APPLYING COOPERATIVE LEARNING TECHNIQUES IN THE CLASSROOM: AN EXAMINATION OF LEADERSHIP STYLES IN CIS MAJORS

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ABSTRACT

Cooperative learning is becoming more prevalent in the classroom and has been shown to be an effective method for both faculty and students; however, it can often be difficult for faculty without expertise in leadership styles to implement the principles of cooperative learning and, more specifically, create successful teams. This paper (1) examines the leadership styles of Computer and Information Systems graduate and undergraduate students, (2) analyzes the validity of using students' self-reported leadership style, and (3) demonstrates how faculty could use an easily understood measure to help ensure successful cooperative learning experiences.

Keywords: Cooperative Learning, Course Design, Leadership, Best Educational Practices

INTRODUCTION

The understanding and application of pedagogical theory and praxis are now viewed as essential elements in any professor's dossier; however, McCroskey, Richmond, and McCroskey [1] note that only recently has the Scholarship of Teaching and Learning been recognized by institutions of higher education as being equal to the Scholarship of Research. They also point out that all professors, regardless of their discipline, are expected to carry out their usual research efforts as well as pursue scholarship in teaching and learning. This increased focus on teaching and learning has made most faculty aware of students' diverse learning styles and these faculty have realized that to be effective in the classroom, they should strive to design courses that incorporate various modes of learning as well as various methods for assessing learning.

One delivery method teachers have used to address students' various learning styles is cooperative education. Cooperative education was first introduced in the 1970s and is used frequently in K-12 classrooms but has yet to gain a stronghold in higher education. One goal of cooperative learning is to ensure that group work is directional and successful. While most faculty make extensive use of "group work," most feel that students dislike the group experience, not all students contribute equally, or the work produced is often sub-par.

Unlike active learning, which focuses only on the individual learner, the aim of cooperative learning is to ensure that students work in teams to solve problems by stressing positive interdependence and individual accountability. As such, cooperative learning is a conglomeration of various instructional techniques focused on student-centered learning as well as the development of students' interpersonal skills [2]. Cooperative learning incorporates five essential components: Positive interdependence, face-to-face interaction, individual and group accountability, interpersonal and small-group skills, and group processing [3]. Positive interdependence occurs in a team when members realize they are linked together to obtain the same goal and adopt a "sink or swim together" approach. Face-to face interaction includes, among other items, students providing each other with efficient and effective help and assistance, exchanging needed resources, providing each other with insightful feedback, and challenging each other's conclusions and reasoning to promote effective decision making. Individual accountability occurs when each student is assessed and the results of that assessment are shared with both the individual and the group thereby making the individual responsible to all team members and ensuring that s/he will contribute his/her fair share. Interpersonal and small-group skills are integral to cooperative learning and occur when students trust each other, communicate accurately and unambiguously, support each other and resolve conflict constructively. Group processing is the last essential component of cooperative learning and occurs when groups reflect on the effective and ineffective steps they completed as a group; group processing is meant to improve the group process by clarifying and improving the effectiveness of the group [3]. The primary benefits of cooperative learning are described below:

> Cooperative learning helps motivate student preparation because students may want to avoid disappointing other team members. Achievement in problem solving may be high because, in part, an individual may get stuck on a problem and give up, while work teams are likely to keep seeking a solution to a difficult

problem. High-level thinking skills are developed because members are exposed to alternative problem-solving strategies. Cooperative learning also exposes students to professional work environments. Finally, both interpersonal communication and technical skills may be improved because students help other team members learn. [4]

While the five essential components are quite straightforward, it can be taxing for faculty without training in the assessment leadership styles to utilize the techniques of cooperative learning and to place students in the most successful teams possible. Some scholars have offered faculty members suggestions for placing students in cooperative learning teams. Koopenhaver and Shrader [4] ask students to complete a personality style inventory, then take the results of the inventory and, along with the students' grade point averages, form teams. Siciliano [2] focuses on insuring individual accountability and improving team interaction; however, no specific ways for faculty to devise cooperative learning teams are offered.

While the studies discussed above regarding team selection and cooperative learning are important, it is odd—given that one of the objectives of cooperative learning is to improve students' interpersonal skills—that no authors have taken into account students' leadership styles as a factor for team placement. The purpose of this paper, then, is to discover CIS students' leadership styles and the validity of using students' self-reported leadership styles within a cooperative learning environment. This paper is organized as follows: First, an overview of leadership styles is offered. Next, the methodology of the current study is discussed. Third, the results of the study are presented. Finally, the significance of this research is discussed.

LEADERSHIP STYLES

While scholars have not yet examined the correlations between leadership styles as they apply to cooperative learning, they have conducted studies that investigate this category separately. Interestingly enough, few studies focusing on leadership styles have been conducted within the realm of higher education classrooms. Most research about leadership styles tends to focus on historical figures and managers and their impact within governments, organizations, or the culture-at-large. Some scholars have focused on leadership styles by administering personality inventories; yet, most of these studies occur outside the realm of higher education. One

study examined the learning styles, expectations, and needs of online students, but did not offer specific suggestions for dealing with students' various learning or personality styles [5]. Determining students' leadership styles will provide faculty with a more well-rounded view of students enrolled in their courses and allow faculty to develop teams with students who have diverse leadership styles.

METHODOLOGY

To determine CIS students' leadership styles and the validity of using these styles within the context of cooperative leaning, students enrolled at a small, private Mid-Atlantic university completed the DISC personality assessment (n=74).

Students from three populations were randomly selected to participate in the study: 25 students were CIS graduate and undergraduate majors, 34 students were enrolled in a university honors program, and 15 students were completing a general education course. These three populations were selected because the participants completing the general education course represented typical college students and the students enrolled in the university honors program indicated their desire to serve as campus leaders upon admission into the program; thus, the general education and honors populations serve as a comprehensive backdrop upon which to compare CIS majors' leadership styles. Students received no credit for participating in this study; however, course time was allocated so that students could complete the questionnaires. Table 1 presents the descriptive statistics of the participants.

Table 1. Participant Statistics

Demographic Information	CIS Students (n=25)	Honors Students (n=34)	Gen. Ed. Students (n=15)	Total (n=74)
Participants	34%	46%	20%	N/A
Sex				
Female	24%	38%	36%	33%
Male	76	62	64	67
Class Standing				
First Year	0%	56%	33.3%	30%
Sophomore	4	29	33.3	22
Junior	0	6	20	9
Junior	44	9	13.3	22

Senior Graduate	52	0	0	17
Ethnicity				
White	88%	97%	80%	88%
Black	4	0	13	6
Hispanic	0	3	0	1
Other	8	0	7	5
Average Age	28	19	20	22

Measure

The DISC personality test has been used extensively in the corporate world for the past 50 years. Using the work of Carl Jung, William Marston developed a personality model to explain individual emotional responses and, in turn, analyze a person's motivations, likes, and dislikes [6]. The letters in the DISC personality profile stand for different personality dimensions: The "D" stands for dominant, the "I" for influential, the "S" for steady or steady or supportive, and the "C" for compliant. The DISC personality profile consists of 24 questions and measures an individual's perception of one's self and how one will react with others in specific environments.

Turnasella [6] offers the following descriptors for the DISC assessment: Those who are identified as *dominant* prefer to take active roles in hostile environments, are unafraid of taking risks, initiate action, have a direct communication style, and are results-oriented. Those who are identified as *influential* prefer to take active roles only in favorable environments, enjoy persuading others, enjoy being around people, and are optimists. Those who are identified as being *steady or supportive* take a passive role in favorable environments, are not afraid of dealing with changes, do not seek out challenges, and like the status quo. Those who are identified as being *compliant* seek to avoid trouble at all costs, take a passive role in a hostile environment, find security in rules and order, is cautious, and can get lost in the details of work without ever seeing the bigger picture.

RESULTS

Individual leadership styles were recorded for each student. Table 2 shows the distribution of the DISC scores across all populations. The majority of CIS and Honors students were identified as having a "Steady" leadership style. This means that the majority of participants in these populations are great listeners, loyal, self-controlled, comfortable with routines, great team players, systematic, conservative, follow directions, and have a good sense of humor [7]. The majority of the General Education students were identified as having an "Influential" leadership style; this means that students are relationship-team oriented, outgoing, make favorable impressions, optimistic, quick to think on their feet, energetic, not rigid, desirous to help others, enjoy new challenges, know how to have fun, and like to be the center of attention. The difference between the amount of CIS students who were identified as having "Steady" and "Influential" leadership styles was very small (only 4%). The final two styles, dominant and compliant, had almost the same amount of students in both categories.

Table 2. DISC Score Distribution

DISC Style	CIS Students (n=25)	Honors Students (n=34)	Gen. Ed. Students (n=15)	Total (n=74)
Dominant	12%	8.8	20%	14%
Influential	36%	17.6%	60%	38%
Steady	40%	61.8%	13%	38%
Compliant	12%	11.8%	7%	10%

Next, an analysis of variance was performed to examine the differences between the leadership styles among the three populations. Means and standard deviations are displayed in Table 3.

Table 3. Mean and Standard Deviations Between Populations

Population	Mean	N	Std. Deviation
CIS Students	2.52	25	.872
Honors Students	2.76	34	.781
General Education Students	2.07	15	.799
Total	2.54	74	.847

The ANOVA result indicates that there is no group difference between CIS students and General Education students ($F=1.282$, $p=.262$) or CIS students and Honors students ($F=2.694$, $p=.109$); however, the ANOVA results indicate a significant group difference between Honors students and General Education students ($F=8.205$, $p=.006$) (See Tables 4-6).

Table 4. Comparison Between CIS Students and Honors Students

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.927	1	1.927	2.694	.109
Within Groups	27.173	38	.715		
Total	29.100	39			

Table 5. Comparison Between CIS Students and General Education Students

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.863	1	.863	1.282	.262
Within Groups	38.358	57	.673		
Total	39.220	58			

Table 6. Comparison Between General Education Students and Honors Students

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.071	1	5.071	8.205	.006
Within Groups	29.051	47	.618		
Total	34.122	48			

DISCUSSION

Upon reviewing the findings of student scores on the DISC measure, it appears that CIS students had an almost even distribution between "Steady" and "Compliant" and did not significantly differ from the General Education students' or Honors students' leadership styles.

These findings demonstrate that administering the DISC measure in a CIS class would be beneficial for faculty. Knowing students' leadership styles will assist faculty in presenting course content to the class; that is, since most of the CIS participants identified themselves as being Influential and Steady, a faculty member could use this information to motivate these particular students by making their role in the course clear and allowing them to interact with each other on a regular basis. Moreover, by knowing the leadership styles of each student, faculty can ensure the creation of diverse teams. For example, faculty might want to place students who are compliant with students who are dominant since each student would learn from the other. In addition, the essential components of cooperative learning, especially group processing, will allow students to reflect upon their leadership styles and determine how effective their team performance was.

CONCLUSION

This study examined the most common type of leadership style for CIS majors as well as the validity of using the DISC measure to ensure the success of cooperative learning experiences. It has been demonstrated how faculty who administer this measure at the beginning of a course would be able to more fully evaluate students' strengths and weaknesses and create more successful teams.

Another approach that would benefit students includes faculty placing students in groups with others who have similar leadership styles at the beginning of the semester; then, at mid-term, form new groups with students who have significantly different leadership styles. This technique would allow students to experience a plethora of leadership

styles and be more prepared to deal with the various styles that they will undoubtedly encounter in the workforce.

The DISC measure is simple to administer, is available online, does not consume much time, and is relatively easy to interpret. By requiring students to complete this measure, faculty benefit students immensely by informing them of their leadership style; by doing so, students may not only be aware of the ways in which they operate in teams, but may also take advantage of the added benefit of reflecting upon their skills as leaders. Knowing how one might typically behave in various situations will undoubtedly assist students in a cooperative learning environment and elsewhere.

While the Scholarship of Teaching and Learning continues to gain ground, faculty are encouraged to think more critically about the ways in which their courses are designed and delivered. Whether or not faculty choose to conduct research under the auspices of the Scholarship of Teaching and Learning, cooperative learning provides faculty with a model to ensure students' success both in and out of the classroom. To further guarantee the success of cooperative learning and team projects, faculty should administer the DISC measure so that students may enjoy positive group experiences; receive feedback regarding their own leadership styles, and improve their interpersonal communication skills through cooperative learning experiences.

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