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Study Partnerships: A Self-Regulatory Resource For Learning Among College Students

By

Rajkumari Wesley

A dissertation submitted to the Graduate Faculty in Educational Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy

The City University of New York
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Abstract

Study Partnerships: A Self-Regulatory Resource

For Learning Among College Students

By

Rajkumari Wesley

Advisor: Professor Barry J. Zimmerman

This research investigates college students' help-seeking in the form of study partnership (SP) groups that operate outside formal classroom contexts. The effectiveness of study partners is examined with particular attention to self-regulatory processes, such as motives, methods, and timing of students' choice and use of study partners. A college population of students is studied because study partnerships are especially evident during these school years, although no descriptive research has been reported previously on this topic to my knowledge. Two hundred and eighty five college students from diverse colleges and universities participated in the study. It was found that these students' use of a SP became more prevalent when they entered graduate school, increasing from 25% to 47%. In terms of ethnic group differences, Asian students formed study partnerships more frequently than students of other ethnic groups. Asians students also studied more frequently within their ethnic group than students from other ethnic groups. In terms of the frequency of SP use, 43% of the students used a SP more than five times during the current semester with an average of 2 courses, which indicates a relatively heavy personal reliance on this method of studying.

In terms of their levels of academic self-regulation, students who used study partners (SP users) displayed significantly higher self-efficacy for SP use and

significantly more total studying than students who do not use a study partner (non-SP users). The studying advantage of the SP users was due to their use of a SP because both SP users and non-SP users groups studied alone for similar amounts of time. Among students who were non-SP users, high achievers did not use a SP because of perceived ineffectiveness, while low achieving students did not use SPs because of fear. When comparisons were made between high achieving and low achieving SP users, significant differences were not found between the groups in terms of the self-regulation or grade point average. Apparently, use of SPs compensates for personal limitations in personal self-regulation and achievement. However, correlations among the variables indicated that self-efficacy and self-regulated learning are associated with the following study partner processes: motivation to study, methods used for studying, control over study behavior, the use of time, and an increased control of their physical environment when they study together.

Because of its prevalence and its links to academic self-regulation and achievement, the topic of SP should be studied further, especially using intervention studies where the causal role of study partners in academic achievement can be assessed.

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daughter when I returned late from school. They have all been very enthusiastic about my doctoral work and have kept my morale high.

How can I close without a word about my dear family? To my wonderful parents who instilled in me a sense of value and discipline to learning, right from the days when I was in the elementary grades. This is a tribute to them. My mother-in-law, a well-known educator in southern India, has been a role model for me. She has been very encouraging despite all the odds. This dissertation is a tribute to her and to the memory of my beloved father-in-law, who was also a very well known educator. I have been blessed with a wonderful family, and I want to thank each member for their faith in my abilities.

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Finally, I dedicate this dissertation to the memory of Dr. Sue Rosenberg Zalk who was very encouraging of my studies and work. I miss her and know that she would have been very happy to see me graduate.

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Chapter 1

Introduction

Visitors to college campuses commonly see students widely engaged in studying, both alone and with study partners, in diverse places, such as libraries, study rooms, and the cafeteria. A study partnership is a consensual relationship that students form on their own for academic purposes, but very little is known scientifically about how these relationships are formed, structured, and evaluated. There is, however, extensive evidence that students' study groups that are formed, structured, and evaluated by teachers, such as cooperative learning, collaborative learning, reciprocal learning, and peer tutoring, can improve students' learning significantly. Are student-initiated study partnerships also effective? Because of the perceived utility of student study partnerships, some faculties have introduced these methods in college survival courses (Dembo, 2000). The present study seeks to gather empirical evidence regarding the effectiveness of study partnerships.

Like other student-initiated forms of learning (e.g., personal studying), study partnerships require high levels of *self-regulation*. For a study partnership to function effectively, students need to set mutual goals for their efforts, plan their methods and activities together, manage time and the study environment jointly, and monitor and self-evaluate their degree of success. These study processes have been labeled as self-regulatory when used in individualized learning contexts (Zimmerman, 2000). In the present research, a social cognitive model of academic self-regulation (Schunk, 1987; Zimmerman & Martinez-Pons, 1986) is adapted for use with study partners (see chapter 2). More specifically, the present study focuses on students' self-regulatory beliefs and

processes when they team up with a study partner to attain certain specific academic goals. For the purpose of this study, *a study partner is defined as a person or persons who is selected and engaged by a student to help him or her to master the content of a particular academic course.* Before discussing the students' use of study partners, I will first consider research on teacher-initiated forms of group learning.

Group Learning Processes

There is widespread interest in studying peer interaction among students as a critical variable in learning and cognitive development. Peer-based educational methods have sprung up in classrooms around the world and, researchers have largely been conducting their work within structured classrooms to understand the mechanics that underlie these techniques. One of the foremost types of instruction involving peer interaction is cooperative learning.

Cooperative learning

Cooperative learning involves an instructional approach where the classroom is divided by the teacher into teams or groups usually consisting of no more than five to six children each (Slavin, 1983). The teacher presents a task to each group, and the group then sets out to master it. The groups are generally heterogeneous with respect to ability and rarely does any student assume a superior status. These groups are not competitive and often each member becomes an expert on one aspect of a larger topic. After studying the sub-topic in depth, each member reports back to the team what he or she has found: each 'specialist' member teaches the team as a whole in turn. Group discussions of the reports are encouraged where team members share work and information with one another. The students are encouraged to monitor, assist and provide feedback of one

another's work thus generating a sense of group responsibility for problem solving and learning. This practice depends on the teacher to organize and structure the groups.

Collaborative learning

In peer collaboration, two relative novices work together to solve challenging tasks that neither could do satisfactorily on their own prior to the collaborative engagement (Webb & Kenderski, 1985). Both students begin at the same levels of competence. Unlike cooperative learning, the pair (or a group) works jointly on the same problem rather than individually on separate components of the problem. Peer collaboration creates an engagement rich in mutual discovery, reciprocal feedback and frequent sharing of ideas as well as equality. The teacher trains the students to work in a discovery type of learning situation where challenge is placed in a context of supportive communications and assistance. Peer collaboration assists experimentation of untested ideas that are presented by the teacher. The resultant learning leads to a shift in one's perspective thus causing deep conceptual insights. The strength of this method encourages creative risk-taking, where errors and mistakes are less threatening and are a part of the learning process (Boxtel et. al, 2000; Gabrielle & Montecinos, 2001; Webb et. al, 1995). In an environment where joint exploration takes place with an equal partner, a child is believed to feel secure enough to try and test new ideas. Because the teacher invests a great deal of time in planning and executing this type of learning experience, it is hard to say to what extent students carry out such peer collaborative techniques in the absence of supervision.

Studies conducted by Berndt et. al. (1988, 1990) attempted to introduce another form of collaboration where students were paired with a friend. Again, this set of studies

was conducted within a formal classroom setting. The studies did not show any significant differences in the type of in-class discussions close friends (classmates) had with each other when compared to the type of discussions classmates (not close friends) had with each other. Neither type of collaborative investigation addressed such study patterns outside of the classroom.

Peer tutoring

Another form of group learning is peer tutoring (Ryan, 2000). In this form of learning, students were organized in dyads or small groups of three or four students and took turns being the tutor and the tutees. In some other peer-tutoring sessions, the role of tutor and tutee were fixed (Webb & Kendereski, 1985; Webb & Troper, 1995). The tutor was either a year or two ahead of the tutee in school and was of course stronger than the other in the subject being taught. In this sense, peer-tutoring emulates the traditional teacher-student relationship in which one party transmits expertise to the other, though the tutor does not possess the same degree of authority as the teacher does. Hence, often peer-tutoring establishes a relationship that is unequal (Webb, 1989). The findings indicate that when the students involved in the interaction were similar in their academic strengths or weaknesses to each other, the tutees asked questions and shared opinions more frequently. Most of these studies indicated that peer-tutoring happened only when the teacher initiated it. There is no evidence concerning how peer-tutoring groups function in less formal situations outside the influence of the classroom teacher.

Treisman (1979) used a form of peer tutoring involving a structured peer-community to assist minority college students. Structured peer communities, such as a mathematics workshop, was initiated prior to the commencement of the semester and

students were trained to work in groups so as to foster the development of a community feeling to help them cope with college. The students who were part of the mathematics workshop outperformed their other classmates in their freshmen year. However, there are no data to indicate that these groups actively worked together outside of their instructional time in the workshop.

Reciprocal learning

Reciprocal learning uses a cyclic approach wherein the teacher leads a small group of students to discuss the use of different reading strategies: questioning, clarifying, predicting and summarizing (Palinscar & Brown 1984). This adult teaching is followed by each student taking turn to teach the group the particular strategy in question. Again, the data available on reciprocal learning is exclusively restricted to learning contexts that are under the direct supervision of the teacher. Educational researchers have not demonstrated whether reciprocal learning strategies are transferred to other informal learning situations or maintained over time.

Reciprocal learning, like cooperative, collaborative, peer-tutoring and peer communities are all initiated and guided by the teacher. Although the goal and structures of these group forms of learning are designed to give the students greater opportunities to learn together, there is little evidence to date that they lead to greater self-initiated use of study partners outside of class.

Adaptive Help-Seeking

Adaptive help-seeking strategy is a social form of learning that involves self-initiation and self-planning on the part of the student. Adaptive help-seeking differs from *dependency* because of its proactive and self-regulated qualities. The students seeking

help perceive their need for specific forms of help and seek out the right person to help them. Adaptive help-seeking has been studied in the elementary school grades using observational techniques (Nelson-LeGall, 1985). Situations were created for these students to seek help while they worked on tasks and their behaviors were studied. Other researchers, more recently, have looked at help-seeking behavior in middle and junior high classrooms (Newman, 1991, 1998; Ryan, 1997, 1998). These researchers used self-report research techniques and reported their findings based on simulated classroom interactions. There are also a few studies that have explored help-seeking behavior among college students within classrooms (Karabenick, 1988, 1996). The findings from these studies have revealed that adaptive help-seeking is a characteristic study behavior of high achievers at all age levels. This includes research in elementary school classrooms (Karabenick, 1988, 1996; Nelson-LeGall, 1985; Newman, 1991, 1998; Ryan, 2000) as well as research at high school levels (Zimmerman and Martinez-Pons (1986).

Limitations in the Existing Research

Research conducted to date has looked at help-seeking behavior within structured learning situations such as classroom settings or hypothetical learning contexts. In the help-seeking literature, the focus again has been only within-class, teacher-initiated activities (Karabenick, 1988, 1996; Nelson-LeGall, 1985; Newman, 1991, 1998; Ryan, 2000). Moreover, most of the studies were done with young children. Although there are a few studies with college samples, the researchers looked at general aspects of help-seeking: no special focus was laid on the characteristics of the helper or helpee. No data have been reported on college or younger students about how help is sought and received in naturalistic groups that meet outside the classroom. Researchers have used different

types of measures, and comparing their studies is problematic because no standard criteria have been laid down for defining adaptive help-seeking. Not surprisingly, their results have been varied and inconclusive. Moreover, the current research literature in adaptive help-seeking has not included study partnerships.

In table 1, I present an analysis of the various forms of group learning. Most of the types of group learning techniques shown here are initiated by the teacher within a classroom setting. However, in the case of self-regulated learning as indicated, the behavior is initiated by the student. The last row in the chart shows that the formation of study groups is initiated by the students outside the formal classroom setting. In this respect, formation of study partnerships is unique.

The formation of study partnerships is expected to be dependent on students' development of a wide range of self-regulatory skills such as self-monitoring, self-evaluation, and self-efficacy. The importance of study partners is widely evident on contemporary college campuses where it is common to see groups of students engaged in studying and discussing different class topics in the college cafeteria and other places in the campus where students meet. Furthermore, the fact that college textbooks emphasize that forming study partnerships as an useful academic survival skill bears witness to the perceived value of this type of social learning (Dembo, 2000). The proposed study will focus on a college population because it is during these years that formation of study partnerships is especially evident although no descriptive research has reported on this issue to date.

Table 1
An Analysis of Group Forms of Learning According to their Setting and Initiation

Type of Social Learning	*Setting*	*Initiated by...*
Cooperative Learning	Classroom	Teacher
Collaborative Learning	Classroom	Teacher
Reciprocal Learning	Classroom	Teacher
Peer Learning Techniques	Classroom	Teacher
*Self-Selected Modeling	Classroom / Outside the class	*Student
Academic Help-Seeking	Classroom	Teacher
*Study Partnerships	*Outside the classroom	*Students

* Focus of the present research

Self-Regulated Learning

The nature and origins of academic self-regulation have been the focus of educational practitioners and researchers in the recent years. Theories of self-regulated learning (Zimmerman, 1986) have been instrumental in reconceptualizing the role of learners in academic achievement. Proactive students take charge of learning through the use of strategies to enhance specific self-regulatory processes. A number of different learning strategies (Zimmerman & Martinez-Pons, 1986) have been identified that are common across self-regulated learning situations be it academics, music or sports. A few of these strategies such as goal-setting have been studied extensively (Meece et. al, 1988)

while others such as adaptive help-seeking need greater exploration. Research in the recent years has shown that help-seeking, like other academic self-regulatory processes is not a fixed characteristic of students (Zimmerman, 1989, 1994, 1995).

To better understand the degree and quality of self-regulatory processes that students exercise while they are engaged in studying, Zimmerman has identified six underlying psychological dimensions of functioning: *motive, method, time, behavior, physical and social environment* (Zimmerman, 1989). Associated with each psychological dimension is a key scientific question for understanding self-regulatory behavior: *why, how, when, what, where and with whom* (see Table 2).

This framework for understanding of academic self-regulation will be used to explore the students' formation and development of study partnerships. It is set within a social cognitive model of learning.

The *why* question addresses the motives of students to use of study partners. To self-regulate this dimension of motivation, students should be free to choose their study partner and also decide how much to study with that person. These partnerships may be viewed as enhancing their self-efficacy beliefs that together they can succeed. The partnerships may be seen as helping the students attain such outcomes as graduating college and entering a profession.

Table 2

Dimensions of Self-Regulation for Study Partnerships

Scientific Questions	*Psychological Dimensions*	*Task Conditions*	*Self-Regulatory Attributes*
Why?	Motive	Choose study goals with study partner	Motivated to work with a study partner
How?	Method	Choose method of study with partner	Strategically planned in methods of study with partner
When?	Time	Choose meeting time with study partner	Timely in meeting with study partner
What?	Behavior	Choose behavioral outcomes of study partner interactions	Self-aware of joint performance with partner
Where?	Physical environment	Choose setting in which to work with study partner	Resourceful in finding a place to study with partner
With whom?	Social environment	Choose a suitable study partner to study with	Resourceful in selecting an appropriate study partner.

(Adapted from Zimmerman, 1994)

The *how* question focuses attention on the psychological dimension of method. The essential condition here is that students must have a choice in the method and their study partner. In the present study, the choice of a study partner forms the core of the self-regulatory learning behavior. It is assumed that study partners focus their meetings on gathering and processing information, posing questions, elaborating and analyzing the information. The members in the group learn to interpret the information and apply it to relevant situations. The students are engaged in strategic planning with their partners. They have to take into consideration the dynamics of group interaction and plan out the sessions for maximum joint effectiveness. This study will examine to what extent they are systematic in the manner they offer constructive feedback and explain materials to

each other; to what extent they engage in brainstorming, critical thinking and problem solving each of which will enhance their quality of learning.

The *when* question refers to the time dimension of the self-regulatory model. Students who are highly self-regulated make better use of their time (Zimmerman, 1986). When study partnerships are formed with clear objectives, time must be planned and monitored judiciously. When general rules are being laid down to decide on the frequency and duration of the meetings, it is necessary to prepare schedules that will be convenient for all the members. In the study proposed, these issues will be addressed. The agenda of each meeting, time required for preparing materials, punctuality of the members, and the quality of interaction will be studied. The study will also determine to what extent the expected outcomes have been attained.

The *what* question refers to the overt behavioral performance of the students. To self-regulate their studying, students must be able to choose, adapt or modify their response from the feedback obtained. While working in study groups, the students must decide how to assess their progress as they study together. To accomplish this, students must be metacognitively engaged as they work with their partners: that is, are they aware of their increasing academic competence as well as their study partner's. Issues to be addressed in the study include the processes by which these study partners will monitor their progress, both formatively and summatively; how does the partnership resolve conflicts and arrive at consensus and conclusions; how is the course material synthesized and summarized?

The *where* question pertains to the manner in which self-regulatory students control their study environment. Self-regulatory students can be identified by their

awareness of the effects of their surrounding conditions on their academic concentration, for example, noise, TV etc. Students forming study partnerships would ideally study in an environment that is free from distractions and convenient for everyone in the team. This may be done in the library, the dorm or the homes of students. The study would look for insights regarding how study groups choose a place for studying and also how the members restructure the place to make it conducive for studying.

The *with whom* question concerns the social dimension of studying. Socially self-regulated students are aware of how to select a study partner and how their study partner helps them when they encounter difficulties in their learning. Students with low social self-regulation skills are reluctant to ask for assistance because they are not sure what to ask for or are concerned that others will judge their abilities as low. To initiate a study partnership, a student has to be confident and selective in the way they initiate and respond to social support.

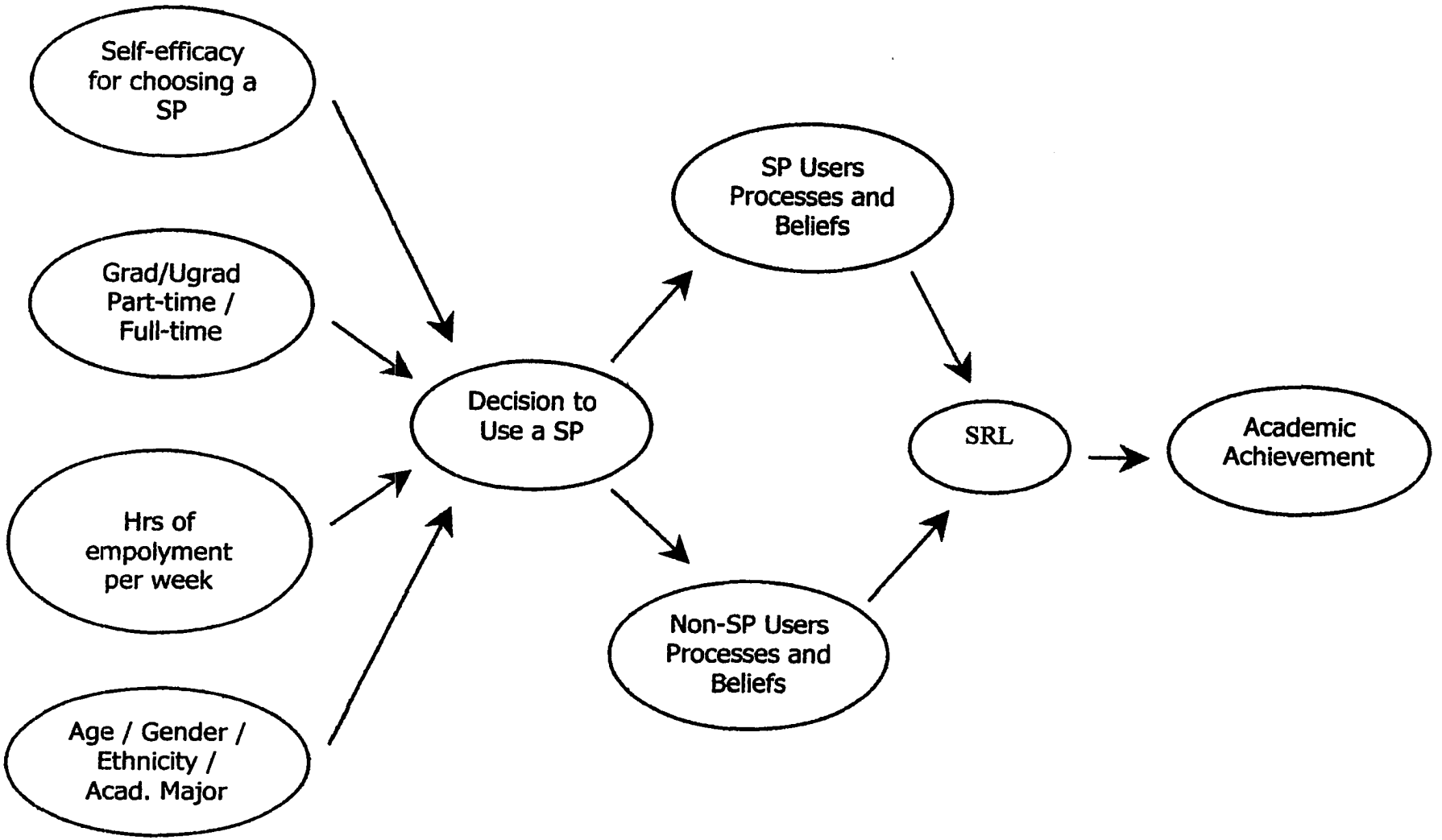
Each of the six dimensions described earlier are important in completing the portrait of a self-regulated study partner. There is evidence that students' strategic use of a study partner enhances their academic achievement (Newman, 1994; Ryan, 2000; Schunk, 1989; Zimmerman 1986; Zimmerman & Martinez-Pons, 1986). However, little is known about how study partners are selected and utilized to improve a student's academic effectiveness. The current study represents a major step in this direction.

Conceptual Model of SP Use

The purpose of this study is to investigate key factors related to students' formation of study partnerships outside the classroom context. The present study is an outgrowth of previous research in group learning processes like cooperative learning,

collaborative learning, peer-tutoring and reciprocal learning which were teacher-initiated and structured. Very little attention has been given to student-initiated use of study partners outside the formal classroom. In the present research, the underlying dynamics of SP use are explored to determine how they impact the achievement of students according to the conceptual model of SP use presented in Figure 1. According to this model, student characteristics -- such as self-efficacy for choosing a SP, graduate status, outside employment, age, and gender -- affect students' decision to use a SP or not. This decision is linked to students' learning processes and beliefs about studying alone or with a SP. These individual or group study processes and beliefs in turn affect students' levels of self-regulation about functioning in class, which in turn influences their levels of academic achievement. I next turn to a review of prior research bearing on variables in Figure 1.

Figure 1: Conceptual Model of SP Use



Chapter 2

Review of Literature

This chapter discusses prior research related to the formation of study partnerships in different types of learning situations. An extensive search of the existing literature did not yield a single study that has looked exclusively at the formation and functioning of study partnerships in natural settings, that is, those formed beyond the classroom and without the influence of teachers. This prompted the main rationale for this study, which is to find out how study partnerships are formed by students outside the formal context of the classroom, and to what extent they influence the academic achievement of students.

Because of the dearth of research examining the behavior of study groups in naturalistic contexts, the best alternative was to explore studies that have looked at group learning strategies within classrooms and to determine if they addressed the issue of extended group learning beyond the classroom. For students to form study groups outside of the class on their own, it is assumed that they must have a high degree of self-directed learning initiative and responsibility. The body of research in self-regulated learning has examined how students who are proactive in their learning consistently achieve better than those students who are not. The review of literature presented here looks at educational practices that are therefore based on the principle of group learning as well as self-regulated learning, as both these areas of research are central to the present study. The review of literature includes three major sections:

1. The first section consists of an overview of studies on *group learning processes*. The group processes included in this review are cooperative learning, collaborative

learning, peer tutoring and reciprocal learning, to name a few. These studies are included in this review of literature to determine the effects of group learning when a teacher formed, structured, and evaluated these groups.

2. The second section includes research related to *self-regulatory learning* processes with a special emphasis on *adaptive help-seeking behavior* as a self-regulatory learning strategy. It is not the intent of this review to include a detailed discussion of help-seeking research pertaining to students, prior to college level. This is for two reasons:
   - First, young children and adolescents are not known to form study partnerships on their own. They tend to engage in solitary learning activities outside of school. The extensive literature in group learning techniques, some of which have been presented in this chapter, failed to cite any striking behavioral patterns that described the students as engaging in shared learning outside of the classroom context in spite of the fact that intense training schedules were laid out for students to engage in these social learning techniques.
   - Second, the intended study focuses on the behavior of college students as they seek social assistance during studying. Accordingly, research that has examined adaptive help- seeking in college students will be discussed.
3. The third section presents a review of studies examining the key underlying processes of self-regulated learning mechanisms. In this study they are:
   1. *self-efficacy beliefs* related to study partner use.
   2. *contextual factors* related to study partner use. The following are included:
      - whether students are engaged in undergraduate or graduate work;

- whether they are enrolled as full-time or part-time students;
- how many hours per week they work for a supplementary income;
- age, gender and ethnicity of the students are also included in the study keeping in mind the social nature of learning within study partnership groups.

4. The fourth section presents studies that examine how the Grade Point Average (GPA) can be predicted from study behaviors of students.

Group Learning Processes

Several researchers have focused their attention on educational activities that are set within groups. They have examined processes of interaction among students in a variety of structured settings and the scope it offers for peer interaction in learning and cognitive development (Palinscar, 1984; Slavin, 1992; Webb, 1984). Regardless of their individual perspectives most researchers share concerns about the potential outcomes of these interactions that can shape future peer interaction in the school setting. According to these researchers the possible outcomes are varied: (a) short term knowledge and skill to last temporarily (Webb, 1984), (b) abilities that would develop over a longer term like writing and communication (Palinscar, 1986), (c) foster each other's perspectives towards the tasks and strategies for solving problems (Forman & Cazden, 1985), (d) collaborative enterprise fostering a sense of community (Cohen, 1984). The review of research in group learning processes is now discussed bearing in mind that the outcomes of social learning can be varied as cited above.

Cooperative learning

Cooperative learning is a classroom technique employed where students work together in heterogeneous groups towards the completion of a task (Johnson & Johnson, 1987; Slavin, 1992). Research evidence collected over the years points to the effectiveness of cooperative learning techniques for improving academic achievement (Kennett, et. al. 1999; Watson & Marshall, 1995). Slavin (1987, 1991) has done pioneering work in the area of cooperative learning and has been one of the key persons associated with this body of research. He states, "cooperative learning started as a movement to favor peer norms towards achievement than oppose it". The idea of a group reward which was one of the main merits of this technique had a quality quite similar to team sports where not only did the team as a whole get rewarded, but also every member's unique effort and contribution was recognized. Slavin (1987) also emphasizes that cooperative learning is a means of enhancing thinking skills and higher order learning; it is an alternative to ability grouping and remediation; it helps to improve race relations and attitudes, and also to prepare students for an increasingly collaborative work force. Slavin's implications point to the development of peer norms that favor academic achievement, an acceptance of academically handicapped students, and more important, a feeling of individual control over learning.

Johnson and Johnson (1987, 1989, 1991) have done a great deal of early work in the area of cooperative learning. In their research, they have trained students in cooperative learning techniques using extensive scripts. The results have consistently shown that students in the training condition did better than the other groups. In a study with high-ability college freshmen, there were four conditions into which the students

were randomly assigned: a teacher-led group; a student-led group; no leader but students worked in a group; and an individual condition. The first two groups had three hours of training in the use of cooperative learning techniques. Students worked in a group on a computerized task that was to be presented as a class project. The results showed that there were significant cognitive and affective gains in students in the treatment conditions. Achievement and problem-solving scores were higher, attitudes towards skillful cooperative behaviors were enhanced and personal inhibitions like self-doubt and self-preoccupations reduced to a great extent in the first two conditions. Even the third group showed significant gains when compared to the individual condition. The researchers concluded that the self-efficacy of the students increased due to their participation in groups. The researchers had recommended that future research should examine the impact of cooperative learning when it occurs in informal groups to supplement knowledge derived from formal study groups. ` The current study attempts to address some of these issues.

In another study, Kennett et. al., (1996), examined the general repertoire of learned resourcefulness skills of college freshmen using Rosenbaum's Self-Control Schedule (SCS 1980). A Cooperative Learning Questionnaire (CLQ, 1996) was constructed by the researchers to assess students' actual use of strategic cooperative learning techniques. The study found that students' willingness to participate in cooperative learning groups was rather low, that is, they had to be 'forced' to work in groups, as a result of which very few students actually engaged in cooperative learning in the study. In another study by Kennett et. al., (1999), a Study Group Evaluation Questionnaire (SGEQ, 1999) was used to measure students' group processing of learning

strategies. This was an experimental study where the treatment group had to meet with the peer leaders who would oversee the activities of the group while they worked on the task. Training included skills focusing on group interdependence structures and activities. The students were shown how to divide the text into segments, each student taking one part to become specialized in. They would then distribute copies of handouts to the group and each would present the material assigned to them orally to the group during study meetings. The control group was not trained in any group learning strategies. The results showed that students who were more academically resourceful were also the ones who engaged in more group processing strategies. The control group scored significantly lower than the experimental group on the measure of achievement. Exiting interviews with students also pointed that the students in the treatment group had built up sound learning strategies and, a sense of responsibility to themselves and to those in their group. The only negative comment the students made was that they had trouble scheduling meeting times especially during the peak periods of the semester. The proposed study hopes to discover how students who work successfully in informal study groups manage their time and resources so as to facilitate maximum learning for themselves and the members of their group.

A few researchers have reported that there is sometimes resentment among high achievers of the group (Slavin, 1987; Webb & Kendereski, 1985). Findings indicate that high ability students often have a poor attitude towards group work. However, in this research, such students were found to help the members with the least abilities in the group but not those who are in the middle range. Also, it was found that low-achieving high school students did better in heterogeneous groups, but high ability students

increased their achievement in homogeneous groups only. These findings indicate that cooperative learning is not always an ideal learning strategy especially for those who are high achievers. This may be one of the reasons why many students are nor in favor studying in groups outside of class. It is hoped that the intended study will find answers to this question.

In a study reported by Watson and Marshall (1995) using college students in cooperative learning settings, no significant differences were found between the two group conditions: individual accountability and group accountability conditions. In the group accountability condition, the learning of the group was monitored with no credit being given to individual competence. On the other hand, in the individual accountability condition, the individual's competence was monitored for achievement. The researchers, however, state that individual accountability appears to increase learning in a cooperative learning situation. However, in another study by Webb et. al., (1995) providing cooperative incentive structures or group rewards to the group showed a greater extent of peer-tutoring and on-task behavior.

In another study (Onwuegbuzie, 2001), 159 graduate students enrolled in a research methodology course were asked to choose their peers and were assigned to either a 'peer orientation' group or a 'competitive orientation group'. The peer orientation group differed from the competitive orientation group in that in the former, the stress was on group outcomes, but in the latter, the focus was on both the group and individual outcomes. The Productivity Environmental Preference Survey (1991) was used to assess an individual's preference in twenty different learning modalities. It helped to identify how adults prefer to function, learn, concentrate and perform educational activities in

different situations. The survey showed that peer oriented students had a debilitative learning style characterized by low motivation, low sense of responsibility and less positive attitude towards the presence of an authoritative figure. Being a part of the peer oriented group gave these students a false impression that they are not responsible for their own learning; when they were compared to students in the group where there is group work, individual competition levels were reasonably low for the peer oriented student group. The study found that the students who were low in motivation assumed less responsibility, had less inclination to learn with multiple resources and inclined positively to cooperative learning situations. This may be because they thought that they did not have to put in as much effort as they had to if they worked alone. The researcher suggests that to understand the course material in a more complete way, the material had to be rehearsed outside the classroom as well either before or after class or both. Responsible students in the study were more likely to complete homework assignments and also prepare for class adequately while others did not invest the necessary time or effort to complete the required amount of work. As a secondary finding, Onwuegbuzie (2001) has stressed that the preparation time out of class is essential for high levels of achievement. This was not one of the focal points of the study, but he implies that group work could also happen outside class time. No research to date reports these findings. The current study focuses on determining how preparation for class in naturalistic group conditions enhances achievement.

In the research available on cooperative learning, no mention is made of how the elaborate and structured training imparted to the students transfer to naturalistic learning settings outside the class. The current study aims at finding out how such learning

techniques are maintained over time and if there is a transfer of these useful techniques to out of class group learning situations.

Collaborative learning

In contrast with cooperative learning groups, students in collaborative peer groups try to reach a common goal sharing both tools and activities (Webb et. al., 1995). Students are simultaneously involved in the execution of the same task and the participants possess comparable levels of prior knowledge. Shared goals and tools can thus strengthen student independence positively. According to Cohen (1994), collaborative learning provides a joint working space where the results of thinking are visible. Open-ended tasks with answers not fully predetermined are most suitable for collaborative learning.

In their study Boxtel et. al., (2000), worked with forty high school seniors who were trained for collaborative work in their physics laboratory sessions. Students worked on tasks in pairs. Students' interactions depended upon the nature of the task. Those who worked on constructing concept maps about relationships between electricity concepts interacted in a different way as compared to those who worked on constructing posters. Students displayed elaborate conflicts while working on the maps as compared to those who spent more time drawing and writing while working on their posters. When learning outcomes were measured in the post-testing situation, higher scores for problem-solving were reflected in the students who worked on concept maps. The researchers concluded that such interaction is characterized by a focus on understanding and the construction of a shared understanding. This focus is reflected in collaborative reasoning and collaborative elaboration of conflicts and in the co-construction of detailed answers.

The limitation of this study, according to the researchers, is that the role of motivation, student capacities, and the availability of supportive tools have not been examined in the study. The researchers are of the opinion that the collaborative interactions that occurred between the students facilitated in the resolution of conflicts resulting in a better quality of shared understanding. This may suggest that when students are engaged in a collaborative learning experience they not only reflect upon their own understanding, but also integrate the input of their partners. The researchers suggest that future research should explore the complex interplay between aspects of the learning environment, student characteristics and the quality of student interaction that is generated by collaborative learning tasks. In other studies on collaborative techniques (Palinscar 1996; Webb et. al., 1995) similar findings have been reported.

In a similar study by Towns and Grant (1997), college freshmen enrolled in a physical chemistry class were taught how to study and explore topic ideas in groups. On a weekly basis they were trained in strategies like clarifying material, sharing insights and making presentations. They were encouraged to work in a non-threatening manner where collaborative efforts were emphasized. The findings show that students moved away from rote learning strategies to more meaningful strategies and they also enhanced the development of their communication and interpersonal skills. However, the researchers felt that there was a major limitation in the study because some of the students were non-native speakers of English and were passive. Other limitations of the study were that there was no documentation of what actually went on in group learning, and it is not clear how group interactions were assessed. The current research attempts to explore how

students negotiate meaning and executive cooperative tasks within the framework of social interaction.

Gabrielle and Montecinos (2001) also provide evidence that classrooms can foster the development of learning goals by making students work in small heterogeneous groups or in pairs. In their study, when low achieving students were included in heterogeneous groups they showed significant increases in their learning. However, the study looked at the behavior of students in a group situation that was well structured and within the supervision of the teacher. No study to date has addressed the issue of group learning that students engage in subsequent to training. The proposed study attempts to further previous research by examining whether the techniques learned transfer to situations that are not controlled by teachers.

Berndt et. al., (1988, 1990) studied peer collaboration with students who were grouped with their friends and classmates as study partners. In this study, students were randomly paired with either a friend or a classmate based on sociometric assessment. As the pairs worked on a lesson in the modes of transportation in the 50 states, their interaction was video taped. They were told that they would quiz each other on the material after they had discussed parts of the chapter assigned to them. Students then quizzed each other taking turns. The conversation and the non-verbal behavior that ensued were coded. Finally, the students had to each answer a questionnaire independently – their attitudes and relationship relation with their study partners and their scores on both academic and non-academic undertaken with study partners activities were assessed. The results indicated there were no significant differences between the content in conversation in the two groups, that is friends and classmates, either during the

studying or quizzing phases. When other measures were examined, friends reported more frequent conversations about academic activities, more collaboration on academic activities, and also more joint participation in non-academic activities than other classmates. Also, friends reported less competitive motivation during quiz time than did other classmates. However, the study did not measure whether students learned more in the friends or non-friends condition. The researchers suggest that the lack of differences between friends and classmates is reassuring because it suggests no obvious disadvantage to pairing students with friends with collaborative academic work, that is, they do not distract each other or spend less time attending to tasks than others in class. Furthermore, the researchers hypothesize that as friends often work together on homework or other projects outside of school, encouraging them to work together during school day could lead to greater continuity in their academic activities.

Another study by the same authors (Berndt et.al., 1990) found that discussions generated about academic motivation and achievement in class can affect changes in the attitude of students towards learning and achievement. The researchers report that, in pairs that were more cooperative and least aggressive, similarities between friends increased and were characterized by least conflicts in their relationships. The researchers suggest that social pressure is more critical to peer influence during adolescence. However, a drawback of this study was that the measures used correlated only modestly with teachers' ratings of students' involvement. The researchers suggested that future research should identify conditions in educational settings were groups form and study the effects of these groups on the adolescents who belong to them be examined.

Peer-tutoring

Another form of group learning is peer-tutoring. In peer-tutoring sessions, one student instructs the other in a structured learning context (Cohen, 1986; Hartup, 1983). It is generally assumed that the tutor has greater knowledge and competence than the tutee and in some instances there are peer study sessions where the tutor is about a year or two ahead of the tutee in school (Webb et. al, 1995). It was found that the inequality built into such an interaction could create problems in learning. There is a tendency for dominance on part of the tutor and a sense of threat for the tutee.

Ryan (2000) in her review of studies pertaining to peer interaction patterns within an academic context, points out that the domain of peer-tutoring is replete with studies each with a different conceptual notion of the process itself, thus resulting in ambiguity. This indicates that overlapping of constructs is often problematic and the discriminant validity of the key terms in this body of research needs clarification. Ryan (2000) also urges that the impact of peer group influences on academic outcome is an important issue for future research and can enrich our understanding of adolescents' motivation, engagement and achievement. There is a need for formal peer models to expand into naturally occurring peer groups where learning becomes a naturalistic and spontaneous process. The objectives of the present study are steps in this direction.

Reciprocal learning

When students were trained in the cognitive strategies of questioning, clarifying, predicting and summarizing within a social context, enhanced levels of learning were found. For example, Palinscar and Brown (1984) worked with junior-high students who were adequate decoders but poor comprehenders. The four strategies of reciprocal

learning procedure were implemented to the students on a small-group basis with remedial reading teachers. Interaction within the group was facilitated using the classroom text as a source of learning. For example, to engage in the first cognitive task of the cycle, that is questioning, the students had initially to identify key information in the text, frame questions based on the material, and self-test their recall and understanding. For the second process, clarification, students noted when they had a problem with their comprehension. They would then identify the source of the problem, break it down and take appropriate steps to ameliorate the problem – they would read, read ahead or ask for assistance to restore meaning. Prediction in particular, provided the opportunity for students to activate relevant prior background knowledge or schemata to make connections. Finally, summarizing focuses attention on integrating the information across sentences, paragraphs and pages of text. Each of the four strategies facilitates the monitoring of comprehension.

Reciprocal learning, explained above, is essentially a dialogue between the teacher and students in which participants take turns assuming the role of a teacher. The individual leading is accountable for the ensuing dialogue and interaction among the members. The person assumed the role of a teacher for a segment of text generates a question to which others in the group respond, summarizes the portion of the text, notes or solicits points to be clarified and renders a prediction about the content of upcoming text. The researchers observed that (a) students' ability to question, clarify, predict and summarize improved remarkably over time, (b) quantitative improvements on comprehension were large, (c) the benefits of training generalized to classroom settings and (d) there was transfer to tasks that were similar to but distinct from the training tasks.

In conclusion, the authors suggest that a dialogue is a powerful means of guiding students in the acquisition of new skills. Dialogue facilitates the collaboration necessary between students to acquire new strategies. Students were focused, had better direction, were more explicit and were more constructive over time.

Reciprocal learning can be extremely beneficial if students adopt the strategies into their methods of learning. If students who are trained in reciprocal learning practiced the strategies they acquired on their own, it could be very useful to them. However, there is no data reported as to how such training is transferred to out-of-class learning experiences. The present study hopes to find that students who use study partnerships do practice strategies like the types explained above to enrich their learning in college.

Conclusion

The different types of group learning techniques discussed above are well-planned pedagogical exercises that have been developed under the assumption that social interaction is very essential and beneficial for learning to occur. The major issue is that each one of the above- mentioned group learning methods have been carried out under the teachers' initiative and often with close supervision. Also, a major limitation of these studies is that, though they are based on well-structured principles of classroom teaching and learning, it is indeed surprising to find that there is virtually no study that has focused on how the knowledge and skills acquired in such effective intervention programs transfer to natural settings. For transfer and maintenance of any learning strategy acquired by training, it is crucial that the students are motivated and interested in their own learning and achievement. Research in self-regulated learning has examined how

students take an active part in managing their learning without the influence of teachers and parents.

Self-regulated learning studies have looked at the initiative and motivation of students as they engage in learning (Zimmerman, 1986, 1989, 1998). It is important to note in this context that self-regulated learning methods of studying do not really require an external agent like the teacher or the parent to stimulate an interest for learning; rather, self-regulated students are characterized by a sense of personal agency for their own learning. Researchers (Zimmerman, 1986, 1988; Zimmerman & Kitsantas, 1996; Zimmerman & Martinez-Pons, 1986, 1988) have shown that when students employ self-regulated learning strategies like goal setting and self-monitoring of their performance and outcomes, they are engaging in proactive behaviors that profoundly affect their learning.

Self-Regulated Learning

For over a decade, different theories have been proposed to describe how students become regulators of their own learning (Corno, 1989; McCombs, 1989; Rohrkemper, 1989). These theories share a view that students are motivationally, behaviorally and metacognitively active initiators of their own learning. These theorists have been interested in explaining an intrinsic motivation to learn by self-regulatory students especially under adverse circumstances. Zimmerman (1986) explained self-regulated learning theory based on Bandura's (1986) triadic theory of social cognition. He suggests that students' efforts to regulate their learning involve three classes of determinants: their personal processes, the environment, and their behavior. Strategies enable students to personally regulate their behavior, their environment as well as their covert functioning.

The strategies that students select depend on their perceptions of academic efficacy and also on the feedback they have received for earlier learning. If self-monitoring indicates poor performance, the self-efficacy perceptions will be affected which will affect the subsequent motivation and choice of strategies. The theory implies that self-regulated learning is not an absolute state of functioning but varies on the basis of context, efforts to self-regulate, and the outcomes of performance. Self-regulatory learners understand the influence of the environment on their learning processes and know how to improve the environment by using different strategies.

Research in self-regulated learning has picked up momentum in the recent years through identifying strategies that students use to regulate their personal functioning, academic behavioral performance and learning environment. For example the strategies of organizing and transforming (Baird, 1983; Corno, 1983), rehearsing and memorizing (McCombs, 1984), goal- setting and planning (Bandura & Schunk, 1981) focus on optimizing personal regulation. Self-evaluating (Bandura, 1983, 1986), awareness of self-consequences (Mace & Kratchowill, 1985) are behavioral strategies; seeking social assistance (Zimmerman, 1983) is an environmental learning strategy. Researchers have developed specific self-regulated learning measures (Zimmerman & Martinez-Pons, 1986, 1988), which are being used intensively by researchers engaged in self-regulated learning research.

It is important to emphasize that most of the self-regulatory learning strategies mentioned above have been extensively studied. Though self-regulated learning has received attention over the past fifteen years, it is important to add that this body of research has focused mostly on cognitive strategies related to reading comprehension,

writing, math and also motor skills. The other aspects of self-regulated learning like structuring the learning environment has not received much attention. One of the important aspects of the learner's environment is the type of social interaction that occurs in the learning environment. Zimmerman and Martinez-Pons (1986) have identified "seeking social assistance" as a very useful self-regulatory learning strategy. Research in the area of academic help-seeking (Karabenick, 1996, 1998, 1990; Nelson-LeGall, 1981, 1985, 1986; Newman 1990, 1994; Ryan, 2000) have helped to establish the concept of "adaptive help-seeking" as a very powerful self-regulatory learning strategy. These researchers have been successful in explaining that the contemporary concept of adaptive help-seeking is a major shift from one of "dependency" to that of a "self-regulatory strategy". Nelson-LeGall's (1981) classic paper clearly explained how academic help-seeking can be viewed in new light as a higher and more complex form of self-regulated learning strategy and how it did not imply dependence on others.

Research in adaptive help-seeking has drawn the attention of researchers only in the recent years (Karabenick, 1988, 1994; Newman, 1990, 1994; Ryan & Pintrich, 1997) after the initial significant work of Nelson-LeGall (1981). Even so, the existing literature in help-seeking addresses issues as they occur within a classroom and most outcomes are based on research with young children and adolescents. Following the seminal article by Nelson-LeGall (1981), research has examined both personal and situational variables that affect a learner's use of help-seeking methods to accomplish academic tasks such as solving problems in math or completing writing assignments. Once identified with dependency, substantial evidence now indicates that seeking assistance from others is a

valuable self-regulatory, proactive learning strategy that can provide the foundation for autonomous achievements (Karabenick, 1998). The early classic paper (Nelson-LeGall, 1981) that elevated academic help-seeking to its present self-regulated learning context is discussed in the pages that follow.

Few researchers (Karabenick & Knapp, 1988; Karabenick & Sharma, 1991; Karabenick, 1996) have examined help-seeking behavior within structured learning environments. Given the expectations and demands of university education, it is anticipated that adaptive help-seeking behavior also occurs among students on a regular basis outside the classroom. However, no research to date reports the dynamics of such group learning behavior

In the review of self-regulated learning literature presented here, the focus is on studies that have looked at the methods by which students seek social assistance while they are engaged in learning. Other self-regulatory learning studies, as valuable as they have been in enhancing our understanding of students' self-initiated learning, are not being discussed in this chapter.

Adaptive Help-Seeking

When learners are unable to solve problems, understand the teacher's explanations, or comprehend text materials, they can continue to persist, to abandon the task or to obtain assistance from a variety of sources like friends, classmates, teachers or colleagues (Karabenick, 1998). The important role played by social processes in knowledge acquisition has long been proposed by Vygotsky (1978), but until recently, seeking assistance was not considered as a significant tool for learning.

Much of the credit is attributable to Nelson-LeGall's (1981) influential work that described help-seeking as a developmental skill. Focusing on the motives of those seeking help rather than the act of help-seeking itself, she differentiated executive and instrumental goals. An account of Nelson-LeGall's (1981) classic work is presented below so as to help develop insights about the useful strategy of academic help-seeking behavior.

Nelson-LeGall (1981) states that prior research has only focused on the helpee as a passive recipient of aid not on the helpee as an active seeker of aid. She has been particularly concerned about the practical value of help giving for society and the fact that everyone is likely to find themselves in the position of the helpee or the helper at some time or the other. Nelson-LeGall argues that help-seeking is not synonymous with dependency and should not be placed on a continuum ranging from extreme independence to extreme dependence. She asserts that help-seeking should not be referred to as dependency as there are negative connotations to the term "dependency" such as passivity, helplessness and even incompetence that do not accurately reflect the complexity of help-seeking behavior. That the help-seeking process requires a fair amount of sophistication is apparent when one considers that in order to initiate help-seeking, children must first learn to associate others with the achievement of the children's goals and must learn a means of inducing others to help in attaining the children's goals. Seeking out a competent person for aid or advice when solving a difficult problem shows initiative. Teachers of young children believe that those children who seek help are more goal-oriented and more involved in the learning process than children who give up easily, or wait for others to offer them help. Nelson-LeGall explains

that help-seeking may represent different underlying motives depending on the child and task situation. The child's goal in seeking help may be merely to complete a task without comprehension or mastery, to avoid criticism, or to avoid the task itself. However, it can also serve a constructive purpose like enhancing the child's own competence. Nelson-LeGall differentiates between "executive" and "instrumental" help-seeking behaviors.

Executive help-seeking includes instances when the child does not intend to attain the goal on his or her own – help is sought to complete the task on hand. Such a type of behavior has long-term negative effects. Instrumental help-seeking, on the other hand, involves seeking help that is limited to only the amount and type of help that is needed to allow the children to solve the problems or attain the goals on their own. Help-seeking is seen as an autonomous behavior, under the control of the child. It is task-oriented and children with effective help-seeking skills are able to refuse help if they can manage on their own, or seek help if they need. From this perspective, help-seeking represents competent, coping behavior. Nelson-LeGall asserts that asking for help is an important step towards independent competence and is a type of social-cognitive response that function to assist the child's goal-attainment and adaptation to the environment. It is an effort by children to obtain assistance from others when they cannot satisfy their needs through their own effort. Obtaining necessary help is an integral component of the daily life patterns for normal, healthy children and, it can occur in any problem-solving context, informal or formal.

The conceptualization of help-seeking as an instrumental skill is compatible with current views of cognitive development and learning based upon Vygotsky's theory of internalization. For Vygotsky (1978) learning and development are inherently social

processes that involve gradual progression from other-regulation to self-regulation. Vygotsky argues that all psychological processes are initially social because they are embedded in interpersonal activity. The process of individual development is internalization and personalization of what was first a social activity. Children first experience problem-solving activities in the presence of others and only gradually come to perform these functions for themselves. This theoretical framework clearly places the origins of independent problem solving at the intrapsychological level, in social interaction at the level of interpsychological functioning. Help-seeking may be fundamental in the development of mature give-and-take social relations with others. Usually, instrumental help-seeking does not decrease popularity with peers and may even facilitate a child's social acceptance by peers. For learners who are skilled in instrumental help-seeking, peers are more accessible but are less evaluative in providing feedback.

In conclusion, Nelson-LeGall urges that future research agenda should: (a) work out an overall conceptualization of the general skill area of help-seeking, (b) differentiate a number of specific subskills within the general help-seeking domain, (c) explore causal and correlational network among the embedded skills, (d) investigate possible antecedents of individual differences in help-seeking like social class, sex, ethnicity, parent-child relationship etc. She further adds that future research should focus on variables like role-taking skills, academic achievement, situational-contextual constraints and relationships with adults and peers in the classroom. She suggests that investigators examine relations between social thought, behavior and competence in the everyday environment. This can be done by generating an integrated picture of relationships between knowledge, behavior and competence in the help-seeking domain, that is, what

do they know about various factors necessary for procuring assistance, the degree to which knowledge is manifested in behavior in real life settings, and the degree to which knowledge and behavior relate to productive interactions. Finally, Nelson-LeGall outlines a research agenda to achieve this: collection of naturalistic observation data to reveal frequency, form and functions of help-seeking activity as it occurs in social interchanges with others; collection of verbal protocol to reveal what is involved in seeking help; collection of data using structured interview and experimental procedures to provide systematic isolation and investigation of developmental aspects of the component skills of effective help-seeking. The current research is being designed on some of these recommendations.

In a study by Nelson-LeGall (1985), 7 elementary classrooms were observed. Ten students were observed during math and reading activities in school. The students represented low, average and high academic abilities – there were equal number of boys and girls in the study. For each student, an observation schedule for 100 minutes was undertaken, with a ten-minute time segments during which responses were coded. The influence of age, gender, grade, ability level and activity structures were examined. There were four types of activity structures in the classroom: recitation, class task, recitation-task and transition. Recitation involved teacher-directed activities as explanation and question-answer sessions; class-task consisted of activities when students were engaged with worksheets or tests; recitation-task consisted of less formal activities but that was similar to recitation – children were active initiators and participants; transition consisted of prep time or clean up time under the supervision of the teacher. The results indicated that help-seeking was highest in the recitation-task condition though the children spent

more time on class-tasks. The lowest rates of help-seeking were observed in the recitation condition. No significant differences emerged for gender, grade or ability. As far as targets of help-seeking requests were considered, for math, students sought help equally from teachers and peers; for reading older children sought help from peers while younger children sought help from both peers and teachers. It was also found that students with low and high abilities sought help only from peers while the average students preferred to seek help from their teachers even though the teachers paid more attention to students with lower and higher abilities. Higher ability students demonstrated more persistence in seeking help than others.

Nelson-LeGall's (1985, 1986) research has particularly focused on the help-seeking behavior of elementary school children and therefore, as important as it is, it is not being discussed in detail in this review because the current study focuses on a college population. However, before proceeding further, it is necessary to acknowledge her work as monumental in the area. She is the pioneer in this body of research and the very term academic help-seeking is her contribution to the developmental aspects of children's social and intellectual behavior.

Another researcher who added to the work of Nelson-LeGall is Newman (1991, 1994). He has taken the concept as it was given by Nelson-LeGall and built upon it. He calls it adaptive help-seeking as it is a desirable behavior in children's' learning behavior. Newman asserts that adaptive help-seeking behavior is a strategy employed by self-regulatory learners who efficiently seek necessary assistance in response to a perceived lack of comprehension or difficulties with problem-solving. This strategic view has considerable evidence to support it. This means that, more active, engaged and self-

regulatory learners adapt their methods for seeking assistance to the task at hand. Newman's research in the area has also been limited to young children and adolescents in classroom settings and did not include college students in non-classroom settings. Nevertheless, Newman's research is very useful in understanding the concept of adaptive help-seeking as it applies in a self-regulated learning context. In Newman's study (1990), 65 elementary and middle school children were asked why they do, or do not ask for help from peers, parents and teachers when they have problems with their learning. This study focused on math or reading tasks. A questionnaire was developed to tap into the attitudes and beliefs about help-seeking. Children were asked in an open-ended structured interview format why they did not ask for help when necessary. Results indicated that they needed more help with math than reading; they preferred to ask teachers and parents for help rather than from peers. The significant finding that emerged from the study was that there was a fear of a negative reaction from peers. The study also showed that although low achievers knew they needed help, they were reluctant to ask for it. Failure after seeking help was especially threatening to students because of the implications of low ability and low self-worth. This research implies that early adolescents, in comparison with younger children, are more concerned about peer-group belongingness; they experience greater vulnerability in peer relations and perhaps an increased fear of embarrassment in the classroom. In the help-seeking literature, self-efficacy for seeking help is consistent with the vulnerability hypothesis of help-seeking. According to this hypothesis, individuals with low self-esteem have a greater need to avoid those situations in which they feel threatened to seek assistance. Although the vulnerability hypothesis originally referred to the relation between global self-esteem, help-seeking threat and

behavior, Newman (1990, 1991, 1994) extended the idea to perceptions of cognitive competence. Newman suggests that future research should examine both characteristics of the students, such as goal orientations, as well as the classroom context to better address the question of how to enhance students' efforts to ask questions and seek assistance when needed.

Meece (1988) studied students' mastery and performance goal orientations along with their classroom interactions. From audiotapes of the students' interactions, four types of requests for math help-seeking were noted and coded: (a) request for process information, (b) request for process information, (c) request for non-related task information, and (d) confirmation of final answers. Results showed that as the researcher expected, students who were mastery goal oriented asked for more help than did those who were performance goal oriented. Most student requests for help were for information related to solving problems, and as problems became more difficult, students in the mastery goal oriented learning context asked for more help. Students with mastery orientation goals were keen to obtain feedback on their performance, perhaps for debugging errors and improving performance. Although the study investigated the effects of different learning conditions, the causal role of these conditions was not experimentally determined.

Research reviewed until now has examined help-seeking behavior in young children. Limited research has been undertaken with college populations to develop insights about their help-seeking behavior. Most noted work in this area is that of Karabenick (1988, 1990, 1998, 2001). This recent body of research is discussed below.

Karabenick (1988) examined the relationship between help-seeking and other learning strategies of college freshmen using the Motivated Strategies for Learning Questionniare (MSLQ, McKeachie et. al, 1986; Pintrich, 1987). Help-seeking behaviors were assessed both at the beginning and at the end of the term to see if there were any difference between points in time due to new friendships and contacts that may have been made over time. Self-esteem threat was measured at the beginning of the term. The results showed that those students who used planning, monitoring, critical thinking and organization also used help-seeking if a need arose. The study also examined whether students used a formal or informal source. The formal type of help-seeking occurred when students sought help from either their instructor or study-skills personnel, while the informal type of help-seeking consisted in getting help from other students. The results of the study showed that the use of rehearsal learning strategies (rote process of repetition, recopying, and memorizing) was higher for students who used informal help-seeking behaviors. Students who used formal help-seeking techniques engaged in complex strategies of critical thinking and study management techniques. The results then point that instrumental help-seeking is a predominant goal of students who use more sophisticated learning strategies. The findings indicate that though most college students are aware that they need help, it is only those students who are more motivated and strategic learners who are likely to seek instrumental help.

In another study by Karabenick and Knapp (1988) with 612 college freshmen students, it was found that those students who were performing at low levels asked for help less frequently than students who performed at higher levels. Need for assistance was assessed in two ways: class grades and self-ratings. Grades were estimated by asking

the students for the grade they hoped to achieve in the course; students' self-perceived academic need during the term was assessed by asking them if they needed help in any courses being taken, or whether they needed help with study skills in general. Help-seeking behavior was assessed by asking them if they sought help from anyone during the semester – an instructor, tutor or from friends? The research examined the functional relationships between the perceived need for academic assistance and help-seeking.

The results of the study point that a curvilinear relationship between help-seeking and academic need was found, that is, help-seeking is higher when need is moderate and lower when need is either very high or very low. The study showed the specific points at which an increasing need no longer increases the likelihood of help-seeking: the B- or C+ range of expected academic performance. Help-seeking decreased to nearly zero at an expected overall grade of D. Thus, the results show that those who need help the most are often the least likely to seek it. Karabenick (1988) uses Weiner's theory (1985) to explain this pattern where low achievers do not ask for assistance. A repeated lack of success is likely in attributions of low ability that endangers future expectations of success. Low ability attributions may also be accompanied by negative emotions like sadness, guilt, embarrassment, hopelessness and resignation. The combination of low expectancies and negative emotions would lead to low task persistence and withdrawal, even to the extent that receiving help would be considered irrelevant to achievement and thus unlikely to be sought. . Furthermore, help-seeking can be threatening to such students because continued failure after assistance would offer evidence of their low ability and consequently low self-worth. The researchers express concern that a host of factors conspire to diminish the likelihood that highly needy students will seek help. Not only are

poor performers saddled with negatively valued outcomes, but they also face serious cognitive and emotional obstacles to obtaining the help they need.

More research is required to draw inferences on the findings of these studies with college students. It is expected that students who show instrumental help-seeking behavioral patterns may extend their learning in groups beyond the barriers of their classrooms. As mentioned, research in academic help-seeking behavior is very limited in the college sample and it warrants more attention.

In a recent study Karabenick (2001) worked with a large college sample (n = 450) where the participants were high ability freshmen. 60 items from the questionnaire, Motivated Strategies Learning Questionnaire (MSLQ, Pintrich. et. al, 1993) was used to measure motivation, self-efficacy, value, anxiety, intrinsic interest and achievement goals; another 47 items were used to measure self-reported use of cognitive and metacognitive strategies which include planning, monitoring and regulation. There were also subscales of help-seeking: instrumental and adaptive help-seeking goal; executive help-seeking goal; formal versus informal help-seeking target; help-seeking threat; and avoidance of help-seeking.

Karabenick found that students with sound study strategies and adaptive orientations considered themselves more efficacious, considered the course more valuable and were more interested in the course material. They used more learning strategies especially metacognition and rehearsal. Students with a higher help-seeking avoidance orientation displayed higher course related anxiety and mastery avoidance. They were more likely to use rehearsal and metacognition as learning strategies, but less likely to use organization. Course performance was directly related to strategic or

adaptive help-seeking and was inversely related to avoidant help-seeking orientations. Four different student profiles emerged out of the analysis.

The first profile of students who sought instrumental help from formal sources showed that they were low in perceived threat, avoidance, and executive help-seeking. It was also found that, the more students indicated they would seek help to understand the material, the more likely it would be from their teachers and not from other students. Only 17% of the students in the study were classified in this category as adaptive help-seekers. They were highly motivated and self-regulated with higher mastery goals and course grades. *The second profile* of students were less likely to seek assistance from teachers, they preferred to ask other students for help when it was needed. Yet a *third profile* of students showed that they were low in strategic help-seeking behaviors, but when they were threatened about their coursework, they sought help from peers to decrease their workload. Finally, a *fourth profile* showed that students who felt highly threatened used only executive help-seeking (executive help is sought to reduce the workload versus instrumental help which seeks understanding of explanations for mastery learning); 23% of the students fitted this description. More threatened students were less likely to seek needed help, and even if they did, it was for expedient purposes and less to understand the course material.

The implications of research for learning and help-seeking in large classes are consistent with research and theory on self-regulated learning and achievement goals that a reduced focus on normative comparisons is necessary within classrooms. Another recommendation the study makes is that help-seeking is an important strategy that needs to be made more prominent in classroom teaching by being incorporated into the

pedagogy. Classroom instructors need to actively incorporate it into their curriculum and provide opportunities for students to work with study partners both inside and out of the classroom.

Karabenick urges that more research is required to draw inferences on the findings of these studies with college students. He suggests that it is informative to augment research in college samples with structured survey and self-report data along with other sources of information so as to provide a more systematic description of who seeks help, for what reasons, from whom and when. It is expected that students who show instrumental help-seeking behavioral patterns may extend their learning in groups beyond the barriers of their classrooms. The current study is an attempt to address some of the salient issues addressed by the research above, especially with college students.

The above discussion has clearly shown that for students to seek help in their learning environments, their self-efficacy beliefs play an important role. Most students do not seek help even if they know they need it due to the social stigma associated with help-seeking. The research that follows examines the studies in the literature that show that academic self-efficacy is strongly related to one's learning behavior.

Role of Self-Efficacy Beliefs in the Use of Study Partners

A discussion of the self-regulated learning research is incomplete if it does not stress the role played by motivational, cognitive and contextual processes that make self-regulated learning possible. Motivational processes like goal-setting and self-efficacy perceptions are salient in any self-regulatory learning model. These motivational processes give direction and purpose to the strategic processes that lead to the achievement of desired outcomes. Efficacy expectations determine the level of

motivation for performing a specific task. In the present study, self-efficacy for choosing the study partner is the motivational component of the self-regulated model being explored.

Self-efficacy beliefs in any given situation determine the need to adopt a particular learning strategy. All psychological change procedures are mediated through a system of beliefs which act as filter in causing the desired end results of action and the level of skill required to perform it (Bandura, 1997). Bandura describes self-efficacy as the belief in one's capabilities to organize and execute courses of action required to produce attainments. Beliefs are covert processes that underlie behavioral patterns and can have both positive and negative impact on one's behavior.

The perception of a situation as challenging or threatening depends upon the individual's perceptions of the relationship between situational demands and the availability of coping resources (Chemers et. al., 2001). Negative beliefs of self-efficacy occur when the individual perceives resources as insufficient to meet demands, and challenge occurs when resources are felt to be adequate to demands. Efficacy beliefs influence the particular courses of action a person chooses to pursue, the amount of effort that will be expended, the level of perseverance in the face of challenges and failures, and the resilience and ability to cope with the chosen courses (Chemers et. al., 2001).

Ryan and Pintrich (1997) were able to demonstrate in their study with eighth graders that the perceptions and self-efficacy beliefs regarding one's competence to seek academic help affected the help-seeking behavior. Students who felt comfortable and skillful in relating to others were less likely to perceive threat from peers when asking for help and thus were less likely to avoid seeking help for their work.

Other evidence to support the role of self-efficacy beliefs in help-seeking behavior comes from the research of Butler (1998) with middle school students. The study found that the beliefs and perceptions regarding the cost of requesting help could affect patterns of help-seeking behavior. Pupils who held beliefs that asking for help is an indication of inadequacy or low ability did not ask for help. Instead, they worked alone on the task or asked for covert help (indirectly asking about peer progress). This adds to prior evidence that students who are concerned with demonstrating high ability are reluctant to ask for help (Butler & Newman, 1995). Newman (1990) found in his research with eighth graders that stronger the belief that help-seeking is beneficial and weaker the belief that it has associated costs, the greater is the likelihood of seeking help. It becomes evident then, that to understand the development of beliefs and attitudes of children to help-seeking, one must conceptualize help-seeking in a way that incorporates the child's goals and takes into account specific task conditions. The general learning climate, rules concerning questioning and levels of personal friendliness between the teacher and students are also additional factors that are critical in the help-seeking process especially outside the classroom. However, no data is available on what role is played by beliefs when help-seeking becomes essential in learning situations.

Self-regulated learners exhibit a high sense of efficacy in their capabilities which influences the knowledge and skill goals they set for themselves and in their commitment to fulfill these challenges (Zimmerman, 1989, 1990). Studies have shown that younger students with a high sense of academic efficacy display persistence, intrinsic interest and effort in their academic learning and performance (Schunk, 1984, 1989). Self-efficacy perceptions are related to an enhanced ability to use effective problem-solving and

decision-making strategies, to plan and manage one's own personal resources efficiently, and to entertain expectations and set higher goals (Pintrich & DeGroot, 1990).

In a comprehensive review of research related to peer group contexts and adolescent motivation, Ryan (2000) states that self-efficacy beliefs are influenced by peer models. This conclusion was based on research by Schunk (1987) in his study with mastery and coping peer models where they showed that the self-efficacy perceptions of students were affected by the learning experiences of their peer models.

In a study by Zimmerman and Martinez-Pons (1990), 45 gifted and 45 mainstream students participated to demonstrate the usefulness of two measures of students' academic efficacy in predicting their use of self-regulation strategies in learning settings. One measure was a structured interview and the other was a self-efficacy scale for math and verbal skills that was adapted from Bandura's (1986) recommendation that levels of task be varied when self-efficacy is being measured. The researchers used gifted students because of their high perceptions of efficacy and also because they exhibit persistence of motive and effort and confidence in their abilities which are characteristics of gifted students in addition to their higher intellectual behaviors. The researchers developed a structured interview to assess the use of the fourteen self-regulatory learning strategies they had constructed earlier for the self-regulatory model in an earlier research (Zimmerman & Matinez-Pons, 1986). In addition, self-efficacy beliefs of the students were determined separately for math and verbal skills. The results indicated that, overall, students' use of self-regulated strategies was related to their self-efficacy. There were significant differences between the gifted and the mainstream students – the gifted students displayed extraordinary academic motivation and self-confidence.

Zimmerman and Martinez-Pons concluded that student efforts to strategically regulate their learning are associated with higher self-perceptions of math and verbal efficiency. Furthermore, the researchers suggest that teachers should reduce social comparisons and focus on task mastery to ensure optimal motivation. The teachers should use self-efficacy measures to understand the motivational behaviors and problems of students as a determinant of student aspirations. The researchers assert that any efforts to foster academic achievement need to do more than just set demanding standards for students -- they need to structure academic experiences in a way that enhances students sense of academic efficacy as well.

In another longitudinal study (Ryan, Midgley & Gheen, 1998) with middle school students, the relationship between self-efficacy and classroom goal structures was examined. Teachers of participating students filled out surveys to offer insights about their academic as well as social-emotional nurturing roles in the class. Two subscales from Patterns of Adaptive Learning Survey (PALS, Midgley, 1996) were used to measure academic self-efficacy of the students and to explore the nature of classroom goal structures. In addition, avoidance of help-seeking was examined using Ryan and Pintrich's (1997) measures. This study of help-seeking included both individual and classroom environment as predictors of help-seeking. The results showed that the teachers' views of their role in social-emotional nurturing affected relationships between academic self-efficacy and reported help-avoidance of the students, that is, in classes where teacher's concern about social-emotional behavior ran high, academic self-efficacy mattered less in who sought help. At the individual level, a students' decision to avoid seeking help was related to the students' sense of academic efficacy and gender. Those

who felt less efficacious regarding schoolwork reported avoiding seeking help when they needed it the most. Boys were more likely to avoid help-seeking when they needed it. Study also showed that when teachers were more warm and sympathetic, help-seeking was uniform across different levels of academic efficacy. The drawback with the study was that all data collected were self-reported, it should be augmented with observation and other documentation methods. There is limited research that has examined self-efficacy and help-seeking and, none at all that has looked at how study partnerships are affected by one's self-efficacy. The proposed study is a step in that direction.

In a recent study using college students, the researchers looked at the relation between academic self-efficacy, performance and adjustment (Chemers et. al., 2000). Findings indicate that self-efficacy had strong and direct relationships to both academic performance and personal adjustment in the students. Students who entered college with confidence in their ability to perform well academically did in fact perform better than less confident students. After the effects for GPA were controlled, it was found that self-efficacy played a significant role in both performance and adjustment. This points to the fact that academic self-efficacy has predictive power above and beyond more objective measures as performance on academic tasks. Additionally, the study also showed that self-efficacy was strongly related to the students' perceptions of their capacities for responding to the demands of college life.

Self-efficacy and other motivational components are largely affected by the context within which learning occurs. In the self-regulated learning process, the context in which the individual is placed is a powerful factor. The review below discusses the role of contextual factors in affecting the formation of study partnerships.

Contextual processes

Self-regulatory learning is largely dependent upon the cognition and behavior of individuals situated within specific learning environments. The characteristics of the teacher, the learner and the situation vary for different types of learning. The review of research above has clearly pointed to the fact that there are significant differences in the rates of learning depending upon the classroom context in particular, and several demographic factors like age, socioeconomic status and ethnicity that affect the learning process. In the current study, special characteristics of the learner are studied to develop a better profile of study partnership behavior.

The different contextual processes being explored in this study are:

1. Are the students enrolled in undergraduate or graduate coursework?

University settings consist of students engaged in diverse undergraduate and graduate programs of study. The present study hypothesizes that as students progress in their study, they tend to use study partners, often depending upon their need and experiences with other students. The intended research aims to explore if there are significant patterns in the formation of study partnerships among undergraduate and graduate students.

2. Are the students enrolled as full-time/part-time students?

Currently there are little empirical data regarding differences in the study patterns of full-time and part-time college students. Full-time students by virtue of the fact that they are enrolled in four or more courses per semester, may find it rather easier to locate and study with a partner because they have no outside responsibilities. Part-time students

may have to focus on raising a family or working off campus. The study proposed here assesses differences in use of SPs on the basis of students' course loads.

3. *How many hours per week do the students work for a supplementary income?*

As explained in the preceding paragraph, working outside school for a supplementary income is expected to affect the study behavior of students. It is the aim of this study to find out how the study partnership behavior of students varies according to the number of hours they work per week.

4. *What is the effect of age, gender and ethnicity of the students on study partnerships?*

Finally, it is important to consider the age, gender and ethnicity of the students as crucial demographics in any type of educational research. The present study focuses on social learning contexts where the age, gender and ethnicity of the group members can be important factors in deciding the choice and use of study partners.

Relevant research based on the above contextual factors is outlined below. There is no research that has looked at the relationship of these factors to the formation of study partnerships in particular; hence what is presented here is a brief overview of what is related to the study.

Research on the Study Behaviors of Graduate and Undergraduate Students

There is limited empirical research that has compared the interaction and learning patterns of undergraduate and graduate students in one study. In a study of undergraduate and graduate students (Lindner & Harris, 1992), the researchers found that there was a significant relationship between self-regulated learning and GPA. The graduate students scored higher on the self-regulated learning inventory. A self-regulated learning measure was constructed by the researchers based on the literature. It sought to determine how

students use self-regulated learning strategies in their academic activities. The study showed that students could profit from forms of instruction that emphasize and promote, both the understanding and use of self-regulated learning skills.

In a study by Lindner (1996) that examined whether graduate students are better self-regulated learners than undergraduate students, it was found that the graduate students scored higher on the self-regulated learning measures than the undergraduate students. The findings of the study also indicated that motivation and metacognition were essential for both levels of students for developing independence in their learning and acquire skills to complete large scale projects like a thesis on their own. .

A review of research using undergraduate students has shown that there are few studies that relate to help-seeking, and these have been reviewed under the category of academic help-seeking in college students (Karabenick & Knapp, 1988; Karabenick & Sharma, 1991; Karabenick, 1996, 1998). Also it can be assumed for the purpose of this paper that graduate students are self-regulated to a greater extent and this is attested by the fact that they are engaged in graduate work. This hypothesis needs to be empirically tested. The intended study will address this issue.

When the role of study skills in graduate level courses was examined (Onwuegbuzie et. al., 2001), it was found that students often perceived coursework to be difficult and often displayed lower levels of performance. According to the researchers, it cannot be assumed that graduate students always possess appropriate study skills even though they represent the upper echelon of academic achievers. As such, the researchers assert that graduate students could also benefit from study skills training, especially in the areas of reading and note-taking skills. The researchers suggest that students are more

likely to use appropriate skills if the skills are combined with effective motivational techniques. For example, to ensure that graduate students complete their reading assignments prior to class, instructors encourage and facilitate the development of advance organizers for the material. Students can also be trained in time management and other useful learning strategies to avoid the tendency of students to skip classes, not make outlines for class, not complete reading etc. On a similar note, there may be students who have never acquired training in working with other students within a structured classroom or outside it.

Research on the Relationship between the Age of the Students and their Achievement

In the research by Lindner and Harris (1992) significant correlations were found between age and self-regulated learning. With increasing age (mean overall age = 23 years) self-regulated learning behavior also increased. This may be because of the fact that as students progressed in their college education, they also built a repertoire of study skills. In the formation of study partnerships, it is not known whether students have a preference for students of their own age or if age is not a major criterion in selection of a study partner. This study intends to find to answers to such questions.

Research on the Relationship between Gender of the Students and their Achievement

Although there is no empirical research regarding the effects of gender in group learning contexts, this issue may be especially important in self-initiated group learning situations. This is because when students study in groups or in pairs, there is a close interaction between the members of a group that could be affected by gender, such as when a student's "significant other" might be opposed to a study partner of the opposite gender.

Analyses of sex differences in the use of self-regulated learning strategies among middle and high school students revealed that girls reported significantly more record-keeping and monitoring, environmental structuring, goal-setting and planning than did boys (Zimmerman and Martinez-Pons, 1990). The research pointed out that girls showed greater use of self-regulated learning strategies than boys. A perplexing picture that emerges from this data is girls are greater users of strategies but are less self-efficacious than boys. Butler (1998) found in her research on classroom help-seeking procedures with middle school students that more girls asked for help than boys. Instead, boys tried to succeed by cheating. Butler reported that boys had higher expectations for success and tends to attribute failure to low effort.

There is no data to explain how gender can be an important issue in social learning when groups are naturally formed. This study will explore the possibilities of such behavior.

Research on the Relationship between Ethnicity of the Students and their Achievement

The research by Fuligini (1997) examined the relationship between family background, parental attitudes, peer support and adolescent's own attitude and behavior on the academic achievement of adolescents from immigrant families. Over a thousand adolescents participated in the study. A comprehensive scale tapping into several attributes of parental value and aspirations for their children's educational attainment, peer support for academic success, and use of study time was developed by the researcher. The results showed that of the students from different immigrant groups, the Asian-American students were the highest achievers, followed by Filipinos, then by Anglo-Americans, and lastly by the Latin-American populations. Within each group,

students from homes where parents were educated and spoke English achieved better than the other groups. One of the significant findings of the study was that Asian students formed a network of friends who encouraged and supported each other in homework and who studied together for tests and assignments. However, the limitation of this study was that the research did not tap into ways in which these peer groups supported each other; that information would have shed much light on the process of study group formation and functioning. This is one of the primary objectives of the current study being undertaken.

Other researchers (Steinberg et.al 1992) have also found in their research with students across different ethnic groups, that Asian students have supporting peer groups with whom they study on a regular basis and that their achievement is high. Study partnerships seem to be a common feature of the Asian junior high, high school, and college students. However, no research to date has addressed the issue in more detail. In this context, the present study is a step in attempting to understand how students like the Asian students are motivated to form study groups and how exactly do they function.

Research on the Academic Achievement of Students

In most research in education, academic achievement is an important outcome measure that is studied. This is because the purpose of any educational endeavor is to enhance the achievement of students. In the current study, study partnerships are being studied to see if they impact achievement in significant ways. Academic achievement is the primary dependent measure of this study. Research examining the relationship between self-regulated learning and GPA has consistently shown that they are strongly correlated (Karabenick, 1996, 1998; Zimmerman, 1989, Zimmerman & Martinez-Pons, 1990).

Research on study skills and strategy use has shown how GPA can be predicted from one's repertoire of study habits. In their study with at-risk college students, Elliott and Godshall (1990) found that 40% of the variance in student GPA was accounted for by their study habits. Lindner and Harris (1992) and Lindner (1996) found high correlations between self-regulated learning and GPA of college students. There has been evidence from studies done on help-seeking in college classrooms that there is a significant difference in the GPA of students and their help-seeking behavior (Karabenick, 1988, 2001). The presence of other learners in a group setting creates conditions for the externalization of cognitive dissatisfaction that can be resolved by social interaction leading to higher order learning. Whether in small study groups or large classrooms, in addition to content, the knowledge that others are puzzled by information they are receiving and inferences about why they are confused can trigger cognitive dissatisfaction, whereas the absence of questions can lull teachers to a false state of cognitive satisfaction. Social learning techniques employed in naturalistic contexts provide a rich milieu for enhanced learning. When the barriers of a structured classroom are broken down and the objective of the group is solely learning for understanding, the quality of interaction that each member brings to the situation can be varied and rich. Group efforts at resolving cognitive conflicts lead to shared and distributed learning the results of which can be lasting over time.

Conclusion

In summary, the research literature on group learning techniques has shown that students can acquire new methods of studying in groups when they are trained to do so (Palinscar, 1986; Slavin, 1987; Webb, 1984). This body of research has also shown that it

is possible for students to maintain the newly learned group methods of studying for brief periods of time if they are given suitable opportunities. However, the literature does not cite any evidence that the group methods of learning acquired within a classroom setting transfer to a naturalistic situation beyond the classroom.

Several studies in the area of self-regulated learning have reported how students can be trained in cognitive, motivational and behavioral strategies to enhance their learning (Corno, 1983; McCombs, 1984; Schunk, 1987; Zimmerman, 1986, 1989, 1996). However, this body of research has also not reported any study that has examined how self-regulatory attributes and processes underlie group methods of learning. For study partnerships to form and function without the supervision of teachers, it is necessary that students have a high degree of self-regulated behavior in their learning.

Furthermore, research in adaptive help-seeking has also focused on elementary and middle school students who seek help within a classroom setting (Nelson Le-Gall, 1981, 1985, 1986; Newman, 1990, 1994, 1998). Karabenick, (1996, 1998, 2000) has reported help-seeking behavioral patterns among college students within classroom settings. The research available indicates that students who seek help in class have higher achievement levels than those who do not seek help. It is not known if high achieving students also seek from their peers outside of class to enhance their learning. There is no data available that has looked at help-seeking patterns when students learn in informal groups. This dearth in the literature is discussed in the section below.

Limitations in the Existing Research

This chapter has discussed research in group learning techniques that have been helpful in enhancing classroom learning. Most of these techniques have involved

systematic training and intervention programs aimed at increasing the rate of learning in students. However, there is a glaring void in this body of research, and that is, the application of these types of learning to naturalistic contexts, where students make efforts on their own to use the new techniques without being made to do so by the teacher. This is where the current study is meaningful: to explore to what extent the different group learning techniques taught are actually practiced by students to enhance their learning, by forming study partnerships.

As has been explained above, the research available in the area of adaptive help-seeking has focused on elementary and middle school students. There were very few studies conducted with college populations. There is no research that has examined the formation and functioning of study partnerships as a form of help-seeking, beyond the classroom. The proposed research will offer initial insights about how students function in groups they themselves form without any external pressure to do so and, to what extent it affects their academic achievement. The proposed research is a major step in this direction to explore how individuals converge together to achieve academic goals without the assistance of an authority figure like the teacher.

An effort is made in current study to answer some of the salient questions posed above.

Research Questions

1. What is the prevalence of study partnerships among college students?
2. What are the special background characteristics that favor study partner use?

3. What are the main differences between students who use study partners and those who do not in terms of their self-efficacy, amount of studying, GPA, and self-regulated learning?
4. Among students who do not use a study partner do high achieving students report different reasons for not using a study partner, greater self-regulated learning and more studying than low achieving students?
5. Among study partner users do high achieving students report differences in the quality and quantity of study partner use, in their degree of self-regulated learning, and in their amount of studying alone and amount of studying with a partner than low achieving students?

Chapter 3

Methods

Participants

Data were collected from a total of 349 students who were drawn from seven colleges, six of which were in New York City and Long Island, and one in New Jersey. However, only 285 complete datasets were obtained that were used in the data analysis. There were 43 (15%) graduate students and 242 (85%) undergraduate students who were included in the study. Freshmen students were not included in the sample because they could not answer questions about use of student partners during previous semesters. The students were classified into six major ethnic groups: White, Black, Hispanic, Asian, Pacific Islander and Other. There were 174 (61%) White students, 41 (14%) Black students, 29 (10%) Hispanic students, and 29 (10 %) Asians students, 4 (1%) Pacific Islander students, and 4 (1%) students from other groups.

Measures

The questionnaires used in this study consist of seven sources of data. I developed these measures from informal interviews with students from different colleges in informal settings, such as the cafeteria and the student center during preliminary research. The items that were developed from those interviews were then subjected to formal psychometric analyses of reliability and construct validity during the present study. The specific measures are as follows:

1. *Demographic:* Data were collected from the students to develop insights into the role of background variables that effect the formation of study partnerships. Data were collected as follows.

a. The year of study in college -- specific year of undergraduate/graduate study.

b. The number of credits taken per semester -- full-time or part-time.

c. The number of hours per week the students work for supplementary employment.

d. Age, gender and ethnicity of the students

e. Study activities with SP.

f. Study locations with SP

g. Grade with SP.

This scale collected background demographic data and also identified SP users from Non-SP users (if they answered in the affirmative to the questions e, f and g above, they were classified as SP users).

2. *Self-efficacy for SP Use Scale:* An individual measure of self-efficacy was developed for use in this study following procedures outlined by Bandura and Schunk (1981). The self-efficacy measure included 5 items regarding the subjects' capability to form study partnerships. All items were introduced with the phrase "How sure are you that you can...." A four-point Likert scale format was used to measure their self-efficacy ratings. Each item was scored for 1 (Very Unsure) through 4 (Very sure). Each student's score was obtained by computing an average across the five items (see appendix 1)

3. *Self-Regulated Learning Scale:* To measure the self-regulatory learning behavior of all students in the study, 17 items were used. A four-point Likert format was used. Each item began with the phrase "When I study, I...". Responses range from 1 (Almost never) to 4 (Almost always) (see appendix 2)

4. *Non-SP Users' Reasoning Scale:* This scale was used to determine why some students do not use a study partner. The scale consists of 12 items set to a four-point Likert format. Each item starts with the phrase " I have not used study partners in college because....". Responses ranged from 1 (Strongly disagree) through 4 (Strongly agree). Meetings and discussions with students at the preliminary phase of the study helped generate the items. (see appendix 3)
5. *Frequency of SP Use Ratings:* This scale consists of eight items that were either Likert type or completion type. These items were designed to assess students' frequency of studying with a partner and also to develop characteristic profiles of students who study with partners. (see appendix 6)
6. *SP Processes Scale (for SP users):* This scale consists of 32 items. An initial pool of items was generated using the multidimensional self-regulatory learning model depicted in figure 2 (cited in Chapter 1). This model integrates five specific dimensions of self-regulatory learning (motive, method, behavior, time, and physical environment) with specific task conditions, attributes and processes. The items from the pool were revised based on an initial pilot interview with students. A four-point Likert Scale format was used. Responses ranged from 1 (Strongly disagree / Almost Never) through 4 (Strongly agree / Almost Always) depending on the statement. (See appendix 4)
7. *Study Partner Preference Ratings:* This scale was used to determine the characteristics of students who are preferred by SP users. Five items of the scale measured social aspects of study partner characteristics. Items were set to a four-point Likert format. Each item starts with the phrase "I like to study with students.....".

Response ranged from Strongly agree through Strongly disagree. The responses helped in determining how many students agreed or disagreed with the statements in terms of study partner characteristics. (See appendix 5).

Procedure

Having obtained prior permission from the administration of the colleges, the researcher contacted several instructors of graduate and undergraduate courses. The instructors who agreed to participate in the study then introduced the researcher to their classes and asked for volunteers to participate in the study. The researcher briefly explained the purpose of the study to the students who were willing to participate in the study. Participation was voluntary, but students were requested to give their permission by signing an informed consent document. The measures were administered to the students who decided to participate in the study in their classrooms. Students who did not participate in the study were permitted to leave. Specific instructions about their responses were given to the students. The data were collected in three phases.

Phase I

The scale to measure the *demographics related to background information* was given to all the students who agreed to participate in the study. The *self-efficacy scale for study partner use* and the *self-regulated learning* was appended to this section.

Phase II

A dichotic classification was done to distinguish SP users from Non-SP users. Students were classified based on their responses to questions *e*, *f* and *g* in the demographic data sheet. Students were classified as SP users if they responded to these questions in the affirmative if: (*e*) they used study partners for different types of learning

tasks, (f) they studied in different locations together, and (g) they reported their grades when they studied with a study partners. On the other hand, all students classified as non-SP users responded negatively to all the three items. Students who were non-SP users were administered the *Non-SP Users Reasoning Scale.* Students who were SP users were administered the *Study Partners Processes Scale* to measure the quality of SP use. Two measures, the Frequency of SP Ratings, and the Study Partner Preference Ratings were appended to this section for students who used SPs.

Phase III

Grade Point Average (GPA). The GPA is used as a measure of the student's academic ability. Grades were requested from course instructors as well as from the students as a self-reported score.

Data Analyses

Section 1

Demographic information collected from the students is reported descriptively in terms of means and standard deviations. The data pertaining to the role of background variables like year of study, credit load, hours of employment, gender, age, ethnicity, and academic major will be presented and analyzed in the next chapter.

Section 2

Data collected from the Frequency of Study Partner Use Ratings and from the Study Partner Preference Ratings are presented in the next chapter. This helped in developing a profile of students who are SP users. The measures enabled the researcher to understand the dynamics of study partnership processes in terms of certain characteristic behavioral patterns.

Section 3

Psychometric properties of the different scales are then presented. As each of these scales was constructed exclusively for the current study, different analyses were done with the data collected. Initially, principal component analysis was done to determine how many underlying constructs emerged from each measure. Further, where necessary, exploratory factor analysis was done with promax rotation to identify factors from each of the measures. Reliability was measured using Cronbach's Alpha for each of the scales and the subscales

Section 4

In the final section, tests of multivariate analysis of variance (MANOVA) were used to determine how the groups differed from each other. The main hypotheses tested in this study are listed below.

Studying Differences between SP Users and Non-SP Users

1. The *self-efficacy for SP use* is different for SP users and non-SP users.
2. The *amount of studying* is different for SP users and non-SP users.
3. The levels of *self-regulated learning* are different for SP users and non-SP users.
4. The *GPA* is different for SP users and non-SP users.

Studying Differences between High GPA and Low GPA Non-SP Users

1. When compared to students with low GPA, students with high GPA will report different *reasons for not using a study partner.*
2. When compared to students with low GPA, students with a high GPA will *study for more hours.*

3. When compared to students with low GPA, students with high GPA will report higher *levels of self-regulated learning.*
4. When compared to students with low GPA, students with high GPA will report higher levels *of self-efficacy for SP use.*

Studying differences between high and low GPA SP users

1. When compared to students with low GPA, students with high GPA will report higher levels *of self-efficacy for SP use.*
2. When compared to students with low GPA, students with high GPA will report higher *levels of self-regulated learning.*
3. When compared to students with low GPA, students with a high GPA will *study for more hours alone.*
4. When compared to students with low GPA, students with a high GPA will *study for more hours with a partner.*
5. When compared to students with low GPA, students with a high GPA will *use different study partner processes.*

Chapter 4

Results

Demographic Data Analyses

Demographic information collected from the students is reported as means and standard deviations. This section reports the differences between SP users and non-SP users in terms of the background variables of age, gender, ethnicity, year of collegiate study, credit load per semester, number of working hours and other information. Of the 285 students whose data were complete, 29% used a study partner and are referred to as *SP users,* and 71% did not use a study partner and are referred to as *non-SP users.*

The data for the students' school year, credit load, hours of employment per week, age, gender, ethnicity and academic major were coded as dummy variables. Significant differences between SP users and non-SP users were found for the level of schooling, χ^2 (1) = 8.11, $p < .01$, but not for the other demographic categories. When analyzed by level of schooling, the graduate students were quite evenly distributed between SP (47%) and non-SP (53%) users, but undergraduates were mostly non-SP users (75%) (see table 3). When analyzed by course load, 29% of the full-time students were SP users and 27% of the part-time students were SP users. In terms of their outside work, 30% of SP users worked for more than twenty hours a week, and 29% of the SP users worked less than twenty hours a week. In terms of the gender of the students, 28% of the male and 30% female students were SP users.

In terms of their age, the students were classified into three groups: ≤ 20 years, between 21 and 25 years, and > 25 years. Of the students in the youngest group, 36 were

Table 3

Demographic Characteristics of SP Users and Non-SP Users

Group	*SP Users* (n = 83)		*Non-SP Users (n = 202)*		*Total #*
	#	%	#	%	*(n = 285)*
School Year**					
Grad	20	47	23	53	43
Under Grad	60	25	178	75	238
					*(n = 281)^*
Student Load					
Part-time	13	27	35	73	48
Full-Time	69	29	166	71	235
					*(n = 281)^*
Work Hrs/Week					
≤20	42	29	103	71	145
>20	34	30	81	70	74
					*(n = 260)^*
Gender					
Male	34	28	86	72	120
Female	49	30	116	70	165
					(n = 285)
Age					
≤20	32	36	58	64	90
21-25	29	23	95	77	124
>25	22	31	49	69	71
					(n = 285)
Ethnicity					
White	51	29	123	71	174
Black	8	20	33	80	41
Hispanic	10	34	19	66	29
Asian	11	38	18	62	29
Pacific Islander	-	-	4	100	4
Other	2	50	2	50	4
					*(n = 281)^*
Academic Major					
Science	16	37	27	63	43
Social Science	19	26	54	74	73
Literature	2	12	14	88	16
Business	45	31	98	69	143
Other	1	17	5	83	6
					*(n = 281)^*

** $p < 0.01$; ^ indicates missing data in the last column

SP users. In the intermediate age group, 23% were SP users and in the oldest group, 31% were SP users.

In terms of their ethnic background, students were classified into six groups: White, Black, Hispanic, Asian, Pacific Islander and Other. Of the Whites, 29% were SP users; among the Black students, 20% were SP users, and in the Hispanic group, 34% were SP users. Of the Asians, 38% were SP users, and there were only 4 Pacific Islanders in the group and all were non-SP users. On the "other ethnic groups" category, 50% were SP users.

In terms of their academic majors, 37% of the science students were SP users; 26% of the social science students were SP users; and, 12% of the literature students used a study partner. Of the business majors, 32% of the students studied with partners; and 17% of the students in the "other majors" category studied with a partner.

Profile of a SP User

To provide a profile of a SP user, two measures were used: The Frequency of Study Partner Ratings and The Study Partner Preference Ratings. *The Frequency of Study Partner Ratings* revealed the frequency of SP use among students (see Table 4). With regard to the frequency of study partner use during previous semesters, the results indicate that 40% of the students had used a SP for five or fewer times, and 60% had used for more than five times. With regard to SP use during the current semester, 57% of the students had used a SP for five or fewer times, while 43% of the students had used a study partner more than five times. When asked "When was the last time you used a study partner," 5% of the students reported it was over a year ago, 10% said it was during the previous semester and, 85% reported that they were used a study partner during the

current semester. In terms of the number of courses, SP users indicated that they have used a study partner for an average of about two (M=1.95) different courses every semester.

Table 4

Frequency of SP Use

Frequency of SP Use	≤ 5 times	> 5 times
Frequency of SP Use During Previous Semesters	40%	60%
Frequency of SP Use During Current Semester	57%	43%

The data pertaining to background variables like gender, age, and ethnicity for the SP and non-SP users are summarized in Table 5a. The second measure, the *Study Partner Preference Ratings* was used to collect data related to the preferences of SP users. Regarding SP gender preferences, there were no significant differences among male and female students for study partners according to chi-square tests. Twenty-one percent of the male SP users indicated that they preferred to study with partners of their own gender, and 22% of the female SP users preferred to study with students of their own gender.

In terms of ethnicity, there were significant differences among the groups in their preference for study partners, $\chi^2(4) = 9.86, p < .05$. Only 10% of the White SP users indicated that they preferred to study with students of their own ethnic group. For Black students, the preference for an ethnically homogeneous SP was 12%, and for Hispanic students, the preference for an ethnically homogeneous SP was 10%. However, 45% of

the Asian students indicated that they preferred to study with students of their own ethnic group. When 2 x 2 chi-square analyses were conducted for the different groups, a significant difference in preference for ethnically homogeneous SPs was found only between students who are White and Asian, $\chi^2(1) = 8.50, p < .01$.

Table 5a

Group Preferences of SP Users

Group	*Agree to study with only homogeneous SPs*		*Agree to study with non-homogeneous SPs*		Total # (n = 83)
	#	%	#	%	#
Gender					
Male	7	21	27	79	34
Female	11	22	38	78	49
					(n = 83)
Ethnicity*					
White	5	10	46	90	51
Black	1	12	7	88	8
Hispanic	1	10	9	90	10
Asian	5	45	6	55	11
					(n = 80)^
Age*					
≤ 20 Yrs	14	44	18	56	32
21-25 Yrs	10	34	19	66	29
> 25 Yrs	3	14	19	86	22
					(n = 83)

*$p < .05$; ^ indicates data missing in the last column

Thus, compared to Asian students, significantly fewer White students considered the ethnicity of the SP to be an important issue.

In terms of age, 44% of the SP users who were 20 years or less indicated that they liked to study with students in their own age group. Among students aged 21 through 25 years, 34% agreed that they liked to study with students in their own age group. In the group of students older than 25 years, 14% preferred to study with students of their own

age. There was a significant difference in homogeneous age preference between students who are ≤ 20 and > 25 years of age, χ^2 (1) = 5.48, $p < .05$. In terms of other SP preferences, 81% indicated that they preferred to study with students whom they considered superior to them academically, and 84% of the students preferred study partners with a high GPA.

A key issue is the impact of SP use on students' academic achievement. When asked to report the academic grades when studying alone and with a partner, significant differences were found ($M = 3.40$, $SD = 0.50$; $M = 3.18$, $SD = 0.70$, respectively), t (1,75) = 3.47, $p < 0.01$. When considering the direction of grade difference by these students, forty percent of SP users reported a higher grade, 51% reported no change, and 9% reported a decline in grade with SP use (see table 5b).

Table 5b

Grade Pattern with SP Use

Improved Grade with SP Use	Decline in Grade with SP Use	No Change in Grade with SP Use
40%	9%	51%

SP users engage in a variety of different learning activities when they study together (see Table 6). The most frequent study partner activity is preparation for quizzes, tests or exams. The next most frequent activity is completion of course assignments, followed by class presentations, term papers and other study activities. Clearly the most frequent reason for studying with partner is for quiz / test / exam preparation, and this may be attributed to the heavy weighting given to these course requirements in most classes that students take.

Table 6

Study Activities With SP

Number	Type of Study Activities	% Rate
1	Preparation for quiz / test / exam	86.8
2	Course Assignments	66.3
3	Class Presentations	51.8
4	Term Paper	39.8
5	Other	12.1

When students study with their partners, they do so in different settings. The common settings where students study with their partners are shown in Table 7.

Table 7

Study Locations With SP

Number	Type of Study Locations	% Rate
1	Library	79.5
2	Home	32.5
3	Cafeteria	16.9
4	Other	13.3
5	Dorm	10.8

The library is clearly the most favored location to study (see Table 7). After the library, the home of the students is the next preference followed by the cafeteria and other places.

Psychometric Properties of Scales

The third section deals with the psychometric analyses of the different scales that were constructed exclusively for this study. Apart from the basic descriptive properties of the scales, the psychometric properties pertaining to their reliability, principal-component, and oblique factor analyses are reported.

Self-efficacy for SP use scale: The self-efficacy measure included 5 items regarding the subjects' capability to form study partnerships. A four-point Likert scale format was used to measure their self-efficacy ratings. Table 8 presents the data analyzed from this scale.

Table 8

Psychometric Properties of the Self-Efficacy for Study Partner Use Scale

Self-Efficacy Scale

Number of Items	5
Scale Mean	2.9
Principal Component Analysis	1 Factor
Reliability – Cronbach's α	0.78

To determine the factorial structure of the scale, principal-component analysis was conducted using 0.40 factor loading as the cutoff point. It was found that all the five items loaded on a single factor. The single factor obtained accounted for 54% of the variance and had an eigenvalue of 2.70. Of the five items in the scale, the highest mean was obtained for the item "How sure are you that you can locate a suitable place to study with a partner" ($M = 3.15$, $SD = 0.80$). The lowest mean was obtained for the item "How sure are you that you can adjust your schedule to a SP's schedule" ($M = 2.64$, $SD = 0.89$). The scale displayed an acceptable internal consistency coefficient (Cronbach's α of 0.78). The item means for the scale are presented in Appendix 2.

Self-Regulated Learning Scale. To measure the self-regulated learning behavior of all students in the study, 17 items were used. A four-point Likert format was used. Table 9 presents the data analyzed from this scale.

Table 9

Psychometric Properties of the Self-Regulated Learning Scale

Self-Regulatory Learning Scale	
Number Of Items	17
Scale Mean	3.0
Principal Component Analysis	1 Factor
Reliability – Cronbach's α	0.87

When items on this scale were analyzed using a principal component analysis, all the items loaded on a single factor. The single factor accounted for 89% of the variance and had an eigenvalue of 8.20. The highest means of the scale were obtained for the following items, "When I study, I am aware of the specific demands of the course" and "When I study, I take short breaks when my study sessions are long"(M = 3.49, SD = 0.55; M = 3.37, SD = 0.72 respectively). Lowest means for this scale were obtained for items, "When I study, I break down the semester goals into smaller goals that can be accomplished successfully" and for "When I study, I plan to include enough time to read and make notes about the topics before I go to class" (M =2.55, SD = 0.90; M = 2.50, SD = 0.89 respectively). Two items did not load on the obtained factor and were therefore dropped from the subsequent analyses The scale displayed a high level of internal consistency (a Cronbach's α of 0.87 was obtained). The item means for the scale are presented in Appendix 7.

Non-SP users reasoning scale. This scale was used to determine why some students do not use a study partner. The scale consists of 12 items set to a four-point Likert format. Table 10 presents the data analyzed from this scale

Table 10

Psychometric Properties of the Non-SP Users Reasoning Scale

Non-SP Users Reasoning Scale	
Number of Items	12
Scale Mean	2.3
Principal Component Analysis	3 Factor
Oblique Factor Analysis	2 Factors
Factor 1: Ineffectiveness of using a SP (Scale Mean)	2.8
Cronbach's α	0.81
Factor 2: Fear of using a SP (Scale Mean)	1.6
Cronbach's α	0.78

The items, "I have not used SPs in college because I get high grades when I study alone" and "I have not used SPs in college because I do not think a SP helps me to do better in the course" obtained the highest means ($M = 3.17$, $SD = 0.83$; $M = 2.91$, $SD = 0.91$ respectively). The items, "I have not used SPs in college because I am afraid to ask anyone" and "I have not used SPs in college because I am afraid I cannot meet the expectations of my partners" obtained the lowest means, ($M = 1.50$, $SD = 0.69$; $M = 1.64$, $SD = 0.73$ respectively). The item means for the scale are presented in appendix 6.

When items on this scale were analyzed using a principal component analysis, the items loaded on three factors. To better delineate the underlying factors, an exploratory factor analysis was conducted with promax rotation using a factor loading of 0.40 as the cutoff point. The exploratory factor analysis yielded two factors.

- *Factor I: Ineffectiveness of a study partner* (five items loaded on this factor with an eigenvalue of 9.25 and accounted for 67% of the variance). Examples of items are "I do not think that a study partner helps me to do better in the course", " I will end up doing all the work alone".

- *Factor II: Fear of using a study partner* (three items loaded on this factor with an eigenvalue of 4.25 and accounted for 33% of the variance). Examples of items are " I am afraid to ask anyone to study with me", " I feel shy or withdrawn". In this analysis, four items did not load on any factor and were dropped from further analyses.

SP processes scale (for SP users). This scale consists of 32 items. The items measure five specific dimensions of self-regulating SP use: *motive, method, behavior, time, and physical environment.* A four-point Likert Scale format was used. Tables 11a through 11e present the data analyzed from this scale.

Table 11a

Psychometric Properties the SP Motive Scale

SP Motive Scale	
Number of Items	11
Scale Mean	3.20
Principal Component Analysis	1 Factor
Reliability – Cronbach's α	0.89

In the motive scale (see Table 11a), the highest means were obtained for the items, " Studying with partners enables me to check if we understand the material better", and "Studying with partners enables me to remember the material clearly" (M = 3.37, SD = 0.60; M =3.31, SD = 0.58 respectively). The lowest means were obtained for the items, "Studying with partners enables me to increase my interest in the work" and "Studying with partners enables me to take course work seriously" (M = 2.92, SD = 0.85; M =3.08, SD = 0.74 respectively). The item means for the scale are presented in Appendix 4.

Table 11b

Psychometric Properties of the SP Method Scale

SP Method Scale	
Number of items	9
Scale mean	2.8
Principal Component Analysis	1 Factor
Reliability – Cronbach's α	0.75

In the method scale (see Table 11b), the highest means were obtained for the items " My study partner and I explain the course material to each other", " My study partner and I give each other feedback to improve our understanding of the course" (M = 3.37, SD = 0.64; M =3.26, SD = 0.56 respectively). Lowest means were obtained for the items "My study partner and I keep a journal of what we achieve during our study sessions" and "My study partner and I check the outcomes of our meetings to see if our goals have been met" (M = 1.60, SD = 0.80; M =2.22, SD = 0.87 respectively). The means of the scale are presented in Appendix 4.

Table 11c

Psychometric Properties of the SP Behavior Scale

SP Behavior Scale	
Number Of Items	5
Scale Mean	3.2
Principal Component Analysis	1 Factor
Reliability – Cronbach's α	0.81

In the behavior scale (see Table 11c), the highest means were obtained for the items, " My study partner and I are aware of the specific demands of the course", and "My study partner and I are aware of what we expect from our study sessions" (M = 3.42,

SD = 0.54; *M* =3.26, *SD* = 0.58 respectively). Lowest means were obtained for the items, "My study partner and I are aware own (without partner's help)" and "My study partner and I are aware of each other's strengths and limitations as we study together" (*M* = 3.06, *SD* = 0.61; *M* =3.10, *SD* = 0.62 respectively). The item means of the scale are presented in Appendix 4.

Table 11d

Psychometric Properties of the SP Time Scale

SP Time Scale	
Number of Items	4
Scale Mean	3.0
Principal Component Analysis	1 Factor
Reliability – Cronbach's α	0.71

Of the four items in the SP Time scale (see Table 11d), the highest mean was obtained for the item "My study partner and I decide about specific times to study" (*M* = 3.37, *SD* = 0.62). The lowest mean was obtained for "My study partner and I evaluate the outcomes of our meeting to check whether we used our time meaningfully" (*M* = 2.50, *SD* = 0.90). The item means of the scale are presented in Appendix 4.

Of the three items in the SP Environment scale (see Table 11e), the highest mean was obtained for " My study partner and I select a place that is convenient for both of us to study" (*M* = 3.50, *SD* = 0.53) and the lowest mean was obtained for the item " My study partner and I alter the place if necessary so that it helps us learn better" (*M* = 3.06, *SD* = 0.72). The item means of the scale are presented in Appendix 4.

Table 11e

Psychometric Properties of the SP Physical Environment

SP Physical Environment Scale

Number of Items	3
Scale Mean	3.3
Principal Component Analysis	1 Factor
Reliability – Cronbach's α	0.73

To determine the relationship among the SP processes subscales, correlations were computed (see Table 12). The correlation matrix shows that there there is a significant positive correlation among the five different subscales. The correlations between subscales method, behavior, time, and physical environment averaged .56, which indicates that they shared 31% of the variance in these items. By contrast, correlations between the motive subscale and the other subscales averaged .33, which indicates that they shared 11% of the variance in these items.

Table 12

Correlations Among the Study Partner Processes Subscales

SP Subscales	1 Motive	2 Method	3 Behavior	4 Time	5 Physical Envt
1	1.00				
2	.37**	1.00			
3	.38**	.57**	1.00		
4	.35**	.62**	.60**	1.00	
5	.21	.47**	.59**	.48**	1.00

* $p < 0.05$; ** $p < 0.01$

Hypothesis Testing

Studying differences between SP-users and Non-SP users. A single factor MANOVA was conducted (see Table 13) to determine whether SP use was related to self-efficacy for SP use, the amount of studying, GPA, and self-regulated learning. The MANOVA showed that there were significant differences in studying between SP users and SP non-users, Wilk's Lambda = 0.93, $F(4, 277) = 5.39$, $p < 0.01$. Univariate tests of significance showed significant group differences for the following dependent variables: self-efficacy, $F(1, 285) = 14.45$, $p < 0.01$ and amount of time studying, $F(1, 285) = 6.13$, $p < 0.01$. The SP users significantly surpassed the non-SP usersin their self-efficacy for SP use and in the time spent studying. The differences in self-regulated learning and the GPA between the two groups did not reach statistical significance.

Table 13

Differences Between SP-Users and Non-SP Users

Groups	Self-efficacy for SP use* ^	Amount of Studying (in Hours)*	GPA	Self-Regulated Learning ^
SP Users (n = 83)	*M* = 3.10 *SD* = 0.58	*M* = 13.00 *SD* = 8.94	*M* = 3.25 *SD* = 0.45	*M* = 3.06 *SD* = 0.39
Non-SP Users (n = 199)	*M* = 2.80 *SD* =0.62	*M* = 10.00 *SD* = 9.21	*M* = 3.23 *SD* = 0.51	*M* = 2.99 *SD* = 0.47

* *p < 0.05;* ^ *item range: 1-4*

The correlation coefficients obtained indicate that there were significant positive relationships of similar size between GPA and SRL for both the SP users and the non-SP users (see Table 14). Significant positive correlations were also obtained between SRL

and self-efficacy for SP use, but the SP users displayed a significantly higher correlation ($r = .45$, $p < .01$) than non-SP users ($r = .15$, $p < .05$). For non-SP users, there was also a positive correlation between total study time and GPA ($r = .18$, $p < .01$) as well as between study time and SRL use ($r = .12$, $p < .01$). By contrast, the non-SP users showed a significant negative correlation between GPA and self-efficacy for SP use ($r = -0.18$, $p < .01$), indicating that non-SP users with higher achievement levels felt less efficacious about selecting and using a study partner.

Table 14

Correlations among SP use, non-SP use and other variables

Groups	Self-efficacy for SP use	Total Study time	GPA
Self-efficacy for SP use			
SP Users	1.00		
Non-SP Users	1.00		
Total Study time			
SP Users	0.04	1.00	
Non-SP Users	-0.10	1.00	
GPA			
SP Users	0.15	0.01	1.00
Non-SP Users	-0.18**	0.18**	1.00
SRL			
SP Users	0.45**	0.16	0.35**
Non-SP Users	0.15**	0.12**	0.37**

* $p < 0.05$; ** $p < 0.01$

Studying Differences between High and Low GPA Non-SP Students

A single factor (high versus low GPA) MANOVA was conducted to determine whether GPA was related to students reasons for not using a SP, the amount of studying, self-efficacy for SP use, or self-regulated learning (see Table 15). Students with GPAs of 3.00 or higher (a B average) formed a high GPA group, and students with GPAs of less than 3.00 formed a low GPA group.

The multivariate test of significance showed (see Table 15) that there were significant overall differences in studying between high GPA and low GPA non-SP students, Wilk's Lambda = 0.82, $F(5,193) = 8.64$, $p < 0.01$. Univariate tests of significance showed significant group differences for the following dependent variables: ineffectiveness of using a study partner, $F(1,197) = 6.36$, $p < .01$; fear of using a study partner, $F(1, 197) = 18.35$, $p < .01$, and self-regulated learning, $F(1,197) = 22.38$ $p < 0.01$. GPA group differences did not reach significance for the amount of studying or self-efficacy for SP use in the model. The high GPA students displayed significantly greater amounts of studying and reported significantly greater belief in the *ineffectiveness* of a SP, but a significantly lower *fear* of SP use than low GPA students. The high GPA students also displayed significantly higher levels of SRL than low GPA students.

A significant negative correlation was found between the two factors: *ineffectiveness* of using a SP, and *fear* of using a SP ($r = -0.14$; see Table 16). Students who perceived greater ineffectiveness in using a SP were lower in their fear of using a SP. A significant negative correlation was found between self-efficacy for SP use and fear of using a SP ($r = -0.14$, $p < .05$), indicating that students who feared using a SP were less self-efficacious about using a SP. Students who were more self-efficacious

Table 15

GPA Differences in Studying, and SP Beliefs Among Non-SP Users

	Reasons for not using a SP		Amount of Studying (in Hours)	Self-efficacy for SP use	Self-Regulated Learning*
	Factor One (Ineffectiveness of using a SP)*	Factor Two (Fear of using a SP)*			
High GPA (n = 152)	M = 2.87 SD = 0.70	M = 1.52 SD = 0.59	M = 10.58 SD = 10.20	M = 2.77 SD = 0.64	M = 3.07 SD = 0.46
Low GPA (n = 47)	M = 2.59 SD = 0.60	M = 1.94 SD = 0.61	M = 8.03 SD =4.30	M = 2.87 SD =0.54	M = 2.72 SD = 0.44

*$p < 0.05$; ^ item range: 1-4

Table 16

Correlations among Non-SP users and other variables

Groups	Self-efficacy for SP use	Self-study Time	Factor I Ineffectiveness of SP	Factor II Fear of using SP	SRL
Self-efficacy for SP use	1.00				
Self-study time	-0.10	1.00			
Factor I	-0.12	0.09	1.00		
Factor II	-0.14*	0.02	-0.14*	1.00	
SRL	0.15*	0.12	0.15*	-0.27**	1.00
GPA	-0.18**	0.18*	0.25**	-0.30**	0.37**

*$p < 0.05$; **$p < 0.01$;

about using a SP were more self-regulated ($r = .15, p < .05$) but were lower in GPA ($r = -.18, p < .01$). Although these correlations were statistically significant, they were relatively small in size.

The significant positive correlation between SRL and perceived ineffectiveness of using a SP ($r = .15, p < .01$) indicates that non-SP users who are higher in SRL perceive a SP as a less effective academic resource. A significant negative correlation between SRL and fear of using a SP ($r = -0.27, p < .01$) indicates that students high in SRL have less fear of using a SP.

Non-SP users who are higher in GPA were less efficacious about using a SP ($r = -0.18, p < .01$) but also studied more frequently alone ($r = .18, p < .05$). A significant positive correlation was found between GPA and ineffectiveness of using a SP ($r = .25, p < .01$) indicating that higher achieving students did not use a SP because they thought it

was ineffective. GPA correlated negatively with fear of using a SP (r = -0.30, p < .01) indicating that higher achieving students were less likely to cite fear as a reason for not using a SP. Finally, a positive correlation between GPA and SRL (r = .37, p < .01) indicates non-SP users with higher grades were more likely to be self-regulated in their learning.

Studying Differences between High and Low GPA SP Users

A single factor (high versus low GPA) MANOVA was conducted (Table 17) to determine whether GPA was related to the quality of SP processes, amount of studying, self-efficacy for SP use, or self-regulated learning among SP users. Students with GPAs of 3.00 or higher (a B average) formed a high GPA group, and students with GPAs of less than 3.00 formed a low GPA group.

The overall multivariate test of significance showed that there were no significant differences between the two groups, namely, users of study partners with a high GPA and users of study partners with a low high GPA; Wilk's Lambda = 0.88, F (9,73) = 1.05, *ns.* However, results of univariate analyses indicated a marginally significant group effect for SRL, F (1.81) = 3.43, p < .06). Significant group differences were also found for the physical environment subscale, F (1.81) = 5.17, p < .02. As can be seen from Table 18, the means for the different variables are higher for the high GPA group although statistical significance was not reached.

Correlations Among Studied Variables

Significant correlations (Table18) were obtained between self-efficacy for SP use and SRL processes (r = .45, p < .01). Self-efficacy for SP use also correlated positively with four of the five SP processes: motive (r = .26, p < .01), method (r = .44, p < .01),

behavior ($r = .39, p < .01$), and time ($r = .43, p < .01$). There were significant correlations between SRL and prior achievement (GPA), ($r = .35, p < .01$). SRL also correlated significantly with four of the five SP processes: method ($r = .42, p < .01$), behavior ($r = .49, p < .01$), time ($r = .40, p < .01$), and physical environment ($r = .25, p < .05$). By contrast, GPA correlated significantly with only one of the SP processes: behavior ($r = .25, p < .05$). Students with higher achievement were significantly more effective in control in their study behavior when they studied together with a SP. Significant positive correlations were also observed between study time with a SP and two of the SP processes: motive ($r = .27, p < .05$) and physical environment ($r = .22, p < .05$). This indicates that students' time with a SP covaried positively with their perceived control of their motivation and their physical environment.

Table 17

GPA Differences in SP Processes, Study Variables, and Self-Efficacy Beliefs Among SP USers

Groups	SP Processes					Study Time (hours)		Self-Efficacy for SP Use	SRL
	Motive	Method	Behavior	Time	Phy. Env.	With SP	Self-Study		
High GPA	3.19	2.78	3.27	3.07	3.32	$M = 3.63$	$M = 9.21$	$M = 3.12$	$M = 3.11$
($n = 63$)	0.48	0.44	0.44	0.57	0.47	$SD = 3.43$	$SD = 7.70$	$SD = 0.53$	$SD = 0.38$
Low GPA	3.19	2.70	3.03	2.89	3.03	$M = 3.02$	$M = 10.35$	$M = 3.00$	$M = 2.92$
($n = 20$)	0.46	0.44	0.43	0.50	0.53	$SD = 2.13$	$SD = 9.47$	$SD = 0.73$	$SD = 0.40$

Table 18

Correlation Coefficients for SP Processes and the different variables

Groups	Self-efficacy for SP use	SRL	GPA	Total Study time		Study Partner Processes			
				Self-Study	With SP	Motive	Method	Behavior	Time
Self-efficacy for SP use	1.00								
SRL	0.45**	1.00							
GPA	0.15	0.35**	1.00						
Self-Study	0.01	0.15	0.01	1.00					
Study with SP	0.10	0.07	0.001	0.07	1.00				
Motive	0.26**	0.14	0.04	- 0.10	0.27*	1.00			
Method	0.44**	0.42**	- 0.01	- 0.20	0.08	0.37**	1.00		
Behavior	0.39**	0.49**	0.25*	- 0.08	0.13	0.38**	0.57**	1.00	
Time	0.43**	0.40**	0.11	- 0.21	0.07	0.35**	0.62**	0.60**	1.00
Phy. Envt.	0.21	0.25*	0.12	- 0.00	0.22*	0.21	0.47**	0.59**	0.48**

* $p < 0.05$; ** $p < 0.01$

Chapter 5

Discussion

Because the present study represents the first empirical investigation of student partnerships, it required the development of many new instruments for assessing diverse issues, such as the demographic characteristics of the students in the sample, the frequency and conditions of using a SP, reasons for both using and not using a SP, self-regulation and achievement levels of the students, and a range of key SP processes. All instruments were found to demonstrate adequate reliability and construct validity. These instruments revealed that SPs are used quite extensively -- by 25% of the undergraduate students and by nearly 50% graduate students. This indicates that the very best students often turn to SPs to learn in the most demanding academic courses. The results also indicated that students rely on SPs especially for test preparation, and they reported significantly higher grades when studying with a partner than when studying alone. Finally, the quality of students' SP use was significantly correlated with their levels of self-regulation as was hypothesized. Let us consider these findings in greater detail.

Student Characteristics and SP Practices

SP users represent 29% of the college students drawn from diverse schools of higher education. Interestingly, the incidence of SP use is much higher among graduate students (47%) than undergraduate students (25%), which indicates that when students confront graduate level schoolwork, they turn increasingly to SPs to assist them. This shift toward the use of a SP does not appear to be due to the increased age of graduate students because the incidence of SP use declined with age for students in the intermediate group. Thirty-six percent of the students who were equal to 20 years of age

or less used a SP; 23% of the students between 21 to 25 years of age used a SP, and 31% of the students over 25 years of age used a SP. In terms of the SP age preferences of students, 44% of the students 20 or less years of age preferred a homogeneously aged SP whereas only 14% of the older students (>25 years) preferred a homogeneously aged SP. The increase in SP use by graduate students may have been due to increases in the difficulty of curriculum of graduate school. In support of a curriculum difficulty hypothesis, it was found that students majoring in a difficult academic major, such as science, were the highest users of SPs (37%). However, SP use in the other academic majors does not appear to conform to a difficulty hypothesis: business majors were second in their use of SPs (31%), and the social science majors were third (26%); literature majors were last (12%) in their use of SPs among the academic majors that were studied.

In terms of their gender, there were no major trends that emerged in SP use. Both males and females used SPs to a similar extent (28% versus 30% respectively). Among students who use a SP, 78% of the females and 79% of the males were willing to study with a partner of the opposite gender. Gender does not seem to be a barrier in most students' choice of a SP.

In terms of students' ethnic origin, it was interesting that Asians not only used SP more frequently (38%) than other students, but they were also the most ethnically restrictive in their choice of SP. Among students who used a SP, 45% of the Asians preferred to study with an ethnically homogeneous SP. By contrast, only 10% of the Hispanic students, 12% of the Black students, and 10% of the White students preferred to study with an ethnically homogeneous SP. Fuligini (1997) reported that Asian students

frequently study together, and they believed that this practice enhanced their academic performance. In terms of the use of SPs by other ethnic groups, 34% of the Hispanics used a SP, followed by 29% of the Whites, and 20% of the Blacks. When considered together, these findings indicate that most SP users are willing to study with students who belonged to different groups in terms of ethnicity, gender, or age.

In addition to ethnicity of the SP, another important characteristic of SPs is their academic competence. Eighty-one percent of SP users preferred to use SPs who were academically more competent than themselves, and a slightly higher (84%) number of SP users preferred SPs with a high GPA. This implies that SP users are not defensive about studying with a more competent partner but rather preferred partners who are serious about attaining their academic goals.

In terms of their level of employment, there were no significant differences between students who use a SP and those who do not. Among students who worked for less than twenty hours, 29% were SP users, and among those who worked for more than twenty hours, 30% were SP users. Apparently, the time spent working at a job did not significantly affect the use of SPs in this study. Furthermore, the size of the academic workload was not associated with differences in SP use: A statistically similar number of part-time students use a SP (27%) compared to full-time students (29%).

In terms of their SP use, 43% of the students said they had used a SP more than five times during the current semester, and 57% of the students reported that they had used a SP less than five times during the current semester. In terms of the number of courses wherein SP were used, SP users averaged 2 courses during the current semester, and the courses they studied with the SP were part of their academic majors. In terms of their

total study time, SP users studied for significantly more time than non-SP users. Interestingly, in this sample, both SP users and non-SP users engaged in self-study for an approximately equal amount of time, but the SP-users studied for an extra 3.5 hours per week with their SPs. It appears that studying with a partner does not detract study time from one's schedule, but instead, it represents an additional commitment by these students to their academic success. During these meetings with their SPs, students focus on preparing for quizzes, tests and exams as that was top priority. More specifically, 85% of the SP users focus on exams, 66% on course assignments, 52% on class presentations, and 40% on term papers.

In terms of the impact of SP use on students' academic success, 40% of the SP users reported higher grades when studying with a partner. Of the remaining students, 51% of the SP users showed no change in their grades with SP use, and 9% of the students suffered a decline in their grades after SP use. Clearly, the use of SPs is perceived to sustain or increase the academic success of a substantial number of students.

Differences Between SP Users and Non-SP Users

One research hypothesis predicted that there will be significant differences among SP users and non-SP users in self-efficacy for SP use, GPA, total study time, and SRL, and it was confirmed by multivariate test. Follow-up univariate tests indicated a significant difference in the self-efficacy for SP use between SP users and non-SP users. Students who use a study partners had a higher self-efficacy for SP use than students who did not use a study partner. Not surprisingly, students who used a study partner are more confident about finding a suitable partner to study with them than non-SP users. Self-efficacy beliefs about undertaking a daunting social activity, such as recruiting and

working compatibly with a SP, are clearly important in the using of this academic resource.

Students' prior achievement level (i.e., high GPA versus low GPA) was not found to be significantly associated with their SP use. Low as well as high achievers saw the academic value of using a SP. However, the hypothesis that SP users will study for more hours than non-SP users was confirmed by the results. As I noted above, SP users spent significantly more total time studying than non-SP users and that the difference in studying was due to the presence of a SP. Finally, students' level of self-regulation was not significantly associated with their use of a SP. Low as well as high self-regulators appreciated the importance of a SP.

Characteristics of Non-SP Users

The reasons for students not using SPs were studied on the basis of their prior achievement levels (i.e., GPA). As hypothesized, non-SP users reported different reasons for not using a study partner based on their GPA. It was found that high GPA students were significantly less likely to use a SP because they felt that a SP would be *ineffective*. By contrast, low GPA students failed to use a study partner because of fear. These differences may have been due to the higher level of self-regulation by the high GPA students: the correlation between students'self-regulation and the perceived ineffectiveness of SPs was positive, and the correlation between students' self-regulation and SP fear was negative. It should also be noted that there was a negative correlation between the two key reasons for not using a SP: perceived effectiveness and fear. Students who were concerned about the ineffectiveness of a SP were not afraid of using a SP. Students who were lower in self-regulatory skill were more likely to cite fear as a

factor for not using a SP. This finding is consistent with previous research on classroom help-seeking (Newman, 1998, 2000) that indicated that students who struggled academically were reluctant to ask for help because of social fears.

Characteristics of SP Users

It was hypothesized that high achieving students will outperform low achieving students on a range of variables, such as self-efficacy for SP use, total study time (alone and with SP), the quality of SP processes and the levels of self-regulated learning. Recall that the SP Processes scale (to determine the quality of SP use) specifically addressed five dimensions of interpersonal studying: *motive, method, behavior, time, and physical environment.* However, it was found that students' prior achievement (GPA) was unrelated to these measures when analyzed statistically using a multivariate test. This indicates that students' use of SP processes, self-efficacy, study time, and the level of self-regulated learning was not linked to their prior achievement. An alternative explanation for these findings is that students' use of SP compensates for the GPA differences experienced by students who study alone. There is some support for this hypothesis. As I mentioned earlier, the amount of studying in which SP users engaged alone was statistically comparable to the total amount of studying by the non-SP users. The significantly greater total study time of the SP users occurred as a result of their studying with their SP. Thus, the use of a SP could compensate for personal limitations in poor achievement (GPA).

Analyses of correlations among the five SP subscales revealed high intercorrelations among method, behavior, time, and physical environment scales, but lower correlations between the motive subscale and the other subscales. The motivation

scale assessed perceived increases in students' motivation due to the presence of a SP, which pertains to the issue of *why* students use a SP. The remaining scales focus on *how* students improve their studying by using a SP, and this may explain their high level of intercorrelation. For example, the method scale assessed perceived increases in students' method of studying due to the presence of a SP, and the time scale assessed perceived improvements in students' management of their academic study time. The behavior scale assessed increases in student's awareness of the effectiveness of their attempts to study, and the environmental scale assessed perceived increases in students' control of their study environments.

Significant positive correlations observed between self-efficacy for SP use and SRL indicate that self-efficacy beliefs and self-regulated learning are closely related which confirms results of previous research (Schunk, 1984). Significant positive correlations between self-efficacy for SP use and four of the five SP processes (*motive, method, behavior, and time)* indicate that students with higher self-efficacy jointly display higher interpersonal control of their motivation to study, their methods for studying, their control over their study behavior, and their use of their study time, when compared to students with lower self-efficacy for SP use. These findings confirm that self-efficacy for SP use is an important factor underlying the effectiveness of SP interactions.

Significant correlations between self-regulated learning and prior achievement (GPA) were consistent with findings of earlier research (Zimmerman, 1986, 1989; Zimmerman and Martinez-Pons, 1988). Like self-efficacy, self-regulated learning significantly correlated with four of the five SP subscales (*method, behavior, time, and*

physical environment). Based on their level of self-regulated learning, students use effective methods to study jointly with a partner, have an increased control of their study behavior when they work together, jointly use their study time better, and have an increased control of their physical environment. This indicates that students with higher levels of self-regulated learning sought and used SPs in a more systematic manner than students with lower levels of self-regulated learning, implying that the quality of SP interaction of high self-regulated learning students is richer and produces higher achievement outcomes.

Future Research

What is needed in future research are intervention studies wherein students' SP use can be controlled experimentally and its impact on their achievement can be assessed directly. Because of the descriptive design of the present study, causal inferences cannot be drawn. It is also important to determine whether study partnerships and group work can have differential effects on high and low achieving students. Although it is premature to recommend implementation of SP training programs until these effects can be demonstrated experimentally, this is the ultimate goal of the present research.

Future researchers should also consider differences between teacher-initiated and student-initiated study partner interactions to determine how they impact the study behavior and performance of students. It is also important in future research to investigate personal, social, and institutional barriers to the use of study partners during actual studying, rather than relying on retrospective accounts. Future studies might also examine the effects of SP use on the emotional well-being of students. By enlisting the support of study partners, students could maintain optimal levels of emotional functioning to counter

the pressure at schoolwork and home. Finally, future researchers might also examine how SP might influence students' management of multiple roles. Is the use of a SP helpful for students who have responsibilities as a parent, a spouse, or an employee?

Conclusion

This initial investigation of students' use of self-selected study partners revealed that it is a frequently used academic strategy and that reliable and valid instruments to assess its properties could be designed and developed. These instruments revealed that students' use of a SP displayed many properties characteristic of academic self-regulation. For example, there was some evidence that students who used a SP were more self-efficacious about selecting a SP and spent more time studying. Clearly, this self-initiated use of a SP reflected self-motivation to learn. Among students using a SP, their levels of academic self-regulation was positively correlated with their beliefs about working with a SP, such as improving one's method of studying, behavioral attainment of skill, time planning and management, and beneficial use of the physical environment.

Students who are struggling to learn in school can benefit from additional social resources, and many students have sought out such assistance from study partners. Clearly, study partners appear to have advantageous educational properties that merit further investigation although educational policy recommendations about their use must await further research.

Appendix A

(Sample of the letter sent to schools for obtaining permission)

From: Rajkumari Wesley December 10, 2001

To: The Dean / Chairperson

Subject: Permission for collection of data at your school for my doctoral thesis.

Dear,

I am a doctoral student in Educational Psychology at the Graduate Center of The City University of New York. I am currently working on my thesis titled "Study Partnerships: A Self-Regulatory Resource for Learning among College Students". I would like to request permission to collect data from your students for my study.

Description of the research study:

The purpose of this study is to examine the formation and functioning of study partnerships among college and university students. Study partnerships are becoming an integral part of the learning activities of contemporary college students. The proposed study seeks to determine if self-initiated informal study partnerships enhance academic performance. There is no previous research regarding how study partnerships are formed outside the classroom or to what extent they affect the learning outcomes of college students.

The study intends to explore the underlying mechanics of how study partnerships are formed and how they function to affect educational outcomes. The study will examine the characteristics of students who study with a partner as compared to those who do not use a study partner. The findings of this study will contribute to a better understanding of the learning behaviors of students and suggest methods for instructors and policy makers to address the issue of extending group learning to naturalistic environments among college students.

For my study, I require about three hundred students drawn from both undergraduate and graduate courses. I request that I may be permitted to meet the students and explain my study to them. No student will be forced to participate in the study. They will be requested to participate, and those who volunteer to do so will sign a letter of consent. The students will also be told that they can withdraw from the study at any time and there will be no penalty for that.

At a time that is convenient to the school, I will administer the questionnaires to the students, which will take about thirty minutes of their time. I also request permission from the students to obtain their grades from the school records. I will assure them that all data collected from them will be kept confidential and used only for research purpose.

I would like to thank you for considering this request. The findings of this study will be important for future students and educators. If you have any questions regarding this study, you can contact me at 732-970-0228 or at my email address: rajwesley@yahoo.com. You can reach my advisor, Dr. Barry Zimmerman at 212-817-8291 or at bzimmerman@gc.cuny.edu . You can also contact Ms. Hilry Fisher, Office of Sponsored Research at the University. Her phone # is 212-817-7523 and her email address is: hfisher@gc.cuny.edu.

Sincerely,

Rajkumari Wesley

Appendix B

Informed Consent Form

My name is Rajkumari Wesley and I am a Ph.D student in Educational Psychology at the Graduate Center of The City University of New York. As a requirement towards the completion of my doctoral degree, I will conduct a research study. I am asking you to participate in my study, and I would greatly appreciate your cooperation.

In my research, I am interested in exploring how informal study partnerships are formed among college students and how partnerships affect students' academic performance and course grades. It is expected that the results of this study will help students, faculty and policy makers to improve the quality of studying in the college and university settings in the future.

I received permission from your Chairperson / Dean to meet you and collect data. With your permission, I would like to administer a questionnaire that will take about thirty minutes of your time to complete. I will also need your grades for further analysis in my study. I want to assure you that all information collected by me will be kept strictly confidential and used for research purposes only. It is likely that my study may be published in the future. No names will be disclosed. If you are interested in a copy of this research report, you can get it by writing to me at the above address. You are free to stop participating in the study at any time you feel like and there is no penalty for that.

If you have any questions you can contact me at 732-970-0228 or at my email address: rajwesley@yahoo.com. You can contact my advisor Dr. Barry Zimmerman at 212-817-8291 or at bzimmerman@gc.cuny.edu. Questions can also be addressed to Ms. Hilry Fisher, Office of Sponsored Research at the University. Her number is 212-817-7523 and her email address is: hfisher@gc.cuny.edu. If you agree to participate in this study, please sign below. Your cooperation in this study is sincerely appreciated. Thank you.

I give permission to school administrators to release my grades for research purposes.

Participant's signature

Researcher's signature

Appendix 1

Self-Efficacy for SP Use Scale

Non-Study Partner Sample

Variable	Label	N	Mean	Std. Dev
SELFEFF1	Identifying Suitable Study Partner	199	2.80	0.92
SELFEFF2	Convince Student to Partner	199	2.83	0.85
SELFEFF3	Adjust Schedule for a Study Partner	199	2.54	0.91
SELFEFF4	Locate Place to Study with Parther	199	3.08	0.81
SELFEFF5	Locate Place to Study with Parther	199	2.68	0.90

Study Partner Sample

Variable	Label	N	Mean	Std. Dev
SELFEFF1	Identifying Suitable Study Partner	82	3.20	0.79
SELFEFF2	Convince Student to Partner	82	3.17	0.75
SELFEFF3	Adjust Schedule for a Study Partner	82	2.90	0.81
SELFEFF4	Locate Place to Study with Parther	82	3.33	0.77
SELFEFF5	Locate Place to Study with Parther	82	2.85	0.76

Appendix 2

Self-Regulatory Scale
Non-Study Partner Sample

Variable	Label	N	Mean	Std. Dev
SRL1	Aware of Specific Demands of Course	202	3.51	0.56
SRL2	Specific Goals for Each Session	201	2.99	0.83
SRL3	Use of Calendar for Planning	200	2.75	1.05
SRL4	Organize Time Based on Difficulty of Task	202	3.13	0.78
SRL5	Break Down Semester Goals into Smaller Goals	202	2.51	0.93
SRL6	Session Focused on Specific Task	202	3.06	0.74
SRL7	Prior Prep Before class	202	2.52	0.90
SRL8	Notes Classified & Kept in Folders	202	3.09	0.99
SRL9	Monitor Comprehension	201	3.13	0.71
SRL10	Evaluate Specific Goal Attainment	201	2.87	0.86
SRL11	Use Feedback To Adjust	199	3.11	0.77
SRL12	Modify a Study Strategy	202	2.81	0.86
SRL13	Aware of Limitations/Compensation	200	3.01	0.77
SRL14	Create Distraction Free Environment	202	2.97	0.82
SRL15	Take Short Break During Long Sessions	201	3.34	0.76
SRL16	Reward for Successful Completion of Task	202	2.89	0.96
SRL17	Instructor Expectation - Track Progress	202	3.06	0.84

Study Partner Sample

Variable	Label	N	Mean	Std. Dev
SRL1	Aware of Specific Demands of Course	82	3.41	0.52
SRL2	Specific Goals for Each Session	80	3.05	0.73
SRL3	Use of Calendar for Planning	82	3.07	0.89
SRL4	Organize Time Based on Difficulty of Task	82	3.02	0.70
SRL5	Break Down Semester Goals into Smaller Goals	81	2.64	0.83
SRL6	Session Focused on Specific Task	82	3.10	0.66
SRL7	Prior Prep Before class	82	2.44	0.88
SRL8	Notes Classified & Kept in Folders	82	3.20	0.87
SRL9	Monitor Comprehension	81	3.16	0.77
SRL10	Evaluate Specific Goal Attainment	82	3.00	0.72
SRL11	Use Feedback To Adjust	82	3.15	0.64
SRL12	Modify a Study Strategy	80	2.94	0.75
SRL13	Aware of Limitations/Compensation	80	3.01	0.72
SRL14	Create Distraction Free Environment	82	2.98	0.72
SRL15	Take Short Break During Long Sessions	82	3.45	0.63
SRL16	Reward for Successful Completion of Task	81	3.21	0.85
SRL17	Instructor Expectation - Track Progress	82	3.21	0.70

Appendix 3

Non-Study Partner Sample

Non-SP Users' Reasoning Scale

Variable	Label	N	Mean	Std. Dev
NONSP1	Afraid to Ask	202	1.50	0.69
NONSP2	Cannot Find anyone Suitable	201	2.06	0.83
NONSP3	Study Partner Does Not Help	202	2.92	0.91
NONSP4	Cannot Find Compatible Place	199	1.80	0.74
NONSP5	Cannot Find Compatible Time	200	2.26	0.92
NONSP6	Partner Might Not Be Focused on Task	202	2.57	0.87
NONSP7	I End Up Doing All the Work	200	2.47	0.88
NONSP8	Get High Grades Studying Alone	201	3.17	0.83
NONSP9	Not Willing To Change Study Behavior	200	2.91	0.92
NONSP10	Am Shy or Withdrawn	202	1.71	0.80
NONSP11	Afraid to Meet Expectations of SP	202	1.65	0.73
NONSP12	SP Might be Late or Truant	202	2.20	0.83

Appendix 4

Study Partner Sample

SP Processes Scale: Motivation

Variable	Label	N	Mean	Std. Dev
SPMOT1	Understand Material Better	83	3.31	0.58
SPMOT2	Remember the Material Clearly	83	3.31	0.58
SPMOT3	Enables to Focus on Tasks	83	3.17	0.62
SPMOT4	Enables Good Grade	83	3.27	0.59
SPMOT5	Learn Useful Strategies	83	3.18	0.65
SPMOT6	Check for Understanding Material	83	3.37	0.60
SPMOT7	Take Course Work Seriously	83	3.08	0.74
SPMOT8	Increase Motivation	83	3.08	0.78
SPMOT9	Increase Interest	83	2.93	0.85
SPMOT10	Increase Confidence	83	3.20	0.73
SPMOT11	Reduces Frustration	83	3.20	0.73

SP Processes Scale: Method

Variable	Label	N	Mean	Std. Dev
SPMETH1	Specific Goals for Each Session	83	2.65	0.80
SPMETH2	Adv. Plan Study Sessions Together	83	2.92	0.80
SPMETH3	Methods to Check Understanding	83	2.96	0.76
SPMETH4	Explain To Each Other	83	3.36	0.64
SPMETH5	Discuss over Phone/Email	83	2.95	0.79
SPMETH6	Exchange Feedback	83	3.27	0.56
SPMETH7	Maintain Journal of Sessions	83	1.60	0.80
SPMETH8	Check Outcomes Against Goals	83	2.22	0.87
SPMETH9	Exchange Perspective	83	2.94	0.79

SP Processes Scale: Behavior

Variable	Label	N	Mean	Std. Dev
SPBEH1	Aware of Specific Demands	82	3.42	0.54
SPBEH2	Aware of Expectations	82	3.27	0.59
SPBEH3	Aware of Strengths/Limitations	82	3.11	0.62
SPBEH4	Awarness of Self (Capability)	82	3.06	0.61
SPBEH5	Awareness of Progress	82	3.20	0.56

SP Processes Scale: Time

Variable	Label	N	Mean	Std. Dev
SPTIME1	Decide Time to Study	83	3.37	0.62
SPTIME2	Make Adjustments In Schedule	83	3.18	0.80
SPTIME3	Follow Decided Time Frame	83	3.04	0.67
SPTIME4	Check Use Of Time Meaningfully	83	2.51	0.90

SP Processes Scale: Physical Environment

Variable	Label	N	Mean	Std. Dev
SPENVP1	Select A Suitable Place	82	3.46	0.53
SPENVP2	Distraction-free Environment	82	3.23	0.59
SPENVP3	Alter Location When Necessary	82	3.06	0.72

Appendix 5

Study Partner Sample

SP Preference Ratings

Variable	Label	N	Mean	Std. Dev
SPENVS2	Students Who are Better Than Me	78	3.13	0.73
SPENVS4	Students With High GPA	77	3.16	0.69
SPENVS5	Students of My Gender	76	2.11	0.79
SPENVS6	Students of my Ethnicity	75	1.91	0.76
SPENVS9	Students of Same Age Group	76	2.26	0.84

Appendix 6

Frequency of SP Ratings

Please read the following questions and circle the most appropriate response from the choices given.

1. How many times have you studied with one or more partners for your collegiate coursework?

   Never / 1-5 times / more than 5 times

2. How many times have you met with a study partner for coursework this semester?

   Never / 1-5 times / more than 5 times

3. When was the last time you studied with a partner?

   Never / this semester / last semester / more than a year ago

4. For how many different courses have you used study partners in college?

   None one course two courses three courses four or more

5. For how many hours per week do you study by yourself _____

6. For how many hours per week do you study with a partner_____

7. List the courses in which you used a partner this semester.

   _____

8. List the courses in which you used a study partner before this semester.

   _____

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