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What Are the Relationships Between College Students' Goal Orientations and Learning Strategies?

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Abstract

Few studies have been done to examine the relationships between students' goal orientations (or achievement motivation) and their learning strategies with case studies. This study examined how five educational psychology students' goal orientations would influence their learning strategies with a semi-structured interview method. The results showed that all students who used complex, multidimensional goal orientations also used versatile learning strategies depending on their specific needs in class. The findings showed that some exhibited goal orientations (mastery/performance) and other unusual goal orientations, were inconsistent with the extant literature. These dimensions were not clear-cut as in other quantitative methods. With regards to learning strategies, the common learning strategies were seeking help and rehearsal learning strategies. Students altered their learning strategies to their perceived optimal learning strategies based on their learning experiences in the past. The implication for classroom practice was that instructors could incorporate different tasks and assignments in order to motivate, encourage students' use of multiple learning strategies and goal orientations.

Keywords: goal orientations, learning strategies, college students, case studies

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Introduction

Past studies have examined goal orientations (achievement goal theory) in relation to student learning strategies. Most of the research findings (e.g. Phan, 2008; Phan, 2009; Shih, 2005) were based on statistical findings on goal orientations. Some researchers have criticized such psychometric approaches (Dowson & McInerney, 2001; Dowson & McInerney, 2003; Van Etten, Pressley, McInerney, & Liem, 2008). In quantitative approaches, researchers assume the existence of some types of goal orientations and attempt to validate these goals through psychometric methods (Dowson & McInerney, 2001). Psychometric methods are used to limit participants' range of goal orientations and to artificially categorize students' responses (Dowson & McInerney, 2001; Dowson & McInerney, 2003). Such an approach does not investigate the complexities of goal orientation constructs (Dowson & McInerney, 2003). Psychometric methods also may mislead students' complex and dynamic goal orientations (Van Etten et al., 2008).

Scholars suggested inductive, qualitative research instead in order to overcome the limitations of deductive quantitative research (Dowson & McInerney, 2003; Van Etten et al., 2008). A qualitative approach is used to capture the full array of motivational phenomena (Van Etten et al., 2008) and will start with students' perceived goal orientations rather than with pre-conceptualized goal orientations (Dowson & McInerney, 2003). A researchers' goal is to identify motivational variables that may affect student academic behavior rather than to measure variables precisely (Van Etten et al., 2008).

In addition to the issues of quantitative methods for motivational theory, psychometric methods on learning strategies also draw criticism. Phan (2009) argued that a quantitative approach is inadequate to investigate the relationships between goal orientations and learning strategies. Quantitative approaches diminish participants' voices and may lack in assessing the real situation. The disadvantage of a psychometric research approach is that it places students' goal orientations and learning strategies into pre-determined categories and forces students to belong within certain dimensions. Like goal orientations, researchers argued that there are needs and an importance in examining the relationships between learning strategies and goal orientations qualitatively (Phan 2008; Phan, 2009).

Despite the needs for qualitative research in the relationships between goal orientations and learning strategies, there is a scarcity of such research in this area. Only a handful of researchers have conducted qualitative research on goal orientations and/or learning strategies (Cao & Nietfeld, 2007; Dowson & McInerney, 2003; Koopman, Teune, & Beijaard, 2008; Van Etten et al., 2008). Especially, little research has been done in the area with case studies. What are the relationships between goal orientations and learning strategies? Are the types of students' goal orientations and types of learning strategies clearly identifiable as the literature has suggested? The purpose of this paper was to inquire into the relationships between college students' goal orientations and learning strategies from case study perspectives in real classroom settings. In the next literature review section, I explain goal orientations, learning strategies, and the relations between the two.

Literature Review

Goal Orientations

Research on goal orientations has been one of the popular fields of study on student motivation (Pintrich, Conley, & Kempler, 2003). Goal orientations have received much attention for several decades as a theoretical framework for students' achievement motivation (Shih, 2005). In goal orientations, "behavior is a rational attempt to reach consciously articulated (or accessible) ends or purposes, rather than a manifestation of underlying, affect-laden needs or desires" (Thrash & Elliot, 2001, p. 3). Students pursue their learning in specific goals (Koopman, Bakx, & Beijaard, 2014), their perception about themselves, and their performance within the framework (Midgley, Kaplan, & Middleton, 2001). Like motivation, goal orientations varied from intrinsic motivation to extrinsic motivation (Koopman et al., 2014). Although there is disagreement on the types of goal orientations and the roles of avoidance and approach forms (e.g. performance approach and performance-avoidance) among researchers (Pintrich et al., 2003), I present the four types of goal orientations in this paper. There are different terms to indicate the types of goal orientations in the literature; however, I use mastery and performance goal orientations since these terms are most commonly used in the literature (Pintrich et al., 2003).

The types of goal orientations presented in this study are mastery, performance, performance-avoidance, and work-avoidance. Mastery-orientated students focus on the content of learning and on increasing their knowledge in the classroom. Their goals are mastering the subjects (Phan, 2011). Because mastery goals emphasize understanding, these goals are similar to intrinsic motivation (Koopman et al., 2014; Phan, 2011). Mastery-oriented students tend to procrastinate less and are more likely to take additional classes (Wolters, 2004). On the other hand, performance-oriented students focus on their performance and competence in the classroom. They want to be perceived as smarter than their peers (Phan, 2011). Work-avoidance students complete minimum course requirements to pass the class. They demonstrate avoidance motivation and want to avoid efforts as much as possible (Phan, 2008). These performance and work avoidance motivations are similar to extrinsic motivation (Koopman, Bakx, & Beijaard, 2014). Performance-avoidance oriented students are opposite to performance-oriented students: They want to avoid being perceived as incompetent and being unfavorably judged by their peers (Phan, 2008); thus, they tend to avoid tasks when tasks become difficult to avoid the appearance of inability (Wolters, 2004).

In the previous literature, it is common for researchers to use dichotomous (i.e. mastery and performance) (Pintrich et al., 2003) or tri-goal orientations (i.e. mastery, performance, and performance-avoidance) (Ong, 2014; Pintrich et al., 2003). These dichotomous or trichotomous approaches limit students' complex, multidimensional goal orientations, especially in qualitative methods. In the past literature, performance-avoidance and work-avoidance goals have not received much attention. Thus, these goals need to be further investigated. For example, in real classroom situations, Dowson and McInerney (2003) found that middle school students had multiple goals, both social and academic goals in academic settings. There is a need to investigate and understand students' multidimensional goal orientations. In this study, I sought to examine four different types of goal orientations.

Learning Strategies

Researchers have identified the classic definition of learning strategies. Learning strategies "…can be defined as behaviors and thoughts that a learner engages in during learning and that are intended to influence the learner's encoding process" (Weinstein & Mayer, 1986, p. 315). There were five types of learning strategies in this present study. Rehearsal is defined as repeating information to remember, such as going over lecture notes, using flash cards, and reading chapters (Cao & Nietfeld, 2007). Elaboration is used to apply prior knowledge to carefully arrange new information (McDevitt & Ormrod, 2007). Organization skill is used to organize information by grouping (McDevitt & Ormrod, 2007). These rehearsal, elaboration, and organization skills are cognitive strategies. Students process information through cognitive strategies, which include both shallow (i.e. rehearsal) and deep (i.e. elaboration and organization) strategies (Howell & Watson, 2007; Shih, 2005). Management is to attend class regularly, space out task, and adjust study habits for the class (Cao & Nietfeld, 2007). Management is a type of meta-cognitive strategy that helps students control and regulate their own cognition (Shih, 2005). Seeking help means to ask for help from instructors and/or classmates (McDevitt & Ormrod, 2007). Seeking help is an identifiable and observable active strategy (Cao & Nietfeld, 2007).

It is common that past research has focused on cognitive strategies of shallow (i.e. rehearsal) and deep (i.e. elaboration and organization) strategies (Dupeyrat & Mariné, 2005; Phan, 2008; Phan, 2009; Simons et al., 2004) and elaboration and organizational strategies (e.g. Dupeyrat & Mariné, 2005), however, other learning strategies, such as seeking help and management strategies, have not been widely examined. Seeking help and some aspects of management learning strategies are the active and identifiable strategies. These strategies also should be examined along with rehearsal, elaboration, and organization strategies.

Among these learning strategies, rehearsal is considered to be a shallow learning strategy because rehearsal is merely reproduction of memory. This strategy does not involve any high-level of learning. Students do not think how certain information is related to another. Organization and elaboration, on the contrary, are considered to be deep learning strategies. The primary purpose of these strategies is to understand ideas at the deep level. An example of organization and elaboration strategies can be a well-designed concept map. These learning strategies tend to take longer, but they help make connections with other concepts and organizing information. Seeking help and management skills are also important learning strategies for students. It is important for students to attend class and study class subjects on a regular basis. When a certain learning strategy does not work, students can change their strategies, to one that is appropriate to a certain class assignment. Students can ask advice and clarify questions from faculty members and classmates when they have concerns or questions about their classes.

By the time students enter college, instructors assume that students are familiar with effective learning strategies. Nonetheless, research findings showed college adults' perceptions in learning strategies are not always optimal (Cao & Nietfeld, 2007; Justice & Dornan, 2001; Peverly, Brobst, Graham, & Shaw, 2003). For example, Cao and Nietfeld (2007) found that students had realized that learning strategies should be changed to perform well in educational psychology class; but the majority of students used rehearsal strategies throughout the semester. College students have many years of experience in studying exams in schools and they were aware of the importance of high-level learning strategies (i.e. elaboration and organization), however, they did not know how to demonstrate such strategies throughout the semester (Cao & Nietfeld, 2007). Cao and Nietfeld (2007) suggested that more research should be conducted to narrow gaps between theoretical framework of learning strategies and students' perceptions and their actual learning strategies.

Goal Orientations and Learning Strategies

The relationship between students' goal orientations and their use of learning strategies has been examined frequently in the literature (Pintrich, Conley, & Kempler, 2003; Wolters, 2004), especially mastery goal oriented students' use of learning strategies (Wolters, 2004). Although researchers' efforts for examining the relations between goal orientations and learning strategies are evident (e.g. Cao & Nietfeld, 2007; Phan, 2008; Phan, 2009; Phan, 2011; Shih, 2005), much remains still unknown between the phenomena (Cao & Nietfeld, 2007), especially in a case study perspective.

Mastery Goals and Learning Strategies

Generally speaking, students with mastery orientations are considered to be superior to those with other orientations in the learning process. The contribution of mastery goals to higher-level learning strategies is contentious (Phan, 2011) and generally, students with higher level of mastery goals were positively related to higher-levels of learning strategies (e.g. Howell & Watson, 2007; Ozkal, 2013; Simons et al., 2004), but negatively related to lower-levels of learning strategies (Simons et al., 2004). Secondary students with mastery orientations were likely to use more cognitive and metacognitive learning strategies than any other students (Wolters, 2004). Procrastination was negatively associated with mastery orientation. This may be because mastery-approach students seek academic goals with enthusiasm. They tend to reduce procrastination, which inhibits academic goals achievement (Howell & Watson, 2007).

More specifically, research indicated that mastery goal orientations were consistently related to elaboration strategies (e.g. Phan, 2008; Phan, 2009) and to both elaboration and organizational strategies (e.g. Dupeyrat & Mariné, 2005; Phan, 2008; Phan, 2009). The degrees of mastery goals also influenced students' degree of

learning strategies. Shih (2005) found that high mastery-oriented students applied greater use of rehearsal and advanced learning strategies (e.g. elaboration and organization) compared to low mastery-oriented students.

On the contrary to the consistent findings on mastery orientations, a research team found direct effects of mastery goal orientations on both deep (elaboration and organization) and surface processing (rehearsal) although the effects were small (Koopman, den Brok, Beijaard, & Teune, 2011). These findings can be explained in that students with mastery orientations may differentiate their learning strategies depending on the subject matter. Mastery-oriented students may differentiate both high and low learning strategies depending on their purposes in class.

Another study that contradicts the general findings is that researchers did not find any correlation between mastery and learning strategies (Cao & Nietfeld, 2007). The scholars interpreted such findings that college students' perceptions of importance of learning strategies seem to be separated from their mastery goals and that there are complex relationships between the learning strategies and goal orientation variables in the actual college setting.

Performance Goals and Learning Strategies

The link between performance goals and learning strategies has produced mixed findings among researchers. Some researchers interpreted that different researchers have defined and operationalized performance goals differently; that is why research findings were inconsistent (Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002). Some researchers have found that the relations between performance goals and learning strategies were negative (e.g. Dupeyrat & Mariné, 2005; Simons et al., 2004). More specifically, some researchers have found that performance-approach goals were associated with surface processing but were not associated with deep processing (Dupeyrat & Mariné, 2005; Simons et al., 2004). These results are in line with researchers who found that performance goals are perceived as harmful to cognitive engagement (Midgley, Kaplan, & Middleton, 2001). Pintrich et al. (2003) also indicated that the traditional goal orientations suggested that performance goals emphasize the comparison with other or negative judgment about themselves.

In contrast to the negative recognition of performance approach, other research has found that performance goals had positively influenced students' learning. Several researchers expounded the positive view of performance goals (Barron & Harackiewicz, 2001; Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002; Koopman et al., 2014; Pintrich et al., 2003; Wolters, 2004). The positive views of performance goals were explained by the revised goal theory that performance-oriented goals may be helpful for increasing students' cognitive learning (Harackiewicz et al., 2002). Pintrich et al. (2003) also agreed with the revised performance goals that students who are both high in mastery-orientated and performance-orientated goals would demonstrate high cognition. Barron and Harackiewicz (2001) supported the optimal impacts of performance and mastery goals rather than a single use of either performance or mastery goals. Koopman et al. (2014) also suggested that students who were competence-oriented appeared to strive to excel in class (Koopman et al., 2014). Wolters' (2004) interpretations put more emphasis on the competitive perspectives of performance goals. He explained that to outperform others may reflect students' perceptions on learning strategies in the classroom with high achievers in an academically competitive college; thus, students with performance goals may put forth greater effort and persistence in the environment.

Some research indicated that performance goals influenced deep learning strategies (e.g. elaboration) and organizational learning strategy (Koopman et al., 2011; Phan, 2009; Phan, 2011). Even though Koopman et al. (2011) found statistically significant results, the direct effects of performance goals on deep and shallow learning were small. Shih (2005) further investigated how the degree of performance orientations would influence learning

strategies and found that elementary students with high performance goals used more learning strategies than those with lower performance goals. This may indicate that students with higher performance goals may possess some mastery-orientations more than those with lower performance goals. Their findings suggested that performance goals-orientated students seem to engage in their learning in order to get good grades and to competently demonstrate their knowledge. Their findings also may suggest that students tend to demonstrate both mastery and performance orientations. These possible interpretations are also consistent with the positive relationship between mastery and performance-goal orientations. Overall, researchers found moderate correlations between mastery and performance goals (e.g. Cao & Nietfeld, 2007; Howell & Watson, 2007; Koopman et al., 2011; Koopman et al., 2014; Shih, 2005; Simons et al., 2004).

Besides incongruent findings on positive and negative impacts of performance goals on learning strategies, a research team did not find any relationship between performance orientations and learning strategies (Cao & Nietfeld, 2007). The scholars explained that college students' feelings of the relevance of learning strategies are independent from their performance goals and that complex relationship between learning strategies and performance goals might have been involved (Cao & Nietfeld, 2007). Since there are incongruent and non-significant findings in the relations between performance orientations and learning strategies, these relations should be examined further.

Performance-Avoidance Goals and Learning Strategies

Research findings tend to support the negative relationships between surface (i.e. rehearsal) and performance-avoidance goals. More specifically, performance-avoidance directly influenced surface processing, such as rehearsal (e.g. Phan, 2008; Simons, Dewitte, & Lens, 2004). These results are reasonable since students with performance-avoidance orientations attempt to avoid tasks in order not to embarrass themselves. Their goals are to save their face and to avoid unfavorable judgment in the eyes of others. As a consequence, students choose easy, less complex learning strategies such as rehearsal.

Within performance-avoidance, a researcher found that students' use of learning strategies were different depending on high or low performance-avoidance. Shih (2005) found that students with low performance-avoidance and high performance orientations used more learning strategies than those with low performance orientations. This scholar explained that high performance-oriented students without performance-avoidance were related to a higher usage of learning strategies.

Work-Avoidance Goals and Learning Strategies

The extant research found consistent results for work-avoidance goals in relation to learning strategies. Work-avoidance goals were negatively related to deep learning (Dupeyrat & Mariné, 2005) and were directly related to surface processing (Phan, 2008). Howell and Watson (2007) studied the relationships between different aspects of work avoidance and learning strategies in depth. They reported that high disorganization and low cognition predicted procrastination among college adults. These findings are reasonable since students with work-avoidance goals are reluctant to make an effort. Such students' perceptions may reflect their choices of shallow types of learning strategies. In contrast, one research found that work-avoidance orientations had direct effects on both deep and surface strategies negatively (Koopman et al., 2011); however, the reasons are not clear.

From this succinct literature review, a few areas should be further examined. First, few extant literature has examined the relationships between college students' goal orientations with qualitative methods, especially case study

methods. Second, another area to investigate is as Cao and Nietfeld (2007) indicated, students use of their perceived learning strategies instead of their actual strategies in educational psychology classes. Hence, the usage of students' actual learning strategies in the actual classroom should be investigated with a case study method.

Method

Participants and Setting

Five undergraduate students (three females and two males) took educational psychology classes at a U.S. university in the Pacific in the fall semester, 2011 where they participated in this study. The classes provided the fundamental learning theories and individual differences in educational psychology to students. The students' ages were from 19 to 24. The participants' average age was 20.8. Their academic year in school ranged from sophomore to senior. The participants comprised multiple ethnicities, which reflected the university's diverse culture. Three students took educational psychology classes as mandatory classes and two took them as electives. The educational psychology classes were offered as mandatory classes for undergraduate educational psychology students. They attended two different sections of the class in this study: three were in Monday and Wednesday's classes and two were in Thursday's class. The participants responded to this research study invitation after two instructors announced this research project in their classes. Even though the two instructors used different teaching styles, both of them focused on practical knowledge and applications. The instructors also used different texts, but the content of the texts were similar. I chose educational psychology classes because the extant research (Cao & Nietfeld, 2007; Phan, 2008; Phan, 2009) has used educational psychology students to analyze the relationships between goal orientations and learning strategies.

Data Collection and Analysis

A convenience sampling method was used in this study and the primary source of data collection was semi-structured student interviews. The interviews also included structured and open-ended questions. The interview methods were chosen because they were commonly used qualitative methods in researching goal orientations (e.g. Dowson & McInerney, 2003; Koopman et al., 2008). I analyzed the data by a case study technique to present college students' real voices. Eighteen interview questions were based on literature reviews (Cao & Nietfeld, 2007; Dowson & McInerney, 2003; Van Etten et al., 2008) and personal communication from Dr. D. McInerney (October 19, 2011). Pre-tests were conducted before actual interviews for assuring that the respondents would understand the questions. After the pre-tests, a few questions were slightly modified.

I had open-ended semi-structured interviews with four participants in a quiet school library, except with one whom I met in a quiet room in a coffee shop, which was more convenient for him. Each interview lasted about 30 minutes. I explained to them the objective of my study, which was to investigate the relationships between their goal orientations and learning strategies. Sample interview questions were "What specific learning strategies did you use when studying for the midterm exam for this class? " and "What are your achievement motivations in the class?"

The participants signed consent forms and were provided monetary compensation for their time. I audiotaped the interviews and transcribed all interviews. The participants' privacy was protected under their fictitious names used in the transcriptions and this paper. I also kept writing research notes about the interviews and my observations throughout this research project. I received internal review board (IRB) approval from the university for conducting this research.

Results

Cathy

Cathy was 19 years old and a sophomore. She was taking an educational psychology class because she wanted to figure out whether she wanted to become a grade school teacher after she graduated. Cathy expressed how important it was for her to learn in class by saying, "I'd rather learn more than get(ting) a good grade" and mentioned that she would be happy getting a "B" in class if she could learn in class (high mastery goals). But she also mentioned that the most important issue for her was to pass the class (low performance goal). Although Cathy used elaboration and management strategies, her main learning strategies were rehearsal and she sought help from the instructor. She mentioned several times that she had highlighted texts, gone over the chapters, and taken notes. Cathy had tried to read faster in the past, but the strategy did not work and she changed her learning strategies to highlight texts (rehearsal). Cathy demonstrated management skills to alter her ineffective learning strategies. Cathy also mentioned that she sought help from her instructor because he was easy to talk to and was willing to help students. The relationship between the instructor and herself was important enough for her to ask for help.

Melody

Melody was 21 years old and was in her senior year. After graduation, she was interested in working with children. That was the reason she was taking an educational psychology class as an elective class to understand how to work with children. She used rehearsal, seeking help, and management learning strategies. Like Cathy, Melody's main learning strategies were also rehearsal and seeking help from the instructor. She said, "I kept reading and I like to practice writing it a lot. I tend to remember things better if I practice writing" (rehearsal). Like Cathy, she had altered her learning strategies from her past experiences. She knew flash cards would only work for remembering basic knowledge, but not for learning in depth. She also learned to space out tasks because cramming before exams did not work for her. She practiced management skills by changing her learning strategies. When I asked her what she would do when she had difficulty understanding the class. She said, "Automatically ask the professor for help". She asked the instructor because her classmates might have wrong information. As for goal orientations, Melody exhibited performance, mastery, and performance avoidance goals. When I asked her how she would feel if she got a "B", she said, "Yeah! I think it's important for me that if I worked hard on it and I still didn't get it, I would be disappointed". She also mentioned that getting a good grade is a major motivation for her in class, which is a performance goal. When she did not understand the class, it affected her motivation negatively. However, she said, "I've got to do it (in order to do well in class)," which is low-level mastery goal.

Jim

Jim was 21 years old and was a third year in college. He was taking an educational psychology class because he wanted to get a degree in education. He was not sure but teaching math in middle school might be an option. Jim utilized elaboration, seeking help, management, and rehearsal skills. His noticeable learning strategy was elaboration. Jim said, "I try to relate it to something, like something that's happened or something that I can use it (in), like a content area. Like, I'm doing mathematics so I try to take a concept of something and give myself an example". From his learning math experiences, he tried to apply math skills to another class. Jim who had high work-avoidance and low-level performance goals mentioned that he tried to pay attention to understand the class content in the classroom, but was not interested in any study engagement outside of the classroom. Jim would rather watch TV or do something at home other than homework. Throughout the interview, he mentioned several

times about his work-avoidance goals. Jim said, “I’m not very motivated. I’m a procrastinator. That’s the worst part for me”. This was because Jim had been this way since he was a child; hence, it was difficult for him to alter his habit. He mentioned performance goals of getting either an “A” or a “B” grade instead of a “C” for the class and tried to get into the College of Education, but his prolonged, unwanted procrastination habit from his childhood was hard to overcome.

Becky

Becky was 19 years old and was in her second year in college. She majored in elementary education and was interested in becoming a teacher. She was attending the class because she wanted to get ahead in her program. Becky applied elaboration, seeking help, management, and organization strategies. What made Becky different from other students was that since Becky recognized that rehearsal strategies did not work for her in the past, she no longer used them. Her quote was as follows; “I would say highlighting is one that I’ve found for me wasn’t an effective use of my time, because usually, I’ve read that if you highlight more than one sentence per paragraph, that it becomes detrimental because you’ve been highlighting too much”. Like Jim, Becky also incorporated elaboration and organization strategies into her studies. She said; “I usually try to find a way to think about it in real life applications, so that if I’m reading something, rather than just remembering the terms, I’ll try to make sense of it so that it comes to me more naturally, rather (than) trying to remember it as though it’s kind of an equation” (elaboration). When I asked her about her grade from the class, “That’s important but not the most important” (mastery goals). She clearly mentioned that learning is more important than her grade. She also used low-level performance-avoidance goals as follows; “I’ll usually just softly say it out loud, because that’s what a lot of people are doing, so we all just say the answer back to the professor”.

Mike

Mike was 24 years old and was in his senior year. He majored in secondary education and Spanish. His future goal was to teach Spanish in middle school. Mike utilized rehearsal, seeking help, and organization, management. In order to get a good grade, he mainly used rehearsal and seeking help, spaced out tasks, asked questions to the instructor, reviewed text, and skimmed the text. Like other students, Mike also altered his learning strategies by using management strategies as follows; “I used to spend too much time reading the textbook, but then it’s so much that you don’t remember much anyway, so I found out to just skim it, and then write down the page if something is important, and then go back later”. Unlike others, Mike showed strong performance goals. Mike insisted on how important it was for him to get a higher score. “If the teacher told me, (that) “I will give you an “A” and you don't have to come any more”, I would say, yes. I would leave the class”. He seemed that he did not care about his learning, but he said, “I hate school but I have to do it” (lower-level mastery goals). He said that he would like to teach children, but did not enjoy reading and studying. He was willing to make an effort to get an “A” in the class even though he did not enjoy school.

Discussion

The objective of this study was to examine the relationships between college students’ goal orientations and learning strategies in educational psychology classes using a case study technique. This study extended previous research findings that students’ motivational goals and learning strategies were more diverse and varied than the extant research presented in the review of literature. I focus this discussion on goal orientations, learning strategies,

and the relations between the two. It should be noted that the results in this current study are not representative of the population.

Goal Orientations

This study found that an individual could have several goal orientations and that the dimensions of goal orientations were not as clear-cut as the findings in most other quantitative studies. It is common that students' goal orientations were categorized into certain assigned categories. This study found that students exhibited different degrees of goal orientations (high and low) within several goal orientations. For example, Cathy exhibited high mastery goals by saying," "I'd rather learn more than getting a good grade" and she would be happy getting a "B" in class if she could learn in class". This mastery goal is the typical mastery goal. She focused on her learning with enthusiasm, understanding, and acquisition of knowledge rather than being concerned about her grade. On the other hand, Mike demonstrated low-mastery goals. Mike did not enjoy school, and said, "I hate school but I have to do it". He did not seem to enjoy his learning very much, but he studied hard to get good grades in order to become a teacher. From his transcript, he expressed the importance of learning and mastering the subject, and he studied hard to achieve his goals, but lacked enthusiasm. Both students who had high and low mastery goals worked hard toward their learning goals, but their motives were different. Thus, the degrees of goal orientations are important to understand students' goal orientations as seen in Shih's (2005) study.

This study also found that an individual student could have several goal orientations. All students exhibited two or three goal orientations. For example, Melody showed three orientation goals (low mastery, low performance, and performance-avoidance goal orientations) and Jim exhibited two achievement goals (lower-performance orientation and high work-avoidance orientation). These findings are inconsistent with the previous findings. No research was found supporting the combination of performance and work-avoidance as seen in Jim and the combination of mastery orientation, performance, and performance-avoidance in Melody. Students' use of dual and tri-goals may be explained as students who might have pursued different goals that are relevant for them at a particular point (Harackiewicz et al., 2002). This also implies that students might have shifted their achievement goals depending on class assignments. However, this study's finding was inconsistent with Cao and Nietfeld (2007)'s result. They found that students' achievement goals were inflexible. Once college students decided their goals, they tended to stick with them throughout the semester. This suggested that students had a strong determination for their goal orientations in their study. These discrepancies may be due to the classroom structure. In Cao and Nietfeld (2007)'s study, they asked students about their learning and performance goals twice during the semester. This method might have made students aware of their goal orientations. As a result, students tended to stick with their same goals throughout the semester.

A few findings on goal orientations should be noted. Melody's performance-avoidance goals might have reflected the local Asian culture. As the university is located in the Pacific and has an Asian cultural influence, this geographic location might have influenced her toward exhibiting avoidance goals. She said, "I'll usually just softly say it out loud, because that's what a lot of people are doing, so we all just say the answer back to the professor". Students who grew up in the region and have Asian cultural backgrounds tend to be quiet and may be hesitant to speak up in class in order to save their face. This cultural influence might have influenced Melody to use performance-avoidance goals. Jim, who had combined work-avoidance, mastery orientation, and performance orientation, might have had internal conflicts and a dilemma. His internal conflicts and dilemma might have led him to have three different goal orientations.

He had motivation to learn to become a teacher, but he had difficulty in breaking his unwanted childhood habit of studying at a minimum. A similar dilemma was seen in Mike. Mike did not like school very much, but put in the effort to get a good grade from the class.

Learning Strategies

Like goal orientations, students used multiple learning strategies of organization, elaboration, rehearsal, seeking help, and management. The most commonly used learning strategies among college students were management, rehearsal, and seeking help regardless of students' goal orientations. Cao and Nietfeld (2007) also found that the majority of educational psychology students used rehearsal strategies throughout the semester. Another common strategy was seeking help. A few students said that the relationships between students and instructors mattered. When instructors were approachable, students tended to seek help from instructors.

It is noteworthy that students altered their learning strategies by demonstrating management strategies. However, they perceived their optimal learning differently. Mike and Cathy used only shallow strategies (i.e. rehearsal), Melody and Becky both utilized shallow and deep strategies (i.e. organization and elaboration). Cathy and Mike changed their initial learning strategies, but remained within rehearsal, such as skimming and highlighting texts. Melody differentiated when to use rehearsal or organization and elaboration strategies. She only used flash cards for remembering basic knowledge, but not learning in depth. Becky abandoned rehearsal strategies and used organization and elaboration strategies. These results may imply that students' perceptions of learning strategies may be related to students' actual and perceived abilities (Williams & Clarke, 2004).

Goal Orientations and Learning Strategies

From the findings, there were no clear patterns to explain the relationships between goal orientations and learning strategies unlike the literature suggested.

Regarding the relationship between mastery goal orientations and rehearsal strategies, the literature consistently suggested that mastery goal orientations were negatively correlated with shallow learning such as rehearsal and positively were related to deep strategies (e.g. elaboration and organization (Howell & Watson, 2007; Ozkal, 2013; Simons, Dewitte, & Lens, 2004), but negatively related to shallow learning strategies (Simons, Dewitte, & Lens, 2004). However in this case study, even though Melody, Cathy, and Jim exhibited their mastery goals, they all used rehearsal skills. This current study's findings were consistent with the direct effects of mastery goals on both deep (elaboration and organization) and surface processing (rehearsal) (Koopman et al., 2011). This suggests that student goal orientations and the usage of learning strategies may change throughout the semester. Unlike the extant literature suggested, students' actual achievement goals and learning strategies were likely to be malleable and flexible. Students seemed to have freedom to choose their goals and learning strategies depending on their circumstances.

This current study also found that some students, such as Cathy, Jim, and Melody, knew how to use elaboration, organization, seeking help, and management learning strategies regardless of their goal orientations. For example, even though Jim who had a strong degree of work-avoidance goals, he knew how to apply elaboration skills. This finding was inconsistent with work-avoidance goals in the literature. Research consistently found work-avoidance goal orientations were negatively related to deep learning (Dupeyrat & Mariné, 2005) and were directly related to surface processing (Phan, 2008). This present study's findings were also inconsistent with Cao and Nietfeld's (2007) findings. In this present study, all students used either organization or elaboration or both. It seems that

students' perceived optimal learning strategies were not necessary for their deep learning strategies, but could be for their shallow ones. To say it differently, students' perceptions of optimal learning strategies are different at the individual-level.

Further, certain learning strategies tend to be dominant. It also appears that students had dominant learning strategies and achievement goals, but students could change them depending on their preferences and circumstances in class. Students practiced trial and error to find their suitable learning strategies. Students were observant of their own learning and were willing to alter their learning strategies to do well in class.

The findings of this present study also implied that the degree of goal orientations in relation to learning strategies have produced complex results. For example, Shih (2005) revealed that students with high mastery goal orientations used more learning strategies than those who were low in mastery goals. More research should be conducted qualitatively to analyze how high vs. low mastery goals within a goal orientation would influence their usage of learning strategies.

Implications for Classroom Practice

University students exhibited diverse types of goals and learning strategies in this present study. This implies that there are multiple ways to improve classes instead of only one-way (Harackiewicz et al., 2002). Since students select different performance and mastery goals depending on their situations as suggested by the revised motivational theory (Harackiewicz et al., 2002), educators should prepare for different assignments to appeal to students' different goal orientations and learning strategies.

Limitations

There were two limitations in this study. First, this study was done on educational psychology students only. It is common that researchers use psychology or educational psychology students to investigate goal orientations and learning strategies in their studies (e.g. Cao & Nietfeld, 2007; Phan, 2008; Phan, 2009), however, research should be extended to student from different departments to understand how their goals and learning strategies are different from or similar to educational psychology students'. Second, as the objective of this study was to understand overall student goal orientations and learning strategies, this study was unable to capture students' achievement goals and learning strategies per different assignment types. For example, this study did not investigate how students' goals and learning strategies would maintain or alter depending on assignments. It is critical to comprehend how students' goals and learning strategies would change depending on types of exams and their relative difficulty.

Conclusions

College students exhibited an array of goal orientations and learning strategies in the classroom setting. Students showed multidimensional goal orientations and versatile learning strategies, which were suitable for their own specific needs in class. The findings also suggested that student goal orientations and the use of learning strategies were likely to be malleable and flexible in class. In other words, there were no specific patterns to explain the relationship between the variables. Their usage of goal orientations and learning strategies could change throughout the semester. These findings clearly showed that their goal orientations and learning strategies should not be treated as clear-cut as shown in quantitative methods. This study captured a broader range of students' actual goal orientations and learning strategies by listening to their actual voices. The results of this study indicated the significance of a qualitative approach from a case study perspective. Understanding the relationships between

goal orientations and learning strategies help educators motivate, encourage, and teach students to use multiple learning strategies and goal orientations for improving their results.

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Competing Interests

The author has declared that no competing interests exist.

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