with each other. In this study, prior knowledge as measured by the question "Have you ever read something before in a psychology text?" was correlated with both the total score for main ideas and the metacognitive score. However, this question did not directly measure the amount of prior knowledge that the students' had.

Moreover, this measure was positively correlated with the total score for interest ($r = .37$, $p = .001$).

It was not known if this question was actually measuring prior knowledge or student interest in psychology. Therefore, this variable, prior knowledge, was not used as a covariate in the analysis. The students' mid-term average were used in the ANCOVA for the total main idea score because they were positively correlated with this dependent measure and were not correlated with the other potential covariates. The self-reported intrinsic goal orientation was not used as a covariate because it correlated with the prior knowledge variable which was not used as a covariate for the reasons stated above. Second, it was not known from a theoretical basis how this measure could influence students' use of metacognitive strategies for the psychology text when it asked students to describe their intrinsic goal orientation with respect to their economics class.

Cognitive Strategies

Main-Idea Selection

Ninety-four students participated in the exercise on main-idea selection. An examination of the descriptive statistics revealed that students did not perform well overall. Only two students or 2% of the total selected nine or more main ideas out of a total of 14 main ideas contained in the text. Eighteen percent selected between five and eight ideas correctly. Forty-three percent selected between one and four ideas correctly

and 4% could only find one half of a main idea in total. Twenty-one percent of the students had a total score of zero.

The total raw scores for the selection of main ideas were used in the analysis described in this section. The probability level was set at $p < .05$.

An analysis was conducted to evaluate the assumptions of normality of sampling distributions and linearity for the entire sample and for each cell of the sample. Results of this analysis were a linear distribution for the entire sample and each cell. Next, the data were examined for the presence of outliers. Tabachnick and Fidell (1996) recommend two methods for detecting univariate outliers for grouped data. The first method is to inspect the z-scores. Scores in excess of ± 3.00 are considered to be potential outliers. The second method involves examining the histograms of each group to see if any variables are unattached to the rest of the distribution. Outliers were identified through an examination of the z-scores and histograms for each cell of the factorial. Two outliers with z-scores of 3 or more were dropped from the analyses. Two additional cases were dropped from the analyses because these students wrote a list of one-word main ideas only. Another case was dropped because the student did not write anything on his answer sheet and did not complete the reward menu leading the researcher to conclude that though this student was present for the main-idea selection exercise, he did not participate in the task. The final n size for this analysis was 89.

A 2 X 2 between-subjects analysis of covariance (ANCOVA) was performed on the total score for the selection of main ideas. The independent variables were interest (high and low) and motivational condition (intrinsic goal orientation and extrinsic goal

orientation) factorially combined. The covariate used in this analysis was the students' average mid-term grades. The Pearson "r" correlation between grades and the total score on selection of main ideas was ($r = .46, p = .001$). The distribution for the entire sample was positively skewed as was each of the individual cells. The results of the test for homogeneity of variance ($F_{\max} = 2.38$) and homogeneity of regression ($F(3,81) = 1.21, p = .313$) were satisfactory.

The results of this analysis were a main effect for interest ($F(1,84) = 7.89, p = .006$) and a main effect for treatment ($F(1,84) = 7.03, p = .01$). (See Figure 1.) There was no interaction effect.

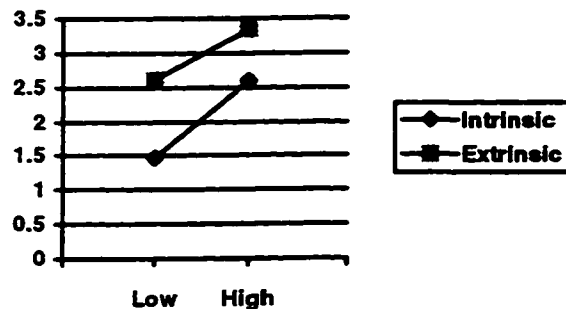


Figure 1. Graph of mean scores for selection of main ideas exercise

The adjusted means and standard deviations for each cell are listed in Table 8.

Table 8

Adjusted Mean Scores for Selection of Main Ideas

Interest	Intrinsic			Extrinsic		
	M	SD	n	M	SD	n
Low	1.46	1.44	31	2.62	1.90	18
High	2.60	2.08	23	3.35	2.22	17

As can be seen from Table 8 the n sizes for the cells are unequal. The problem with unequal cell sizes, according to Overall and Spiegel (1969) is that the independent variables tend to become correlated and, hence, it is difficult to ascertain what effect the variables are having on the dependent variable. Overall and Spiegel recommend using sequential least squares analysis whenever you have an experimental multi-classification factorial design with unequal cell sizes as a safeguard against correlated IV's. Based on Overall and Spiegel's recommendation the sequential least squares analysis was employed in the analysis of the main-idea selection scores.

Expanded Analysis on Main Idea Selection

The total main-idea selection score was also analyzed to compare the total number of correctly-selected main ideas to the total number of ideas students wrote. This measure was used to assess the quality of the ideas that were written in comparison to the quantity of ideas students wrote. In other words, did students obtain higher scores on the

main-idea selection score because they wrote more ideas overall and by chance wrote more correct ideas than incorrect ones?

For example, a student may have written a total of ten ideas. Out of these five were correctly selected main ideas and five were irrelevant or incorrect main ideas. Another student may have written only five ideas overall and all five of these ideas were correct. Yet, both students would receive the same score of five for total main-idea selection. However, the latter student's score was more strategic than the former students' score because they focused on the task at hand which was to find the correct main ideas and not to write down as many ideas as possible. The reason it is important to look at the strategic score is because the rewarded students may have written as many ideas as they could without having a clear understanding of the text. They may have been more focused on receiving the reward than on correctly selecting main ideas to understand the text. The results of this study were further analyzed in terms of this strategic score.

The first step in this analysis was to determine how to calculate this strategic score. Students were given a one point for each idea they wrote that was irrelevant or incorrect and these scores were added together with their total main idea score to give a total written idea score. Then, a ratio of total main ideas to total written ideas was calculated for each student. The ratio score was not used in this analysis because it did not accurately represent the total number of correct main ideas. For example, a student had written a total of six ideas and all six were deemed to be correct main ideas would

receive the same ratio score as a student who only wrote one idea and that idea was correct.

Another method was computed to reflect the quality of the ideas relative to the quantity of the ideas. This method consisted of subtracting the total incorrect or irrelevant ideas from the total correct main idea score for each student. Students were penalized if they wrote more irrelevant or incorrect ideas than correct main ideas. For example, if a student wrote a total of six ideas of which six were correct main ideas, the student would receive a score of six. Another student who wrote a total of six ideas had three correct ideas and three irrelevant or incorrect ideas. This student's score would be zero. A student who had a total of six ideas but only two were correct would receive a score of -2. These scores were interpreted as follows. A student who had a positive score had selected a total of more correct main ideas compared to irrelevant or incorrect ideas. A student who had a score of zero either did not write any ideas or wrote an equal number of incorrect ideas and correct ideas. A student who had a negative score wrote more incorrect ideas compared to the total number of correct main ideas.

An analysis was conducted to evaluate the assumptions of normality of sampling distributions and linearity for the entire sample and for each cell of the sample. Results of this analysis were a linear distribution for the entire sample and for each cell of the sample. The distribution of the entire sample was normal as was each one of the individual cells. Outliers were identified through an examination of z-scores. One case was dropped because its z-score was greater than 4 and another case was dropped because the z-score was greater than 2.5 and an examination of the histogram revealed it was

separate from the distribution. The case in which the student did not fill out anything on the main-idea answer sheet and the two cases in which the students only wrote one-word main ideas were also dropped from the analysis. The final n size of the analysis was 89. A 2x2 between-subjects analysis of covariance (ANCOVA) was performed on this strategic score. The independent variables were interest (high and low) and motivational condition (intrinsic versus extrinsic) factorially combined. The covariate used in this analysis was the students' average mid-term grades. The Pearson "r" correlation between grades and this strategic score was ($r = .40, p = .001$). The results of the test for homogeneity of variance ($F_{\max} = 2.5$) and homogeneity of regression ($F(3,81) = 1.19, p = .317$) were satisfactory.

There was no significant interaction nor were there any main effects for this measure.

Additional Cognitive Strategies

In addition to scoring students' selection of main ideas, scores were calculated for paraphrasing of main ideas, underlining or highlighting of main ideas, and making notes on the text. Descriptive statistics were conducted showing that 57% of the students paraphrased the main ideas they selected, 32% underlined or highlighted portions of the text, and 10% made notes on the text. Pearson "r" correlation coefficients were calculated for these measures as well as total main ideas selected from the text. These correlation coefficients appear in Table 9.

Table 9

Correlations for Total Main Ideas and Additional Cognitive Strategies

	1	2	3	4
1. Totmain ^a	--	.56 *	.37 *	.18
2. Totpara ^b		--	.37 *	.38 *
3. Totunder ^c			--	.27 *
4. Marnotes ^d				--

Note. *p < .05

^aTotmain is the total score for selection of main ideas.

^bTotpara is the total score for paraphrasing of main ideas.

^cTotunder is the total score for underlining or highlighting of text.

^dMarnotes is the total score for writing notes in the margins of text.

The scores for total paraphrasing and total underlining were positively correlated with the total score for selection of main ideas. The writing of notes did not correlate with selection of main ideas and as was presented in the descriptive statistics few students made notes in the margins. Also, it was difficult to classify the few notes students made as either “connecting ideas in the text” or “asking questions about the text”. For these reasons, low percentage of students making notes, no correlation with selection of main ideas, and difficulty in classifying notes, marginal notes was dropped from the composite score. The final composite score consisted of a linear combination of total paraphrasing plus total underlining.

The total raw scores for this composite score were used in the analysis described in this section. The probability level was set at p<.05.

An analysis was conducted to evaluate the assumptions of normality of sampling distributions and linearity for the entire sample and for each cell of the sample. Results of this analysis were a linear distribution for the entire sample and each cell. The distribution for the entire sample was positively skewed as was each of the individual cells. Outliers were identified through an examination of the z-scores and histograms for each cell of the factorial. Four outliers were identified with z-scores greater than 3.0. Another case was dropped because the student did not write anything on his answer sheet and did not complete the reward menu leading the researcher to conclude that though this student was present for the main-idea selection exercise, he did not participate in the task. The final n size for this analysis was 87.

A 2x2 between-subjects analysis of variance (ANOVA) was performed on this composite score. The independent variables were interest (high and low) and motivational conditions (intrinsic versus extrinsic) factorially combined. A sequential least squares analysis was conducted because the cell sizes were unequal. Marks were not used as a co-variate because they did not correlate significantly with this composite measure ($r = .03$, ns). The result of the test for homogeneity of variance was ($F_{\max} = 4.10$). As this value is greater than the accepted value of 3.0, the accepted p-value was revised from .05 to .025.

There was no significant interaction nor were there any main effects for this measure.

Metacognitive Strategies

The total scores for the modified metacognitive subscale of the MSLQ were used in this analysis. Ninety-four students filled out this questionnaire. The probability level was set at $p < .05$.

Results of the evaluation of assumptions of normality, linearity, and homogeneity of variance were satisfactory. Outliers were identified through an examination of z-scores and histograms for each cell of the factorial. There were no outliers with scores greater than 3.0. However, one outlier with a z-score of 2.8 was dropped from the analysis because the histogram revealed that this variable was separate from the distribution. The student mentioned in the last section who did not participate in the main-idea selection exercise was also dropped from this sample. The final sample size was 92.

A 2x2 between-subjects analysis of variance (ANOVA) was performed on the total cognitive scores using sequential least squares analysis to account for unequal cell sizes. The independent variables were interest (high and low) and motivational condition (intrinsic versus extrinsic) factorially combined. Marks were not used as a co-variate because they did not correlate significantly with this measure ($r = .05$, ns). The result of the test for the homogeneity of variance was ($F_{\max} = 1.54$) was satisfactory. The result of this analysis was a main effect for interest only ($F(1,88) = 11.35$, $p = .001$) which can be seen in Figure 2. The means and standard deviations are listed in Table 10.

Table 10

Mean Scores for Metacognitive Strategies

Interest	Intrinsic			Extrinsic		
	M	SD	n	M	SD	n
Low	13.8	5.8	32	13.4	6.2	19
High	16.9	5.7	23	19.0	5.0	18

The correlation between the total score for selection of main ideas and the metacognitive strategies total score was ($r = .09$, ns)

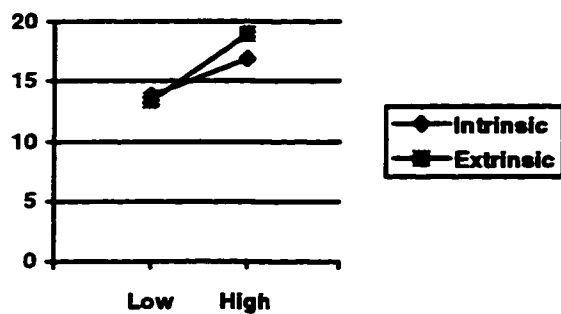


Figure 2. Graph of means for metacognitive score.

Discussion

There were three hypotheses for this study concerning the interaction of goal orientation and interest on the students' use of learning strategies. The results of this study did not support the prediction of an interaction effect of goal orientation and interest on students' use of learning strategies. Why an interaction effect was not supported in this study may be due to methodological problems with the study. A theoretical understanding of this lack of interaction must also be addressed. Therefore, the results will be discussed from a methodological perspective and a theoretical perspective with respect to each of the three hypotheses.

Methodological Perspective

The first hypothesis was that students who were encouraged to adopt an intrinsic goal orientation and had high interest in a psychology text would select more main ideas than students who also had high interest but were offered a reward for finding the main ideas in the text. By contrast, students who had low interest in the text and were offered a reward were expected to select more main ideas than students who also had low interest but were encouraged to adopt an intrinsic goal orientation. The results of this study do not support this hypothesized interaction. Instead, there was a main effect for interest and a main effect for treatment. Students who had high interest in the text selected more main ideas than students who had low interest in the text. Students who were rewarded selected more main ideas than students who were encouraged to adopt an intrinsic goal orientation. While the expectation that low interest students who were rewarded would

select more main ideas than low interest students in the intrinsic condition was supported, this was not the case for the high interest students. It was expected that high-interest students with an intrinsic goal orientation would select more main ideas than high-interest students who were rewarded.

Though there were main effects for interest and goal orientation for this measure, the results of this study showed that students had difficulty selecting main ideas even after training. There was a negative correlation between the perceived difficulty of finding the main ideas and the total number of ideas that were selected. Other factors may have been operating to affect student performance on the main-ideas selection task aside from the motivational variables.

One of these factors may have been students' prior knowledge of psychology. There was a significant positive correlation between prior knowledge and the total main idea selection exercise. Moreover, the groups were not equivalent on the measure of prior knowledge. High-interest students, regardless of goal orientation, reported having prior knowledge in psychology compared to low-interest students. It may be that students who had prior knowledge of psychology were better able to select the main ideas than students who had little or no prior knowledge. However, in this study, prior knowledge was not measured directly. Students were asked if they had ever read anything in a psychology text and answered either "yes" or "no" to this question. Furthermore, this question of prior knowledge was correlated with interest in the text. Therefore, it was not known in this study if students' actual prior knowledge was being measured or if the question on

prior knowledge was another measure of interest. This question requires further investigation.

The selection of main-ideas was also positively correlated with the students' mid-term average grade. This result suggests that the selection of main ideas may be influenced by student ability or experience as well as by interest and motivational orientation. The idea that high-ability students have more skill at selecting main ideas implies that they have superior intelligence or verbal ability which aids them in this task. However, studies that have examined this link between verbal ability (Pressley, Ghatala, Woloshyn, & Pirie, 1990) and intelligence (Schiefele, 1990) have not found a positive correlation between finding main ideas in text and verbal ability or general intelligence. Therefore, it seems more likely that the high-ability students had more experience at selecting main ideas and this experience helped them in the main-idea selection exercise.

The second hypothesis for this study was that students who were encouraged to adopt an intrinsic goal orientation and had high interest in a psychology text would use more cognitive strategies than students who also had high interest but were offered a reward for finding the main ideas in the text. By contrast, students who had low interest in the text and were offered a reward were expected to use more cognitive strategies than students who also had low interest but were encouraged to adopt an intrinsic goal orientation.

Overall, students did not employ additional cognitive strategies in processing the text. Only 50% of the students paraphrased the main ideas they selected. Students also did not underline or highlight much of the text as they read it. Only 37% of students

underlined or highlighted the text. Fewer students, only about 10% made notes on the text. There were no significant difference among the groups with respect to their use of these additional cognitive strategies. However, there was great variation among cognitive strategy use within each of the groups. There was a significant positive correlation between the total main idea score and paraphrasing and underlining or highlighting. In other words, students who were able to select more main ideas made greater use of these additional cognitive strategies.

One of the reasons why students may not have made use of the additional cognitive strategies is that these strategies are not part of their regular repertoire of strategies while processing text. With respect to underlining or highlighting, for example, it was expected in this study that students would use this strategy to help them in selecting the main ideas from the text. Furthermore, the students were told that they could make any notes or markings on the text. Yet, less than half of the students made any kind of notes or markings on the text.

Another reason why the students did not use these strategies is that they were not rewarded for doing so. The reward was only offered upon attaining a performance-contingent standard of 75% in the selection of the main ideas for students in the extrinsic reward condition regardless of interest in the text. They were not offered a reward for paraphrasing or underlining. The offer of the reward was only beneficial for the selection of total main ideas because it was the only strategy explicitly linked to the reward. However, this study also showed a main effect for interest in the selection of main ideas regardless of goal orientation. In this case, it would have been expected that students

would have made greater use of these cognitive strategies when they had high interest in the text regardless of whether they were rewarded or not. Yet, this was not the case. Therefore, it seems the more probable reason for non-significant difference among the groups on this measure was because the use of these additional cognitive strategies is not part of this group of students' normal repertoire of strategy use. In contrast, there was a significant difference among the groups on the main-idea selection measure because the students were directed to use this specific strategy in processing the text and they received some training on how to select main ideas from text.

The third hypothesis for this study was that students who were encouraged to adopt an intrinsic goal orientation and had high interest in a psychology text would use more metacognitive strategies than students who also had high interest but were offered a reward for finding the main ideas in the text. By contrast, students who had low interest in the text and were offered a reward were expected to use more metacognitive strategies than students who also had low interest but were encouraged to adopt an intrinsic goal orientation.

The results of this study did not support this hypothesis. Instead, there was a main effect for interest regardless of goal orientation for this measure. Furthermore, the metacognitive score did not correlate with the main-idea selection score. This result is contrary to Pintrich and De Groot's (1990) study that have found a significant positive correlation between the use of cognitive strategies such as the selection of main ideas and the use of metacognitive strategies.

One of the reasons for the non-correlation between the selection of main ideas and the metacognitive strategies may be because of the restricted range of scores on the first measure. Tabachnick and Fidell (1996) state that sample correlations may be lower than population correlations because of the restricted range of responses for one of the variables. In this study, the total main-idea selection score showed a restricted range and, therefore, the correlation between this measure and the metacognitive strategies measure was deflated.

Other variables which may have influenced the results for the metacognitive strategy are prior knowledge and self-reported intrinsic goal orientation. Prior knowledge and self-reported intrinsic interest in the economics course was also found to be positively correlated with the metacognitive score.

High-interest students may have had more prior knowledge than low-interest students because they may have read something about psychology before participating in this study. While reading the text passage, they may have employed more metacognitive strategies than the low-interest students because they wanted to understand and learn more about the topic of psychology. According to Schiefele (1990) this could be the reason why previous research has shown a high correlation between interest and prior knowledge. Since the prior knowledge question was a self-report measure in this study, it is most likely that it measured students' interest in the text rather than their actual prior knowledge of psychology.

The reason for the correlation between the self-report measure on intrinsic goal orientation and the metacognitive score may be that in this study students who were

intrinsically goal oriented in economics had a similar goal orientation in psychology and this influenced their metacognitive strategy use. However, the correlation was modest ($r = .34$). Moreover, students in the low-interest/intrinsic goal orientation group who had a higher self-reported intrinsic goal orientation than students in the low-interest extrinsic group had similar metacognitive scores. Therefore, the influence of the students' goal orientation in economics probably had a minor influence on the students' use of the metacognitive strategies.

Theoretical Perspective

The predicted interaction of goal orientation and interest on students' use of learning strategies was derived from the general expectancy-value theory of self-regulated learning (Pintrich, 1989; Pintrich & Garcia, 1991; Pintrich & Schrauben, 1992) and the overjustification hypothesis (Lepper, Greene & Nisbett, 1973). According to the general expectancy-value theory of self-regulated learning, goal orientation may guide the general direction of the behaviour while interest may influence the strength or intensity of the behaviour. Interest, then, may be seen as subordinate to goal orientation in influencing students' use of learning strategies. From this theory, one could infer that a combination of intrinsic goal orientation and high interest would be more influential on students' use of learning strategies than a combination of extrinsic goal orientation and high interest.

According to the overjustification hypothesis, there will be a decrease in initial high interest in an activity or topic when a reward is offered because the reward offers a stronger justification for doing the task than the person's interest in the task.

Consequently, there will be a decrease in interest when a reward is offered and the person will most likely spend less time on the task.

In this study, it was hypothesized that when students have a high interest in a topic and are offered a reward for using a certain learning strategy, their interest in the topic would decrease and they would be less likely to use the strategy. By contrast, it was hypothesized that when students have high interest in a topic and are encouraged to adopt an intrinsic goal orientation which focuses on mastery and understanding, the combination of these two motivational components would prompt students to use more learning strategies than rewarded students with high interest.

With respect to the selection of main ideas, one reason why there were main effects rather than an interaction effect may be because the interest in the text was not very high even for the high-interest students. The students did not select the text themselves. It was provided to them by the researcher. Deci (1992) states that a person can be considered interested in some topic or activity when they choose it themselves.

Yet, the interest measure used for this study was validated in that students who expressed a desire to study psychology courses at the CEGEP level and beyond or to pursue a career as a psychologist had higher interest measure than students who did not want to study psychology. In this study, interest was correlated with both short-term interest and long-term interest. Short-term interest was reflected in students' desire to study psychology only at the CEGEP level while long-term interest was linked to students' intentions to study psychology as their major in university and/or pursue a

career as a psychologist. Therefore, the measure of interest was a valid instrument for assessing students' high and low interest in the text.

Another reason for the result of main effects may be that the students' motivation to do the task of selecting main ideas was not very high. The task of selecting the main ideas was specified by the researcher and was not the result of students' spontaneous use of this strategy. In contrast, there was no significant difference among the groups on the measure of additional cognitive strategies which was a measure of spontaneous use of these strategies.

Another explanation for these results is that the offer of rewards was more salient inducement for the selection of main ideas in comparison to the encouragement to adopt an intrinsic goal orientation. In other words, the written instructions to the students to adopt an intrinsic goal orientation may not have produced this motivational condition. However, since a manipulation check was not included in this study, it is not known if the written instructions actually encouraged the students to adopt this goal orientation.

Therefore, because the interest in the task of selecting the main ideas may have been low and/or the intrinsic goal orientation was not actually adopted by the students, there was no conflict with the offer of a reward. In my study, then, the motivational components were additive rather than interactive. However, there may exist a threshold in which these two sources of motivation, interest and reward, may compete so that they cannot be combined by the learner to support the use of learning strategies. This is when an interaction effect may occur.

However, other researchers have disputed the purported negative effect of reward on interest as per the overjustification hypothesis (Eisenburger & Cameron, 1996). These researchers have proposed that the only detrimental effect of reward on interest occurs when a reward is offered on a single occasion without regard to the quality of the performance. Other researchers (Lepper & Hodell, 1989) have suggested that when tangible rewards are based on performance and give students clear positive information about their competence, the rewards are not likely to undermine interest. Rewards may only undermine interest when they are given for participation without regard for the standard of performance. In this latter case, the students may perceive the rewards as a bribe. Moreover, the results of a recent meta-analysis (Cameron & Pierce, 1994) showed that offering a tangible reward for performance may actually increase interest in a task or topic.

In this study, the students were given a clear standard of performance to attain if they were to receive the reward. The reward was quality-dependent rather than being performance independent (Eisenburger & Cameron, 1996) and, therefore, the students did not perceive the reward as being a bribe. Rather, they perceived the rewards as informative. Therefore, the offer of rewards did not have a detrimental effect on the students' interest in the topic. The offer of a reward to a certain level of performance may have increased interest in the topic itself for both low-interest and high-interest students. Consequently, these students were able to select more main ideas than low-interest/intrinsic goal orientation or high interest/ intrinsic goal orientation students.

Though the offer of rewards was beneficial for both high and low-interest students for the selection of main ideas, this was not the case for the metacognitive strategies. With respect to the metacognitive strategies, there was a main effect only for interest. Students who had high interest in the text reported using more metacognitive strategies than students with low interest in the text.

Why were there main effects for treatment and interest for selection of main ideas and only a main effect for interest for the metacognitive strategies? The reason may be that students who had high interest were able to select more main ideas because they understood the text. In other words, they used such metacognitive strategies of rereading the text when they did not understand something and asking themselves questions as they read the text. By contrast, the students in the low interest/extrinsic condition were able to select as many main ideas as the high interest/intrinsic group, but may not have really understood the text because they did not use the above-mentioned metacognitive strategies. As presented earlier, the use of the metacognitive strategies, especially monitoring one's understanding while reading, is considered essential for the comprehension of text (Pressley & Ghatala, 1990).

Limitations of the Study

While one can conclude that offering a reward facilitated low-interest students' ability to select the main idea from text compared to the low-interest/intrinsic group of students, it cannot be concluded with any certainty as to whether the offer of a reward also facilitated their comprehension of the text. As this study demonstrates, this population of students had difficulty selecting the main ideas which is an important strategy for comprehending text. (Dole et al, 1991). Moreover, the low-interest students did not use as many metacognitive strategies as the high-interest students. This finding suggests that low-interest students may not have monitored or regulated their understanding as well as the high-interest students. In other words, the low-interest/rewarded students may have been able to select as many main ideas as the high-interest/intrinsic group of students, but because they did not use as many metacognitive strategies as this latter group there is some doubt as to whether they comprehended the text as well as the high-interest/intrinsic group. The only way to test the students' comprehension of the text would have been to include a reading comprehension test after they had completed the main-idea exercise. Unfortunately, in this study, a reading comprehension test was not included as the focus of the study was on the influence of goal orientation and interest on students' use of the cognitive and metacognitive strategies only and not on reading comprehension.

Another limitation of this study was the lack of group equivalency on several factors. The results showed that the four groups of the factorial were not equivalent on

marks and prior knowledge. There was a main effect for interest for both of these measures. Students who were classified as high interest had higher mid-term averages than students who were classified as low interest. Moreover, students' mid-term averages correlated with the selection of main-idea exercise. This suggests that students' ability to select main ideas from text is influenced by other factors such as ability or experience in the selection of main ideas in addition to interest in the text. There may have been students who were very interested in the text but were unable to select the main ideas, even after training, because they had very little experience in doing so. It was not known in this study how well students could select main ideas from text as no baseline measurement of this strategy was included in this study. One way of reducing the influence of student skill in the selection of main ideas would be to obtain a base-line measure of students' ability to select main ideas from text. The difficulty in having students complete a base-line measure in the selection of main ideas would be that there would be varying degrees of interest in the assessment text unless one chose a text that the majority of students would have a high interest. Subsequent studies, then, should include only those students who were able to meet a minimum requirement for the selection of main ideas.

With respect to prior knowledge, it was also found that students who were classified as high interest reported having prior knowledge of psychology compared to low-interest students who reported having no prior knowledge. Furthermore, there was a significant positive correlation between interest and self-reported prior knowledge. Prior knowledge was assessed by asking students whether they had ever read anything from a

psychology textbook. It was not expected that grade 11 students would have ever read anything from a psychology text as they do not study psychology at the high school level. It may be that the students who answered “yes” to this question had read articles in magazines about psychology and interpreted this casual reading as having read something in a psychology text. By answering “yes” to this question, it is not known if interest or prior knowledge was being measured in this study. In order to have a more accurate measure of prior knowledge, it would have been necessary to design a test that would have tapped students’ prior knowledge of psychology.

Another limitation of this study is that it did not include a manipulation check for the goal orientation conditions. Therefore, it was not known if students actually adopted an intrinsic goal orientation through the written instructions they received. One way of finding an answer to this question would have been to include a manipulation check in the study.

Implications of the Study

Theoretical Implications

The findings from this experimental study that interest is an important domain-specific motivational component of self-regulated learning is consistent with the results from previous correlational studies (Pintrich, 1989; Pokay & Blumenfeld, 1990; Schiefele, 1991). This study also extends Schiefele's (1990) findings that interest is important in facilitating the selection of main ideas as well as the retrieval of main ideas. Moreover, having high interest in a text facilitates the use of metacognitive strategies.

This study provides evidence that students' ability to find main ideas in text may be also influenced by other factors such as prior knowledge and scholastic ability. The results from earlier studies on the effects of prior knowledge on interest and learning strategies have been mixed (Schiefele, 1990, 1991). Schiefele (1990) suggested that prior knowledge would only have an influence when it was extensive. In this study, the extent of the students' prior knowledge was not assessed because it was not expected that they would have much prior knowledge about psychology. Yet, self-reported prior knowledge correlated with both selection of main ideas and the use of the metacognitive strategies. Future research should be conducted to assess the separate contribution of prior knowledge from interest on students' use of learning strategies.

It was also found in this study that students' use of learning strategies was correlated with scholastic ability as well as interest. What is not clear is how this

scholastic ability interacted with interest to influence the skill in the selection of main ideas. Did high interest in the text prompt students to select more main ideas and use more metacognitive strategies? Or, to paraphrase McKeachie (1988), it may be that the causal relationship here is reversed. In other words, it may be that because students have prior “skill” in selecting main ideas from text or for employing metacognitive strategies they are able to take an interest in a greater variety of topics. Future research should also concentrate on examining the relationship between student entry-level skill in learning strategies and interest to answer this question.

The results from this study on the interaction of goal orientation and interest on students’ use of learning strategies are mixed. On the one hand, these results support the hypothesis that offering a reward to low-interest students would prompt them to select more main ideas than low interest students in the intrinsic goal orientation condition. However, these results were not obtained for the metacognitive strategies. It may be that low-interest students who were rewarded were able to select the main ideas but without a deep understanding of the text. Future studies should include a reading comprehension test to assess students’ understanding of the text in order to clarify the effects of rewards for low-interest students. Students’ prior knowledge should also be assessed as it was correlated both with the selection of main ideas and the metacognitive strategies.

In addition to examining the influence of interest and goal orientation on students’ use of learning strategies experimentally, future studies could also examine these influences qualitatively. Students could be provided with both low-interest and high-interest texts and asked to comment on how they motivate themselves to use learning

strategies under each condition. These think-aloud protocols may provide us with a deeper and more complete understanding on how students motivate themselves to learn under varying motivational conditions.

Practical Implications

The results of this study also have implications for instruction within the classroom or the training environment. Researchers who are involved in the design of strategy instruction have recommended that students be provided with interesting material so that they will be prompted to use learning strategies (Pressley, El-Dinary, Marks, Brown & Stein, 1992). The results of this study demonstrate that providing students with interesting material will facilitate the use of learning strategies such as the selection of main ideas and the metacognitive strategies.

There are also times, however, when teachers cannot provide material that is interesting to all students. This study shows that when students have low interest in the material, offering them a reward for using a cognitive strategy like the selection of main ideas can prompt them to use the strategy. Getting students to start using these strategies using rewards when interest is low may help them to develop interest in the material itself and, thus, sustain their use of the learning strategies. Students may also start to believe that they can use learning strategies successfully and this would increase their self-efficacy beliefs. However, "it may require mastery experiences over a period of time before the self-efficacy derived from the progressive successes creates a strong interest in activities that were devalued or even disliked" (Bandura & Schunk, 1981, p. 597).

Therefore, it may be necessary to introduce a schedule of reinforcement to develop these skills and to encourage students to keep on using these skills (Zimmerman, 1985).

Teachers and instructors could offer students tangible rewards if they achieved a certain standard of performance. If teachers are unable to offer tangible rewards, then they could use verbal praise to encourage students to use these strategies. Verbal praise also has been found to be an effective motivator for increasing student interest (Cameron & Pierce, 1994).

One of the problems with offering rewards is that students may be less likely to use learning strategies in subsequent situations unless they can expect further extrinsic rewards (Lepper & Hoddell, 1989). In other words, the students become dependent on the extrinsic rewards to motivate their efforts to use learning strategies rather than finding ways to motivate themselves when their interest is low. Students may become dependent on their environment rather than developing into self-regulated learners who pro-actively regulate their own academic performance metacognitively, motivationally, and behaviourally (Zimmerman & Martinez-Pons, 1992). Therefore, in addition to using rewards to prompt students to use learning strategies, teachers could also have students experiment with and compare their use of learning strategies under different motivational conditions.

Borkowski et al (1990) suggest that students can be taught to compare effects of different learning strategies on academic performance. Similarly, I suggest that students can be taught to compare the effects of different motivational components on their use of learning strategies. For example, students could be told that research has shown that

rewards can help students employ learning strategies when interest in a topic is low and that many students use rewards to motivate themselves when studying (Zimmerman & Martinez-Pons, 1986). Students could then be encouraged to monitor their use of learning strategies under these different motivational conditions.

In summary, teachers could use the information provided by this study by using rewards to prompt students to use learning strategies when interest in a topic is low to demonstrate to students how the use of rewards can be beneficial. Then, students could be taught to monitor their employment of these strategies under varying motivational conditions so that they learn to become active participants in their own learning. When students can personally initiate the use of cognitive and metacognitive strategies as well as control the effects of different motivational components such as interest and goal orientation to improve learning outcomes and environments, we can say that a student is truly self-regulated.

Conclusion

The results from this study did not support the hypotheses of an interaction effect of goal orientation and interest on students' use of cognitive and metacognitive strategies. It was hypothesized that students who had high interest in the text and were encouraged to adopt an intrinsic goal orientation would select more main ideas from the text, use more additional cognitive strategies such as paraphrasing and highlighting, and would enlist more metacognitive strategies in trying to understand the text than students with high interest in the text who were offered a reward for attaining a certain level of performance in this task. Similarly, it was hypothesized that students with low interest in the text who were offered a reward would use more cognitive and metacognitive strategies than students who had low interest in the text and were encouraged to adopt an intrinsic goal orientation.

With respect to the selection of main ideas, an important cognitive strategy for understanding text, there was a main effect for interest and for treatment. Students who had high interest in the text were able to correctly select more main ideas than students with low interest in the text. Similarly, students who were offered a reward for finding the main ideas in the text outperformed students who were encouraged to adopt an intrinsic goal orientation for this task. There were no significant differences among the groups on the use of additional cognitive strategies such as paraphrasing and highlighting of the text. There was a main effect for interest on the use of the metacognitive strategies such as planning, monitoring, and regulating while reading the text. Students with high

interest in the text reporting using more metacognitive strategies than students who had low interest in the text regardless of the motivational condition.

It can be concluded from these results that interest is an important motivational component of self-regulated learning. These results support the conclusions reached in earlier studies (Pintrich, 1989; Pokay & Blumenfeld, 1991, Schiefele, 1990; Schiefele, 1991) that students who have high interest in a topic will employ more metacognitive and cognitive strategies than students with low interest in the topic. Yet, the difference in the mean scores for the selection of main ideas between the best-performing group, the high interest/extrinsic, and the worst-performing group, the low interest/intrinsic, was not great. The former group had a mean score of 3.35 and the latter group had a mean score of 1.46 out of a total of 14 main ideas. Therefore, one can conclude that high interest in the text cannot compensate for a lack of skill in selecting the main ideas from the text or for the lack of use of additional cognitive strategies. Students, especially college-age students, may require a minimum level of skill in the use of these strategies in order to be successful at the college level. A lack of these skills may not compensate for their interest in their courses or in their chosen field of study.

The results from this study on the combined effects of goal orientation and interest on the use of learning strategies are mixed. While both high and low-interest students who were offered a reward were able to select more main ideas from the text than both high and low-interest students who were encouraged to adopt an intrinsic goal orientation, the offer of the reward had no effect on low-interest students' use of the metacognitive strategies. Moreover, it was found in this study that there was no significant correlation

between the total score for the selection of the main ideas and the score for the metacognitive strategies.

Yet, according to some researchers (Pintrich & De Groot, 1990) the use of metacognitive strategies is considered to be an essential component of self-regulated learning. With respect to the understanding of text, Pressley and Ghatala (1990) have stated that “monitoring is at the heart of self-regulated thinking” (p. 20). In other words, for students to understand what they are reading, they must monitor their comprehension. If they find that they do not understand what they are reading, they need to regulate their reading such as slowing down or rereading parts of the text they did not understand. Therefore, it seems logical that students who had high interest in the text used more metacognitive strategies such as monitoring and regulating than students who had low interest in the text because the high-interest students would be interested in trying to understand the text. What is not clear from these results is why students who had low interest in the text and were offered a reward for attaining a certain level of performance would be able to select as many main ideas as students who had high interest in the text and were encouraged to adopt an intrinsic goal orientation. It may be that the low-interest/extrinsic reward group were able to select the same number of main ideas but without understanding the meaning of the text because they did not employ the metacognitive strategies to the some extent as the high-interest students. At this point, this conclusion is speculative. This study did not included a reading comprehension test and, therefore, it cannot be concluded with any certainty that students in the low interest/extrinsic goal orientation condition did not understand the text.

Therefore, it can be concluded from these results that interest is an important domain-specific motivational component of self-regulated learning which influences students' use of the cognitive strategy of main-idea selection and the metacognitive strategies such as planning, monitoring and regulating. It could also be concluded from these results that interest is a more influential motivational component than goal orientation on students' use of learning strategies. This result is contrary to the hypothesis proposed by the general expectancy-value theory of self-regulated learning that goal orientation guides the general direction of the behaviour while interest determines the strength of the behaviour. In this study, it seems more likely that interest guided the general direction of the behaviour. Whether goal orientation determines the strength of intensity of the behaviour requires further investigation.

The results of this study provide additional evidence for an understanding of the linear relationship between interest and the use of cognitive and metacognitive strategies and provide new information to help in the development of a multivariate profile of self-regulated learning.

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Appendix A
Student Handout

EXAMPLE # 1**Benefits of Predation**

Paradoxically, despite limiting its size, predation usually tends to be beneficial to a prey species population. When the old, weak, diseased, and crippled are eliminated by predation, the surviving population tends to consist of the healthiest and most vigorous individuals. Eliminating large numbers of young during times of population expansion also reduces competition among the remaining individuals for existing food and other resources. The elimination of a predator from a region has sometimes been followed by a dramatic increase in the prey population, often beyond the carrying capacity of the area.

EXAMPLE # 2

Adolescents' strong orientation to peers has led many people to talk about a "generation gap", meaning that adolescents disagree with their parents about many issues, including basic values. However, this gap may be illusory. Recent studies found surprising agreement between parents and adolescents on the validity of such traditional values of self-reliance, hard work, and the importance of duty before pleasure. This suggests that often adolescents are heavily influenced by their parents in the development of values. They are influenced by peers in day-to-day behaviours, dress styles, and other matters that are only distantly related to values. Peers can also have considerable influence on how values are translated into everyday actions such as smoking and consumption of alcoholic beverages. Thus, while it is true that adolescents differ greatly from their parents on many relatively unimportant matters such as dress and choice of entertainment, their values concerning important issues are frequently similar to those of their parents.

EXAMPLE # 3

One important economic function of government is to protect property. Laws regarding contracts, safety standards, and product labeling, aim at fulfilling this responsibility. Government must also provide a modern, functioning monetary system conducive to stable economic growth and development. In addition, the private marketplace cannot be relied upon to allocate public goods and services and social costs properly. Governments must play a role in their production and allocation, too. Finally, government encourages a competitive marketplace, promotes economic stability, fights poverty, and prohibits discrimination.

EXAMPLE # 4

On Sunday, April 25, in the year 1227, a knight names Ulrich von Lichtenstein disguised himself as the goddess Venus. Wearing an ornate white gown, waist-length braids, and heavy veils, and bedecked with pearls, Ulrich began a pilgrimage from Venice to Bohemia. As he traveled, he invited any and all local warriors to challenge him to a duel. By his own account (which may have been greatly exaggerated), Ulrich broke 307 lances, unhorsed four opponents, and completed his five-week journey with an undefeated record. The reason for this extravagant performance was his passion for a highborn princess, nameless to history, whom he adored but who barely gave poor Ulrich the time of day. Ulrich trembled in her presence, suffered in her absence, and constantly endured feelings of longing, misery, and melancholy, a state of love that apparently made him very happy.

How would Ulrich's story sound with the emotion removed? Suppose Ulrich endured his hardships and tribulations because he was somewhat fond of the lady. Suppose he was bored in her presence and only vaguely aware of her absence. Suppose, in short, that she meant nothing to him than his wife (oh, yes, Ulrich was married), and that theirs was merely an economic union, a practical arrangement for the purpose of begetting children and managing their serfs. How would we evaluate Ulrich's knightly performance then?

As this story shows, emotions are the heart and soul of human life. They give life colour, intensity, excitement - and misery. If you could wave a magic wand and eliminate them, you would never again feels worry about a test result, a job interview, or a first date. You would never feel angry, even if your classmate called you an idiot or you were arrested on false charges. You wouldn't be afraid to jump out of an airplane, with or without a parachute. You would never feel the grief of losing someone you love, not only because you wouldn't know sadness but because you wouldn't know love. You would never laugh because nothing would strike you a funny.

GLOSSARY

EXAMPLE # 1

Paradoxically:	A contradictory statement that may be nonetheless true.
Predation:	The capturing of prey as a means of sustaining life.
Prey:	Any creature hunted or caught for food.

EXAMPLE # 2

Peer:	A person who has equal standing with another as in rank, class, or age.
Illusory:	Lacking reality.

EXAMPLE # 3

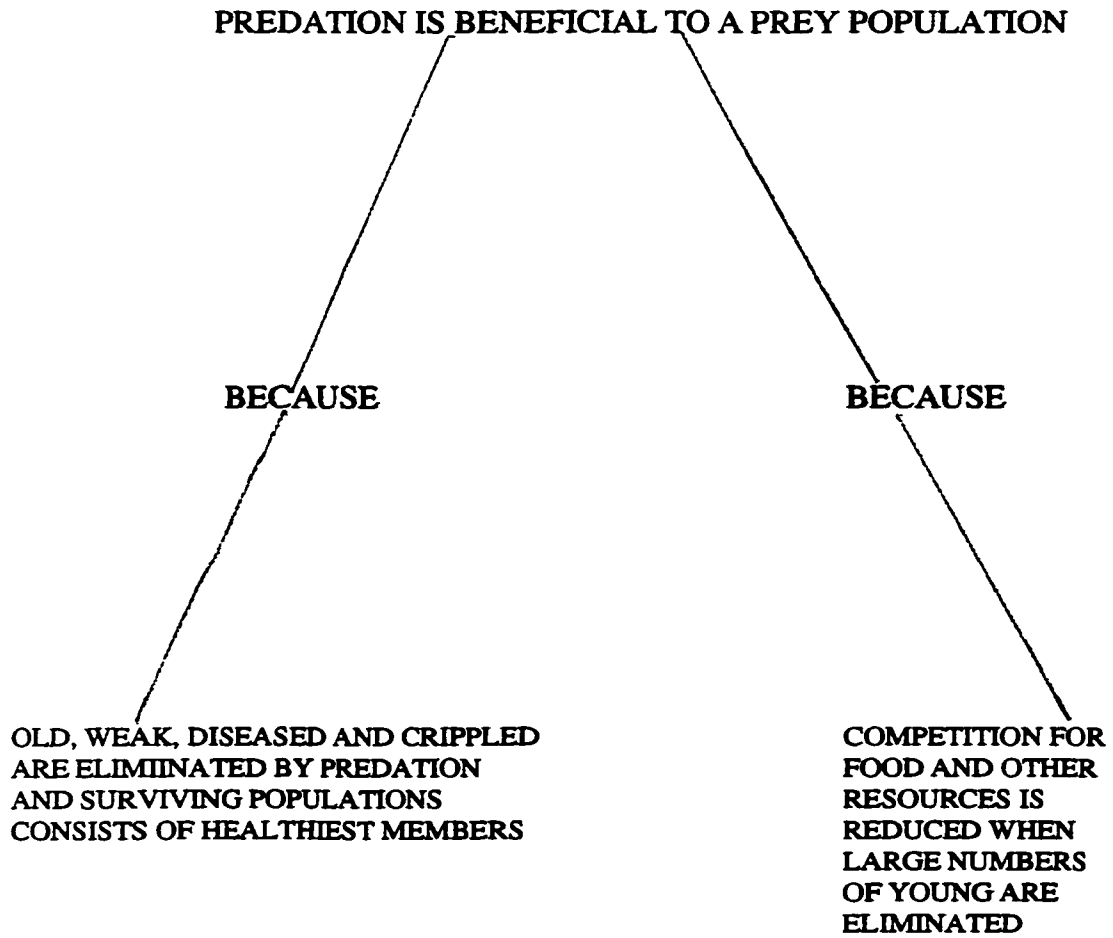
Monetary:	Of or pertaining to a nation's currency or coinage.
Conducive:	Favourable.
Allocate:	To distribute according to a plan.
Prohibit:	To forbid by authority.
Discrimination:	An act based on prejudice.

EXAMPLE # 4

Disguised:	To change appearance of as to conceal identity.
Ornate:	Excessively decorated.
Waist:	The narrowed part of the body between the ribs and the hips.
Veil:	A piece of opaque or transparent material worn over the face.
Bedecked:	To deck out or adorn in a showy fashion.
Tribulations:	An experience or condition that causes distress or suffering.

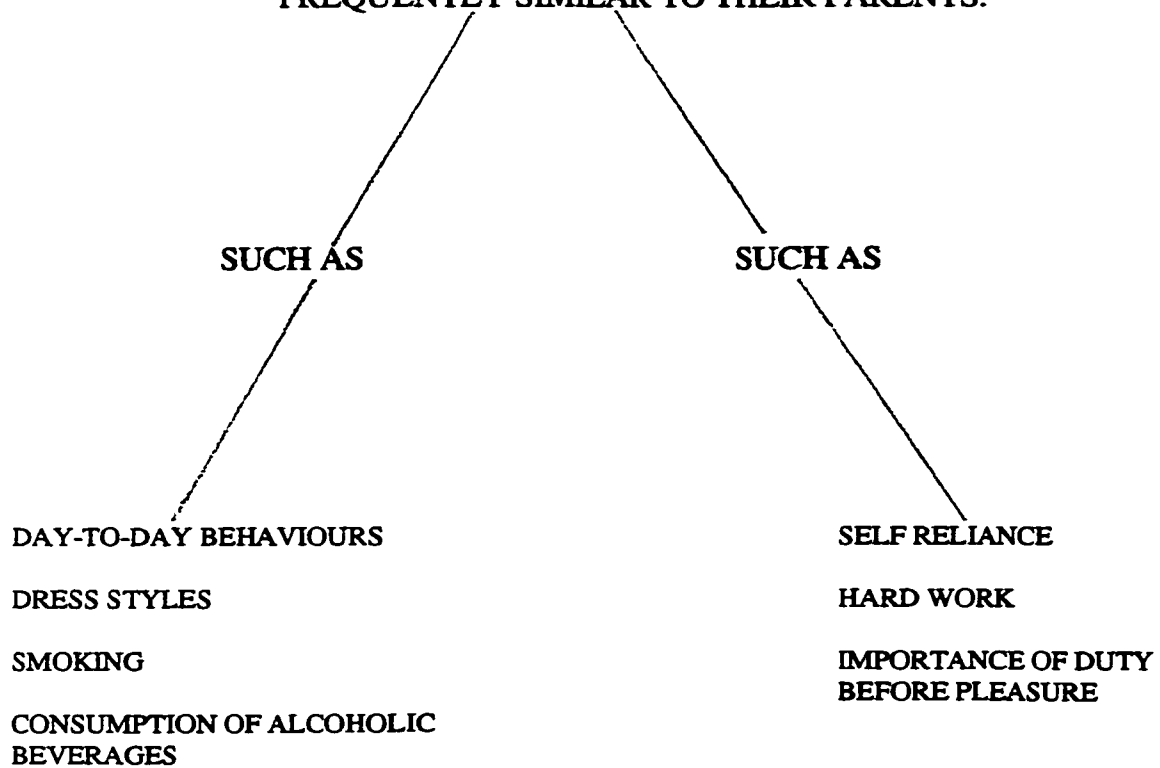
Begetting:

To be the father, to produce.



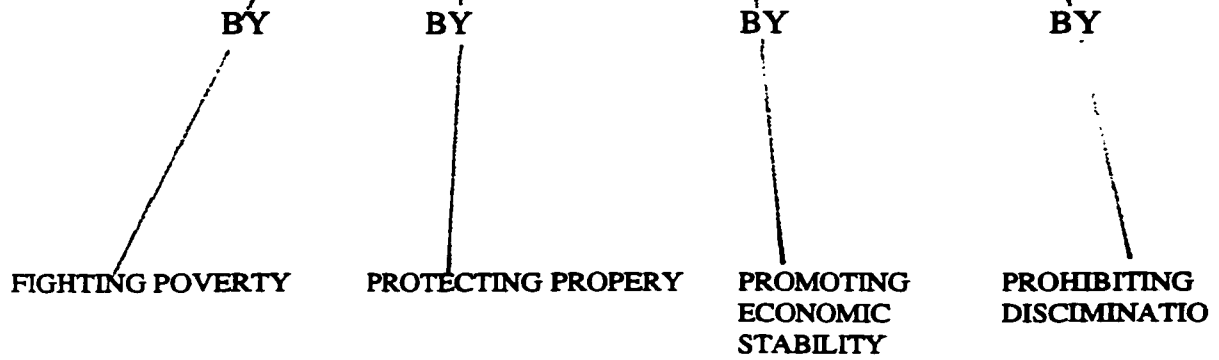
HANDOUT # 1

WHILE ADOLESCENTS DIFFER FROM THEIR PARENTS ON UNIMPORTANT MATTERS, THEIR VALUES ON IMPORTANT ISSUES ARE FREQUENTLY SIMILAR TO THEIR PARENTS.



HANDOUT # 2

**RULES AND REGULATIONS IMPOSED BY GOVERNMENTS
PLAY AN IMPORTANT ROLE IN A SOCIETY'S
ECONOMIC ACTIVITY.**



HANDOUT # 3

Let's summarize what you have been taught today:

1. A main idea is the central thought or message in a paragraph or in a section of text containing several paragraphs.
2. Main ideas can be found in the topic sentence of a paragraph or section of a text. The sentences that follow expand on the main idea by giving specific details.
3. Main ideas can also be found in the last sentence of a paragraph or section of text. The last sentence integrates the information given in the paragraph or section.
4. Often in textbooks, main ideas are not explicitly stated. The main idea will be implied from the information given and it is up to you to construct the main idea from this information.

Thank you for your attention and for your participation in this workshop.

Appendix B
Instructor's Script

**INSTRUCTOR'S SCRIPT
FOR WORKSHOP ON
MAIN IDEA SELECTION**

The instructor begins the workshop by introducing herself. The instructor next tells the students what is the objective of the workshop. The instructor reads the script for the workshop highlighted in bold.

The objective of today's workshop is to give you INFORMATION and PRACTICE on how to find main ideas in text.

Why is it important to know what are the main ideas in a text?

Because when you know what the main ideas are in a text, you will better be able to UNDERSTAND the text.

Research has shown that many students get overwhelmed by DETAILS in what is called expository text or the type of text typically found in senior high school or college/CEGEP level textbooks.

To help you to BETTER UNDERSTAND what you are reading in a textbook, we will look at what a main idea is and how to find it in a text or to construct it from the text with the information that you are given in the text.

Can anyone define for me what is a main idea?

A main idea is the central thought or message in a paragraph or in a section of text containing several paragraphs. This central thought or main idea is broad enough so that the supporting details in the paragraph or paragraphs fit under the main idea.

Where can we find the main idea in a paragraph?

Let's look at Example # 1 which is on the handout I gave to you at the start of this workshop.

Example # 1 was taken from a college-level biology text.

Can anyone tell me what is the main idea in this paragraph and where can I find it?

In this first example, it is the first sentence that contains the topic of the paragraph (the topic sentence) and is also the central thought in this paragraph. The topic is the subject of the information. The main idea is the central thought in this paragraph.

(Instructor asks students to look at hand out # 1 and states): **The main idea in this paragraph is that “Predation is beneficial to a prey species population.”**

The sentences that follow this topic sentence expands on the main idea by giving specific details of how predatory behaviour is beneficial to a prey population. It answers the question “why” predation is beneficial to a prey species population.
(Instructor asks students to look at handout # 1 again).

In addition to answering the question why, the supporting details or sentences can also answer the questions of what, when, where and how.

Let’s move onto Example # 2 which was taken from a psychology text.

Can anyone tell me what is the main idea and where can it be found?

In this paragraph the main idea is that “While adolescents differ from their parents on unimportant matters, their values on important issues are frequently similar to their parents.”*(Instructor asks students to look at the main idea on handout # 2).*

This main idea can be found in the last sentence which integrates the paragraph. All the earlier sentences support the main idea stated in the last sentence. Let’s look at some of these supporting details under the main idea. Can anyone tell me what is a supporting detail in the paragraph? *(Instructor asks students to look at the supporting details on handout # 2).*

Now let’s look at Example # 3 taken from an economic text.

What is the main idea in this paragraph?

This paragraph contains a collection of sentences which describe the role of government in relation to the economy. However, there is no one sentence which encompasses all the sentences. Therefore, the main idea is an IMPLIED MAIN IDEA. In other words, you as the reader will have to CONSTRUCT the main idea using the information provided in the paragraph. *(The instructor asks the students to look at the main idea on example # 3).*

This is the main idea for this paragraph.

Could anyone please tell us using the information provided in the paragraph how the government does this? (*Instructor refers students to supporting details on handout # 3*).

This last example is typical of the kind of text you will often find in textbooks. The main idea will not always be stated explicitly. It will be implied and you have to read all the information provided to construct the main idea in your work words.

Let's move onto our last example, also taken from a psychology text. In the previous examples, all the main ideas could be found in each of the paragraphs whether you found them in the paragraph itself or whether you had to construct the main idea yourself from the information given.

In the last example, Example # 4, I want you to read the entire text, i.e. all the paragraphs and then tell me what the idea is.

Can anyone tell me what is the main idea? In this example the main idea can be found in the last paragraph of this text. "Emotions are the heart of soul of human life". In other words, emotions are very importation to human life. The examples given support this main idea.

Appendix C
Assessment Text

NAME: _____

DATE: _____

WHAT IS PSYCHOLOGY?

*The purpose of psychology
is to give us a completely different idea
of the things we know.*

Paul Valery

In 1945, a 15-year-old Jewish girl named Anne Frank died of typhus at Bergen-Belsen, a notorious Nazi death camp. She had spent the previous two years with her parents, her sister, and four others in a cramped apartment in Amsterdam, hiding from German troops occupying Holland. Unable to go outside, the group depended entirely on Christian friends for food and other necessities. Anne, who was a gifted writer and astute observer, recorded in her diary the fears, frustrations, and inevitable clashes of people forced to live 24 hours a day in close proximity. Yet she never despaired or lost her sense of wonder at life's joys. With humour and grace, she described the pleasure of family celebrations, the thrill of first love, the excitement of growing up. Shortly before the Gestapo discovered the hideout, Anne wrote, "It's really a wonder that I haven't dropped all my ideals, because they seem so absurd and impossible to carry out. Yet I keep them, because in spite of everything I still believe that people are really good at heart. I simply can't build up my hopes on a foundation consisting of confusion, misery, and death." Many years later, and thousands of miles away, Charles "Tex" Watson grew up, apparently uneventfully, in a small American town. A handsome boy, Charles

attended church, earned high grades, and competed successfully in football, basketball, and track.

During his junior year in high school his fellow students named him the outstanding member of his class. Then, a few years after leaving home for college, Watson fell in with the Charles Manson cult. Manson was a charismatic figure who convinced his followers that he was divinely chosen to lead them and demanded their blind obedience. In 1969, on Manson's orders, the cult savagely slaughtered seven innocent people in Los Angeles. Tex Watson, the young man who had earlier seemed so full of promise, cold-bloodedly carved his initials on the chest of one of the victims.

Why did Anne Frank, living in the constant shadow of death, retain her love of humanity? Why did Tex Watson, who apparently had everything to live for, turn to brutal acts of violence? How can we explain why some people are overwhelmed by petty problems, while others, faced with real difficulties, remain mentally healthy? What principles can help us understand why some human beings are confident players in the game of life, while others angrily reject its basic rules?

If you have ever asked yourself such questions, welcome to the world of psychology. You are about to explore a discipline that studies the many complexities and contradictions of human behaviour. Psychologists take as their subject the entire spectrum of brave and cowardly, wise and silly, intelligent and foolish, beautiful and brutish things that human beings do. Their aim: to examine and explain how human beings-and animals too-learn, remember, solve problems, perceive, feel, and get along with others.

Many people, when they hear the word psychology, think immediately of mental disorders and abnormal behaviour. They are just as likely to focus on common-place experiences-experiences as universal and ordinary as rearing children, remembering a shopping list, daydreaming, and even gossiping. Most of us, after all, are neither saints nor sinners, but a curious combination of both positive and negative qualities, Psychology, in short, is not only about martyrs and murderers, it is also about you.

A MATTER OF DEFINITION

Psychology has always had a way of outgrowing its definitions. At the start of this century, most psychologists considered psychology to be the study of mental life, the mind, or consciousness. Within a few years, however, such definitions came under attack as vague and unscientific. As we shall see, between the 1920's and 1950's many psychologists preferred to define their discipline as the study of behaviour, because what people do-unlike what they think or feel-can be directly observed and measured. But this definition also came under attack. To those who still wanted to study thinking, dreaming, and all the other fascinating things that go on between people's ears, confining psychology to behaviour made no more sense than confining literature to short stories or history to descriptions of military battles.

Today, most psychologists are willing to make room for both behaviour and mind in their work. In this book we, too, take a broad approach. We define psychology as the scientific study of behaviour and mental processes and how they are affected by an organism's physical state, mental state, and external environment.

We realize that this brief definition of psychology is a little like defining a car as “a vehicle for transporting people from one place to another.” Such a definition is accurate as far as it goes, but it doesn’t tell you what a car looks like, how a car differs from a train or a bus, how a Ford differs from a Ferrari, or how a carburettor works. Similarly, to get a good clear picture of what psychology is, you need to have more information - about its methods, its findings, its way of interpreting data. Your course and the rest of this textbook will give you this information.

PSYCHOLOGY’S MAIN GOALS

We begin with psychology’s main goals. These goals are straightforward: to (1)describe, (2)understand, (3)predict, and (4)control or modify behaviour and mental processes. In a sense, every human being is an amateur psychologist, because everyone wants to describe, understand, predict and control behaviour and mental processes, both their own and those of other people. Suppose your best friend has just nagged you for the three hundredth time about your tendency to subsist solely on pizza, potato chips, and soda pop. You might describe the behaviour, (“Frieda is always badgering me about the way I eat”); attempt to understand its cause (“She’s a health nut”); make a prediction about the future (“If I don’t do something, I’m going to be nagged for the rest of my life”); and try to bring about a change. (“I’ll eat wheat germ and drink carrot juice once a week, and then maybe she’ll leave me alone”).

But if psychologists goals are the same as everyone else’s, what makes psychology a special discipline? The answer is that most people form opinions about human behaviour and experience in a casual way. Most psychologists, in contrast, follow

rigorous and systematic procedures, to be described in the next chapter. They resist reaching for conclusions until they have evidence that can be checked and verified by others. They test their ideas. For example, do lie detectors work. A non-psychologist might base his opinion on conjecture, media accounts, or the claims of professional lie detector interpreters. Psychologists, however, have studied the question comparing the results of lie detector tests taken by people already known by the researcher to be guilty or innocent of a crime. Lie detectors, it turns out, are highly inaccurate. As we shall see when we get to Chapter 9, many innocent people fail lie detector tests, and many guilty people pass with flying colours.

There has sometimes been heated, even bitter, debate among both psychologists and non-psychologists about psychology's fourth goal, the control or modification of behaviour and mental processes. When psychologists talk about changing behaviour, they are thinking about improving education and child rearing, increasing work productivity, reducing crime, teaching social skills, helping people get rid of unwanted habits, and making other useful contributions to society. However, some people worry that governments or ambitious individuals will use the control techniques of psychology to set themselves up as Big Brothers and manipulate the unsuspecting.

Defenders of behavioural control point out that psychologists did not invent the idea. In fact, all of us control others, and in turn are controlled by others, each and every day. The last time you tried to attract someone's romantic interest, get a child to do something he or she didn't want to do, or win an argument, you were attempting to exert behavioural control. Even people who consider themselves easygoing, live-and-let-live

types inevitable control others, whether intentionally or not - by their actions, their responses, their facial expressions, and even their silences. The findings of any science can be used in way that help or hurt people, depending on the political decisions made by society. Psychologists who include control as a goal believe that psychological findings and principles, if used widely, can contribute to human welfare and happiness. We exert control anyway, they say. We might as well know what we are doing.

Appendix D
Interest Questionnaire

NAME: _____

DATE: _____

TIME OF CLASS: _____

The text you will be reading at a later time is about "What is Psychology?" Before you read the text, we want you to give us your opinion of the text. In order to do so, you might find it helpful to read a short summary of the text.

Summary: *In this text, the authors define the term psychology and give a brief overview of what psychologists study. The text also states and describes the main goals of psychology in the study of humans and animals.*

Now that you have an idea what the text is about, please take the time to answer the following questions. Remember there are no right or wrong answers, just answer as accurately as possible. Use the scale below to answer the questions. If you think the statement is very true of you, circle 7; if a statement is not at all true of you, circle 0. If the statement is more or less true of you, find the number between 0 and 7 that best describes you.

1. While reading the text on "What is Psychology?" I expect to feel

	not at all		some- what			quite		very	
bored	0	1	2	3	4	5	6	7	
stimulated	0	1	2	3	4	5	6	7	
interested	0	1	2	3	4	5	6	7	
involved	0	1	2	3	4	5	6	7	

2. To me personally, the topic "What is Psychology" is

	not at all		some- what			quite		very	
meaningful	0	1	2	3	4	5	6	7	
useful	0	1	2	3	4	5	6	7	
worthless	0	1	2	3	4	5	6	7	

Appendix E
Student Background Questionnaire

NAME: _____

DATE: _____

TIME OF CLASS: _____

STUDENT BACKGROUND

To help us to get to know you better, please answer the following questions.

DIRECTIONS: Please use the response scale for each question by circling the answer that applies to you.

1. What is your gender?
a) female b) male

2. What is your age?
a) 15 years old
b) 16 years old
c) 17 years old
d) 18 years old
e) 19 years old or older

3. In which language did you receive most of your elementary school education?
a) English
b) French immersion in an English school
c) French
e) Other

4. How would you rate your reading ability in English?
a) poor
b) fair
c) good
d) very good
e) excellent

5. Are you currently taking a course in physics?
- a) yes
 - b) no
6. Are you currently taking a course in chemistry?
- a) yes
 - b) no
7. Are you currently taking a course in economics?
- a) yes
 - b) no
8. Are you currently taking a course in advanced math?
- a) yes
 - b) no
9. Are you planning to go to CEGEP after graduating from high school?
- a) yes (If yes, please go on to question # 10).
 - b) no (If no, please go on to question # 13).
10. Which of the following programs will you most likely apply for at CEGEP? (Please select only one of the five programs listed).
- a) Social Science
 - b) Pure and Applied Science
 - c) Commerce
 - d) Health Science
 - e) Other - Name of Program: _____
11. Do you intend to take at least one course in psychology at CEGEP?
- a) yes
 - b) no
12. Do you intend to take two or more courses in psychology at CEGEP?
- a) yes
 - b) no

13. Do you see yourself studying psychology as your main subject at the university level?
- a) yes
 - b) no
14. Do you think you would like to become a psychologist in your future career?
- a) yes
 - b) no
15. Have you ever read anything from a psychology textbook?
- a) yes
 - b) no

Appendix F
Motivation Questionnaire

NAME: _____

DATE: _____

TIME OF CLASS: _____

MOTIVATION

The following questions ask about your motivation for and attitudes about this class. Remember there are no right or wrong answers, just answer as accurately as possible. Use the scale below to answer the questions. If you think the statement is very true of you, circle 7; if a statement is not at all true of you, circle 1. If the statement is more or less true of you, find the number between 1 and 7 that best describes you.

- | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|-----------------------------|---|---|---|---|---|--------------------|
| | not at
all true
of me | | | | | | very true
of me |
| 1. Getting a good grade in this class is the most satisfying thing for me right now. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. In a class like this, I prefer course material that really challenges me so that I can learn new things. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. The most important thing for me right now is improving my overall high school average, so my main concern in this class is getting a good grade. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

1 not at all true of me	2	3	4	5	6	7 very true of me	
6. If I can, I want to get better grades in this class than most of the other students.	1	2	3	4	5	6	7
7. I want to do well in this class because it is important to show my ability to my family, friends, employer, or others.	1	2	3	4	5	6	7
8. When I have the opportunity in this class, I choose course assignments that I can learn from even if they don't guarantee a good grade.	1	2	3	4	5	6	7

Appendix G
Learning Strategies Questionnaire

NAME: _____

DATE: _____

TIME OF CLASS: _____

LEARNING STRATEGIES

The following questions ask about the learning strategies you used when reading the text you just finished. Remember, there are no right or wrong answers, just answer as accurately as possible. Use the scale below to answer the questions. If you think the statement is very true of you, circle 7; if a statement is not at all true of you, circle 1. If the statement is more or less true of you, find the number between 1 and 7 that best describes you.

- | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|----------------------------------|---|---|---|---|---|---------------------------------|
| | not at all
true of me | | | | | | very
true
of me. |
| 1. While reading the text, I made up questions to help me focus my reading. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. When I became confused about something I was reading in the text, I went back to the text to try and figure it out. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. Before beginning to read this text thoroughly, I skimmed it to see how it was organized. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. I asked myself questions while reading the text to make sure I understood it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. I tried to think through this topic and decide what I am supposed to learn from it rather than just reading over it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Appendix H

Main-Idea Key

MAIN-IDEA KEY

Main -idea #1

How can we explain why some people are overwhelmed by petty problems, while others, faced with real difficulties, remain mentally healthy?

or

What principles can help us understand why some human beings are confident players in the game of life, while others angrily reject its basic rules

or

You are about to explore a discipline that studies the many complexities and contradictions of human behaviour.

Main -idea #2

Their aim: to examine and explain and human beings-and animals too-learn, remember, solve problems, perceive, feel, and get along with others.

Main - idea #3

Many people, when they hear the word psychology, think immediately of mental disorders and abnormal behaviour.

Main - idea #4

Psychology, in short, is not only about martyrs and murderers, it is about you.

Main - idea #5

Psychology has always had a way of outgrowing its definitions.

Main - idea #6

We define psychology as the scientific study of behaviour and mental processes and how they are affected by an organism's physical state, mental state, and external environment.

Main - idea #7

Similarly, to get a good clear picture of what psychology is, you need to have more information - about its methods, its findings, its way of interpreting data.

Main - idea #8

We begin with psychology's main goals, These goals are straightforward: to (1) describe, (2) understand, (3) predict, and (4) control or modify behaviour and mental processes.

Main - idea #9

In a sense, every human being is an amateur psychologist, because everyone wants to describe, understand, predict and control behaviour and mental processes, both their own and those of other people.

Main - idea #10

The answer is that most people form opinions about human behaviour and experience in a casual way.

Main - idea #11

Most psychologists, in contrast, follow rigorous and systematic procedures, to be described in the next chapter.

Main - idea #12

There has sometimes been heated, even bitter, debate amount both psychologists and non-psychologists about psychology's fourth goal, the control or modification of behaviour and mental processes.

Main - idea #13

However, some people worry that governments or ambitious individuals will use the control techniques of psychology to set themselves up as Big Brother and manipulate the unsuspecting.

Main - idea #14

In fact, all of us control others, and in turn are controlled by others, each and every day.

Appendix I
Scoring Protocol

SCORING PROTOCOL FOR COGNITIVE STRATEGIES

- 1) One point will be given for each main idea selected from the text that matches the main idea key. No points will be given for irrelevant or incorrect main ideas. Partial marks (i.e. one half point) will be given for partial main ideas.. Students may write out their main idea in point form or in full sentences but not as single words. If a student has two or more main ideas in one sentence, they will receive one point for each main idea written.
- 2) One point will be given for each main idea that the student paraphrases. Partial marks (i.e. one half point) will be given if a student paraphrases a partial main idea. A paraphrased main idea is defined as a restatement of the main idea in the student's own words in which at least one other similar (in meaning) verb, noun, or adjective is used in place of the verbatim verb, noun, or adjective taken from the text.
- 3) One point will be given for each full line of text underlined or bracketed or highlighted by the student. Partial lines (i.e. less than one half of the full line of text) that are underlined etc, will receive one half point (0.5). If a student underlines and brackets the same lines of text, only one point will be given for each full line of text bracketed and underlined.
- 4) One point will be given for each note written in the margin of the text, regardless of the length of the note. In other words, a note can be a word or a full sentence.

Appendix J

Intrinsic Goal Orientation Instructions

NAME: _____

DATE: _____

TIME OF CLASS: _____

SELECTION OF MAIN IDEAS EXERCISE

INSTRUCTIONS: Your task for this exercise is to try to find the main ideas in the accompanying text, "*What is Psychology*". Once you have read the text, please write the main ideas on the answer sheets which have been provided. You may make any notes or marking anywhere on the text. You have thirty minutes to complete this task. At the end of the thirty minutes, we will ask you to turn in this instruction sheet, the text, and your answer sheets.

In trying to select the main ideas, it will be helpful to you if you focused on trying to understand the meaning of the text. Try to see this task as a challenge and try to enjoy what you are doing.

Appendix K

Extrinsic Goal Orientation Instructions

NAME: _____

DATE: _____

TIME OF CLASS: _____

SELECTION OF MAIN IDEAS EXERCISE

INSTRUCTIONS: Your task for this exercise is to try to find the main ideas in the accompanying text, "*What is Psychology*". Once you have read the text, please write the main ideas on the answer sheets which have been provided. You may make any notes or markings anywhere on the text. You have thirty minutes to complete this task. At the end of the thirty minutes, we will ask you to turn in this instruction sheet, the text, and your answer sheets.

If you are successful in finding at least 75% of the main ideas in this text, you will receive a reward of your choice to be given at a later date. A reward menu is provided below. Please select, by circling the appropriate number, the reward you would like to receive if you are successful in this task.

- 1) A \$5.00 gift certificate from McDonald's restaurants.**
- 2) A \$5.00 movie pass from a local cinema.**
- 3) A \$5.00 gift certificate from a local bookstore.**

Appendix L

Main-Idea Answer Sheet

