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Cooperative Learning In Higher Education: Comparison Of Hispanic And Non-Hispanic Graduate Student Reflections On Group Exams For Group Grades

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ABSTRACT

The purpose of the study is to share reflections from 202 non-Hispanic graduate students and 65 Hispanic students who have participated in cooperative written examinations for group grades. Reflections are clustered by themes identified from the students' comments using Van Manen's hermeneutic phenomenological approach which is how the direct statements of individuals describe a common shared experience add to the affective understanding of the event. The experience is examined and defined through reflections of the participants. Students experience positive interdependence within a cooperative learning setting. Results of 202 non-Hispanic graduate students and 65 Hispanic graduate students are compared.

Cooperative learning has been studied for over a hundred years, but little is known specifically about group examinations and group grades in higher education. This paper presents the perceptions of 202 non-Hispanic graduate students and compares their perspectives with 65 Hispanic students regarding group grading practices in a School of Education. A clustering of their comments through reflections highlight the experience from the students' point of view. Percentages are calculated to compare results of the two populations.

Group grades for group work can be controversial. One issue in the group grading controversy is the fairness of having all members of a group receive the same reward. The perception is that an individual working alone and receiving an individual grade is more fair, but the evidence of research studies does not support this belief (Johnson & Johnson, 1996). Deutsch demonstrated that before a task was performed, subjects generally perceive a competitive reward system as fairest, but that after a task is completed, a cooperative reward system in which all group members receive the same reward, was viewed as fairest (Deutsch, 1979). Giving a single group grade for the exam provides positive interdependence (Guest & Murphy, 2000). Hwong, Caswell, Johnson and Johnson (1992) found that college students studying within cooperative learning groups in which all group members received the same grade perceived the grading system to be fairer than did college students working independently. Other points of view about the use of group grades come from Spencer Kagan, creator of the *Structural Approach* and author of a number of books on cooperative learning, and Robert Slavin, director of the Johns Hopkins University *Student Team Learning Project*. Both of their training institute's stress that grades should only reflect the individual performance of the student receiving the grade (Ledlow, 1994).

THE STUDY

The purpose of the study is to share the reflections from 202 non-Hispanic graduate students and 65 Hispanic graduate students in the School of Education who have participated in cooperative written examinations for group grades. The student reflections for the two groups are compared and have been clustered into themes and later connected with current research on cooperative learning. Students have worked in base groups of three for eight weeks prior to the cooperative examination. Terms are defined in the glossary. Percentages are included for comparison of the two populations. Within the course work, one topic studied is assessment of student work that

includes group grades in cooperative learning. To achieve practical application of this concept students participate in group examinations for group grades, thus allowing them to experience the full implication of positive interdependence as well as individual accountability, face-to-face promotive interaction, interpersonal and small group skills, and group processing: the five elements of cooperative learning. Following their first experience of writing a cooperative examination in groups of three and before they receive their group grades, students are asked to reflect on their initial cooperative examination experience. Reflections are clustered by themes as identified from the 202 non-Hispanic graduate students and 65 Hispanic graduate students' comments. The eight clusters are 1) feelings of support and/or reinforcement; 2) feeling relaxed and/or confident; 3) partners knew the material; 4) deeper understanding of material; 5) not wanting to let their team down; 6) feelings of stress; 7) concern if their partners will prepare as carefully as they have; and 8) expressing opinions about their group.

REVIEW OF THE LITERATURE

Cooperative learning in college classes has its roots in the theories of social interdependence, cognitive-development, and behavioral learning. Some research provides exceptionally strong evidence that cooperative learning results in greater effort to achieve, more positive interpersonal relationships, and greater psychological health than competitive or individualistic learning efforts (Johnson, Johnson, & Holubec, 1994).

Social interdependence theory views cooperation as resulting from the positive links of individuals to accomplish a common goal. The Gestalt psychologist Kurt Koffka proposed in the early 1900's that although groups are dynamic wholes the interdependence among members is variable. Kurt Lewin (1948) stated that interdependence from common goals provides the essential essence of a group. This interdependence creates groups that are dynamic wholes. The power of the group is such that a change in any member or subgroup directly changes any other member or subgroup. Morton Deutsch's social interdependence theory noted that interdependence can be positive (cooperation), negative (competition), or nonexistent (individualistic efforts) (Johnson, et al., 1998).

Within cognitive development theory, cooperation must proceed cognitive growth. Cognitive growth springs from the alignment of various perspectives as individuals work to attain common goals. Within Piagetian theory, the cooperation of individuals on the environment results in healthy socio-cognitive conflict that creates cognitive disequilibrium, which then stimulates perspective taking ability and cognitive development (Piaget, 1965). Lev Vygotsky believed that the construction of knowledge and the transformation of various points of view into personal thinking resulted from cooperative efforts to learn, understand, and solve problems (Vygotsky, 1978). Both Piaget and Vygotsky saw cooperative learning with more able peers and instructors as resulting in cognitive development and intellectual growth (Johnson, et al, 1998). The assumption of behavioral learning theory is that students will work hard on tasks that provide a reward and that students will fail to work on tasks that provide no reward or punishment. Cooperative learning is one strategy that rewards individuals for participation in the group's effort.

The widespread use of cooperative learning is due to multiple factors. Three of the most important are that cooperative learning is clearly based on theory, validated by research, and operationalized into clear procedures educators can use (Johnson & Johnson, 2002).

There are over 900 research studies validating the effectiveness of cooperative over competitive and individualistic efforts. This body of research has considerable generalizability since the research has been conducted by many different researchers with markedly different orientations working in different settings and countries in eleven different decades, since research participants have varied widely as to cultural background, economic class, age, and gender, and since a wide variety as to cultural background, economic class, age, and gender, and since a wide variety of research tasks and measures of the dependent variables have been used (Johnson & Johnson, 2002). Since 1960 more than 300 studies have compared the relative efficacy of cooperative, competitive, and individual learning on individual achievement in college and adult settings. Starting in the early 1970's, K-12 educators became curious as to whether the benefits of cooperative learning so powerfully demonstrated with college students would apply to elementary and secondary school students, and a robust literature developed at that

level. In the 1990s, the interest in investigating the use of cooperative learning at the college level has been rekindled (Johnson, et al., 1998).

Some colleges and universities are again valuing the cooperative effort by formally structuring cooperative learning into their programs. One such example, according to Deden, is the Royer Center for Learning and Academic Technologies that serves Pennsylvania State University's 12-campus Commonwealth College plus four additional undergraduate campuses. For the past two years, the mission has been to lead and support change from heavy reliance on lecture-based instruction to a rich learning environment characterized by active, cooperative learning, supported by technology. These changes are being made in response to the community's demand for graduates who can work in teams, communicate electronically, solve open-ended problems, and think critically (1998). Johnson, Johnson and Smith add examples to the list of colleges using cooperative learning in exemplary ways: Florida Community College at Jacksonville has implemented cooperative learning on a wide-scale basis and Michigan State is implementing cooperative learning throughout the whole university (1998). As more universities move in this direction the question of group grades may be examined more closely as an aspect of cooperative learning. Nevertheless, even with support for cooperative learning controversy still exists. Kagan (1995) posits that every time I see group grades being used I am appalled. They are, in my view, never justified. Ever. One of the pitfalls of cooperative learning pointed out by Slavin is diffusion of responsibility (1983a). This problem can be eliminated in two ways: 1) make each group member responsible for a unique part of the group's task or 2) have students be individually responsible for their own learning (1983b). Despite Kagan's misgivings, a number of instructors do factor final grades on a combination of individual and group results (Millis and Cottrell, 1998).

At the higher education level, many professors note that they are preparing their students to work in an environment where they will be expected to work on a team and will be rewarded as a team (Ledlow, 1994). However, group grades within cooperative learning environments are not practiced by many. A study with college students (Hwong, et al., 1992) showed that they came to view group effected grades as more fair than individual grades in less than half of a semester. This study lends support to those findings.

METHODOLOGY

Van Manen's (1990) hermeneutic phenomenological approach to human science provides the basis for reviewing student reflections about the lived experience of a cooperative examination for group grades. Van Manen suggests that when we raise questions, gather data, describe a phenomenon, and construct textual interpretations, we do so as researchers who stand in the world in a pedagogic way. Pedagogy requires a phenomenological sensitivity to lived experience...a hermeneutic ability to make interpretive sense of the phenomena of the lifeworld...[and]...play with language in order to allow the research process of textual reflection to contribute to ones pedagogical thoughtfulness and tact (1990, pp. 1-2). The specific language of the university students who experienced the cooperative examinations for group grades provides richness and insight that is valuable to gain a true understanding of the shared experience.

Statements from 202 non-Hispanic graduate students and 65 Hispanic graduate students were sorted into eight clusters. Themes emerged connected to the clusters that are supported by a research base on cooperative learning. These clusters are: 1) support and/or reinforcement from the cooperative group, 2) more relaxed and confident, 3) everyone knew the material and did their part, 4) deeper understanding of information, 5) not let the team down, 6) feelings of stress, 7) concern if their partners will prepare as carefully as they had, and 8) opinions about their group. Responses are reported as a percentage for each cluster.

The sources of evidence used in this study are the reflective statements from the 202 non-Hispanic graduate students and 65 Hispanic graduate students upon the completion of their first cooperative examination for a group grade. Prior to the examination students worked in the same base groups for eight weeks. The instrumentation used to collect data was an open ended question. After students had worked on their examinations in their base groups for two hours, the following question and directions were placed on the board:

1. When you have completed your exam turn in all copies with the one to be graded on top with signatures of all team members. On the top of the paper to be graded write: “Grade this one.” Turn in all exams.
2. Individually respond to the following: You have just completed your first cooperative examination. Please describe how you felt preparing for the examination, and how you feel now that you have completed this examination. You may bring this to class the next time we meet and you do not need to put your name on this paper.

Within the instructional methods classes, base groups are established when the professor randomly assigns students to groups of three after a series of activities that provide interaction are completed. This usually occurs the second week of the semester. The groups of three sit together each week, share discussion of journal articles assigned, discuss strategies experienced in class, share data they have collected and their survey results. A high level of trust is developed over the semester by the members within each base group.

Students always have the option of choosing to write an individual exam. The groups of students can choose how they are going to prepare for the examination. Some e-mail each other, some meet after studying the material to review as a group, while others agree that everyone prepares individually. The exam procedure is described in advance to students, and they know that during the exam they may and should discuss all responses. Each student is given an exam, but only one is completed or compiled by the group for grading. The compiled exam must be signed by all group members. Students in the group of three each receive the same grade.

RESULTS

Each cluster is summarized by the number of students whose comments fit the cluster and the percentage of responses to the total number of possible respondents is recorded. Examples of the students’ reflective statements are also included. The themes of the clusters emerged from reading all the comments multiple times and creating a list of themes. Coding specific comments was accomplished through another reading. Coded comments were then tallied. If fewer than five responses fell into a theme, it was not reported.

1. Support and/or reinforcement: Students had been working cooperatively in assigned base groups from the beginning of the semester; they had worked with their partners for at least eight weeks at the point of this response. Forty-seven per cent non-Hispanic graduate students and 69 per cent Hispanic graduate students described the cooperative examination as less stressful than individual examinations, and expressed feelings of support by their team members. A meta-analysis of the research on the quality of relationships in cooperative learning settings using students 18 years and older was conducted by researchers and found that cooperative effort promotes greater liking among students than does competing with others or working on one’s own; this finding holds even among students from different ethnic, cultural, language, social class, ability, and gender groups (Johnson, Johnson, Maruyama, Nelson, & Skon, 1981).

Non-Hispanic, 47%

I enjoyed the fact that my group was “with me”; the exam was less stressful because of this. I ended feeling that not only do I know something of value but I still have value as a human being. During discussion my answers were considered with politeness and respect.

Hispanic, 69%

I saw the cooperative setting during the test as more of a support group than anything. My anxiety level went down. I did not feel alone.

2. Felt more relaxed and confident: Forty-four per cent of non-Hispanic graduate students and 55% Hispanic graduate students expressed thoughts about feeling relaxed and confident during and after the examination.

Non-Hispanic, 44%

What a non-threatening way to test. Caine and Caine would applaud. I did not downshift to the limbic system but stayed in the prefrontal lobes where abstract reasoning takes place because I did not feel threatened.

Hispanic, 55%

After we started working on the test I felt more at ease with myself. It was interesting the way we worked together. During the test I became calm and giving out answers like crazy.

3. All knew the material and did their part: Students had been prepared for the examination with a general review of the material and an overview about how they might prepare for the exam as a group. They had the choice of each person being an expert or all members studying all material. Some formed study groups to meet outside of class to prepare. Sixty-seven per cent of the non-Hispanic graduate students and 35 per cent of the Hispanic graduate students expressed trust in their peers. After eight weeks of working together, they commented that they knew each other's strengths and weaknesses. They were comfortable and confident that their partners would do what they had agreed to do to prepare for the examination. A few of the student comments in this cluster include:

Non-Hispanic, 67%

The test could be considered to be part of the learning cycle: the material was first introduced in our assigned reading, reintroduced with discussion when we shared the reading with our assigned home group; class discussion further ingrained the information; studying for the test brought the information once again to the forefront; and the test allowed us to apply the information in a group activity with peer dialogue.

Hispanic, 35%

Everyone pulled their weight and then some.

We all helped each other and we were able to come to consensus on questions we had trouble with.

I felt like everyone did their share. We were experts in everything we studied.

4. Deeper understanding of information: Thirty-eight percent of non-Hispanic graduate students and 20% of Hispanic graduate students expressed that they reached a higher level of understanding by preparing for and writing the cooperative examination. Many shared that they felt well prepared as they came in to write the examination, but left knowing more. David Johnson and Roger Johnson say the one that talks learns. This is supported by the students' comments. Just knowing information is not the same as real understanding. Through discussion with peers the students report that things that were fuzzy became clear.

Non-Hispanic, 38%

Most of the time in college classes the only thing I learned from a test was my grade. When I left this test I was confident that I knew all the information and would not forget it. This is not the case with traditional tests.

Hispanic, 20%

I personally believe that cooperative exams lend themselves to "extra" learning. Sometimes we don't pick up on a concept as well as we thought we may have and exams like this teach as well as assess.

I felt I learned the material better knowing my group was depending on me.

5. Not let the team down: Thirteen per cent of the non-Hispanic graduate students and 11% of the Hispanic graduate students expressed the pressure they felt to not let their partners down. Students reflected that in their preparation for the exam they studied harder and were concerned that their partners might view them

as not well prepared. Based on the level of motivation to achieve and the level of success just experienced, students build expectations as to how successful they will be in the future. For most individuals, cooperative experiences promote higher expectations for future success than do competitive or individualistic experiences.

Non-Hispanic, 13%

I can't believe how less stressful it was and how more responsible for preparation I had to be. Someone else was counting on me.

The pressure was no longer to second-guess the teacher, but to be prepared so that the individual would not disappoint the group to which they belonged.

Hispanic, 11%

I felt I needed to be better prepared for the test so I could contribute to the group.

I didn't want to fail the group and spent more time preparing for the exam "for my team's sake".

I didn't want to let my team down.

6. Feelings of stress: Six per cent of non-Hispanic graduate students and 43% of Hispanic graduate student responses in this cluster describe the cooperative examination as producing a high level of stress.

Non-Hispanic, 6%

This experience scared me because I was afraid I wouldn't know enough for the test.

I think I got more nervous about the cooperative exam.

Hispanic, 43%

The in class test induced much more stress than any other type of test I have taken. It is difficult to relax when someone else's grade depends on you, so the pressure was on.

7. Concern regarding level of team members preparation: Five per cent of non-Hispanic graduate students and 26% of Hispanic graduate students expressed his/her concern about fears they had in trusting their partners to prepare for the exam.

Non-Hispanic, 5%

My concern for my group members' preparedness was quite heightened.

I was glad that I had prepared and was able to make a contribution.

Hispanic, 26%

I liked the entire set-up for the midterm, but what did make me uneasy was whether or not I could really depend on the people in my group. It turned out that I worried for nothing because we did well.

8. Opinions about their group: Twenty-two per cent of non-Hispanic graduate students and 37% of Hispanic graduate students included comments that specifically describe the group they worked in as compatible. Given that group membership in and of itself is not sufficient to produce higher achievement than individualistic efforts, it may be hypothesized that discussing the material being studied may be the critical variable affecting achievement (Johnson & Johnson, 1989).

Non-Hispanic, 22%

My partners were wonderful, very good listeners, courteous, respectful and attentive. I enjoyed the cooperative exam because it gave us the opportunity to work with different people. We bring to the table a lot of various experiences.

Hispanic, 37%

Because of the amount of material that we had to cover in a short amount of time, this was a clear case of three heads being better than one.

I trusted my partners when I went in to take the test and I think we worked well together.

CONCLUSIONS

Group examinations and group grades have been controversial within cooperative learning circles. A review of the literature identified very little about group grades in higher education. This study brings forth the perceptions of 202 non-Hispanic university graduate students and compares their responses with 65 Hispanic graduate students' views that have experienced taking group exams for group grades in a cooperative learning environment.

Eight thematic clusters were formed based on the comments that students made regarding their first experience with writing a cooperative exam. The eight clusters were 1) feelings of support and/or reinforcement; 2) feeling relaxed and/or confident; 3) partners knew the material; 4) deeper understanding of material; 5) not wanting to let their team down; 6) feelings of stress; 7) concern if his/her partners would prepare as carefully as they have; and 8) expressing that they were in a good group.

Support and/or reinforcement were mentioned by 47% of the non-Hispanic graduate students compared to 69% of Hispanic graduate students. Learning situations can be very lonely experiences. Cooperative learning, used as a strategy not only for the acquisition of knowledge but also in testing, creates the sink or swim feelings associated with positive interdependence. Students feel a responsibility to perform well not only for themselves, but also for their peers. The summary statements of the students are consistent with research findings.

Forty four percent of the non-Hispanic graduate students and 55% of the Hispanic graduate students described feelings of being more relaxed and confident once they began working with their small groups to complete the exam.

Sixty-seven per cent of the graduate non-Hispanic students and 35% of the Hispanic graduate students expressed that their partners knew the material and did their part. Data on Hispanic students was collected in a community that is 94% Hispanic.

Thirty-eight per cent of the non-Hispanic graduate students and 20% of the Hispanic graduate students expressed a deeper understanding of the information. Between 1924 and 1997 over 168 studies compared the relative efficacy of cooperative, competitive, and individualistic learning on the achievement of individuals 18 years and older. These studies indicate that cooperative learning promotes higher individual achievement than do competitive approaches or individualistic ones (Johnson, et al. 1998). Academic success is, above all, the college's aim and the student's aim. It also has numerous effects on college attrition: the higher the achievement of students, the more committed they tend to be to completing college. Academic success is also tied to eligibility for financial aid. For these and many other reasons, it is important to turn to instructional methods that maximize student achievement (Johnson, et al, 1998).

Of the two hundred and two non-Hispanic graduate students 13% made specific comments about not wanting to let their team down while 11% of Hispanic graduate students indicated this. Trust tends to be developed

and maintained in cooperative situations and it tends to be absent and destroyed in competitive and individualistic situations (Johnson & Johnson, 1989).

Six per cent of non-Hispanic graduate students and 43% of Hispanic graduate students expressed feelings of stress associated with the group exam. Cooperators control their anxiety better than do individuals working competitively or individualistically. High levels of anxiety are debilitating. Cooperation tends to produce lower levels of anxiety than does competition, and even the presence of collaborators can reduce a person's anxiety and the emotional impact of failure. The social support inherent in cooperative situations and the increases of self-efficacy and hope provided by working jointly with collaborators both lowers anxiety levels and increases coping skills necessary to manage anxiety constructively (Johnson & Johnson, 1989).

Five per cent of non-Hispanic graduate students and 26% of Hispanic graduate students expressed concern about the level of preparation of their partners. Cooperative learning uses student learning groups to foster students' interpersonal skills and to promote students active involvement in their own learning. An essential element for the success of using learning groups is a student's contribution to group work. A student's assessment of another student's performance is commonly used as a measure of the student's contribution (Persons, 1998).

Twenty-two per cent of the non-Hispanic graduate students and 37% of the Hispanic graduate students made specific comments about their group. The team members talking to each other and working together toward a common goal builds the positive feelings about the group. Research provides exceptionally strong evidence that [the effectiveness of] cooperation results in greater effort to achieve, more positive interpersonal relationships, and greater psychological health than competitive or individualistic learning efforts (Johnson, Johnson, & Holubec, 1994, p. 107).

Supporters of cooperative grades, David W. Johnson and Roger T. Johnson, at the University of Minnesota, include in their initial cooperative learning training (Brown Book) a section entitled Myth: A Single Group Grade Shared by Group Members Is Not Fair. Their support includes proposing ideas of how to infuse group grades into classrooms at all levels.

Van Manen's (1990) hermeneutic phenomenological approach to human science is especially relevant to reviewing the students' comments. Van Manen states we should play with language in order to allow the research process of textual reflection to contribute to ones pedagogical thoughtfulness and tact (1990). The specific language of the university students who experienced the cooperative examinations for group grades provides richness and insight that is valuable to gain a true understanding of the shared experience. Their comments clearly reflect the true meaning of positive interdependence, we sink or swim together, which can only be experienced within a trusting relationship developed over time, even in only half of a semester.

The implications for structuring student to student interaction within the university classroom are clear. The increased depth of understanding, the feelings of support, respect for others' contributions, and the clarification of information produces more students with a greater awareness of the material and more developed social skills to be contributing members of teams. Overall, the experiences reported by the Hispanic graduate students reflected a greater level of confidence once they began the exam, a 37% higher rate of stress at the preparation level, a 21% higher rate of concern about whether their team mates would be well prepared, and 15% more expressed positive opinions about their base groups. Sixty-nine per cent of Hispanic graduate students expressed feelings of support and reinforcement within their base groups during the cooperative exam while 47% of the non-Hispanic graduate students did. Thirty-eight percent of the non-Hispanic graduate students reported a deeper understanding of information compared to 20% of the Hispanic graduate students.

It is recommended that group exams for group grades from a base of cooperative learning strategies implemented in higher education classrooms be further researched. Would group exams for group grades be as well received in higher education settings if cooperative learning strategies were not the basis of the instruction? Would a comparison of non-Hispanic graduate and undergraduate students be more alike than Hispanic graduate students and

undergraduate Hispanic students? The results of this study will add to the limited body of knowledge about group examinations for group grades in cooperative learning at the higher education level.

GLOSSARY OF OPERATIONAL DEFINITIONS

Definitions are provided to clarify terms frequently used within this paper.

Base Groups: Clusters of three university students are assigned by the professor at the beginning of the semester who work together through a variety of assigned tasks including test-taking.

Group Examinations: These are examinations given at mid-term and end of semester in which the base group members work together to complete the examinations.

Group Grade: The grade or score earned by the base group on the group examination is the group grade. The same grade is posted for each member of their base group.

Hermeneutic Phenomenological Approach: The direct statements of individuals to describe a common shared experience add to the affective understanding of the event. The experience is examined and defined through reflections of the participants based on their experiences.

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NOTES