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ABSTRACT

This study examined different course delivery formats for an introductory special education course, focusing on their impact on student motivation, learning, and attitudes toward helping. The 3-credit course was offered in two formats: a traditional course format (one large lecture section that met for 100 minutes once a week for 150 students and an additional recitation section where about 30 students per section met with the professor weekly for an additional 50 minutes); and an experimental course format in which 30 self-selected students met twice weekly for 75 minutes and also used interactive computer modules corresponding to assigned text readings. Experimental group students were also divided into cooperative learning groups that solved authentic problems encountered in general education classes. Students in the experimental section showed increased intrinsic motivation and gains in self-efficacy (in contrast to students in the traditional format who showed decreased intrinsic motivation and decreased self-efficacy), as well as increases in perceived and actual knowledge. Experimental subjects also showed significant changes in empowerment based on a questionnaire on helping orientations. (DB)

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Introduction

Researchers have devoted considerable effort to determine the techniques that encourage student learning in the university classroom. One area of considerable promise is that of ccoperative learning that de-emphasizes competition. Other researchers have suggested that the students must learn at their own pace and that interactive computer programs provide an efficient means. Yet other experts have suggested that students have different learning styles, therefore information should presented in a variety of formats. While most recently it has been suggested that learning can not occur in a vacuum and for students to be able to apply newly learned concepts they must experience authentic learning situations. Perhaps these researchers will never find the single solution that indicates the best way to teach, because in fact many different techniques are necessary depending on the content, the students and the instructor.

In addition to the pedagogy, learner characteristics also impact student learning in the university classroom. This includes the characteristics students bring with them to the classroom (e.g. previous knowledge, intelligence, etc.) and attitudes and motivation for learning. A considerable body of knowledge indicates that student achievement motivation is closely related to learning. One way to conceptualize motivation is in terms of students' beliefs about the causes of success or failure outcomes. Attribution theory suggests that students tends to be motivated to learn if they believe they can be successful (self-efficacy), the learning is based on an internal need to know (intrinsic motivation), and the students believe they have control in achieving a successful outcome (new, useful knowledge). Conversely in learning situations where rewards are external, the student has no control and the information is not deemed important, motivation for learning is diminished. Another component of this theoretical perspective is that if students succeed on a task the expectancy is that they will succeed in the future. Conversly, failure tends to indicate failure in the future particularly if students attribute failure to uncontrollable reasons (i.e. lack of ability, task is to difficult). Recent research has suggested that achievement motivation may be environment sensitive, that is for a specific college student these beliefs may change in relationship to specific courses. A summary of current research suggests that achievement motivation is enhanced in a specific course if students believe they are intrinsically motivated, demonstrate some control over the learning outcomes, express the belief they can succeed and value the learning tasks.

In addition to learning about learners with special needs in the classroom context, the K-12 teacher is called upon to assist these learners in a variety of regular education classroom contexts. The manner in which this assistance is offered may lead to vastly different student outcomes. The attitude toward helping and coping expressed by the pre-service teacher may be indicative of future actions. Research has shown that teachers are more willing to accommodate special student learning needs if they believe the students are not responsible for the situation. For example, teachers are usually more willing to help a student with physicall impairments, a circumstance the student can not be blamed for, than a student the teacher believes is "not trying". Helping and coping has been conceptualized based along two interactive characteristics: responsibility for the problem and control of the solutions. These characteristics result in four models of helping orientation that are briefly described below.

The Self-generating Model attributes high individual responsibility for both problems and solutions. This model suggests people have full control over their lives and the proper solution to any problem is for the individual to "help themselves".

The Direct Guidance Model describes a situation where people are responsible for causing their own problems, but not willing to generate solutions. The results from people in authority providing direct supervision on how to solve a problem.

The Empowerment Model provides a position that people are not held accountable for creating their problems, but are responsible for solving them. Helping behaviors include providing resources for individuals to help themselves.

The Expertise Model represents a belief than people are not responsible for their own problems or the solutions. This model results in treating people as passive and that they must rely on an expert to provide solutions and then they follow the expert advice to solve the problems.

This project was designed to study the impact of one introductory course on the student motivation, learning and attitudes toward helping. Specifically could the difference in course delivery effect student learning, student motivation and their orientation to helping?

Method

Subjects

The subjects of this study were all the undergraduate students enrolled in introductory special education course offered by the Special Education department at Eastern Michigan University during the Fall, 1993 semester. The three hour course was offered in two formats.

Traditional Course Format. One class consisted of a large lecture for 150 students that met once a week for 100 minutes and a recitation section (about thirty students per section) where students met with the professor weekly for an additional 50 minutes. During the large lecture guest speakers were brought in to discuss their areas of expertise, which included the traditional categories of exceptionalities and students who are talented and gifted. The recitation section was used for review of text, showing videos and clarifying and expanding the presentations in the large lecture. The course was designed for students who were considering a special education major, although some general education majors enrolled in the course to meet a curricula requirement. Data were collected from more than 150 students, however both pre and post course surveys were completed by 120 students. The discrepancy can be attributed to several causes, students not in attendance the first week of classes, students dropping or adding a section and those students who chose not to complete the survey.

Experimental Course Format. This course met twice a week for 75 minutes. There were 30 self-selected students enrolled and an effort was made to obtain an equal number of general education and special education majors. The students were expected to have assigned readings in their text and the corresponding interactive computer module completed prior to attending class. The class time consisted of a brief instructor led discussion answering questions, providing supplementary material, showing related videos and setting up the problems to be discussed. Three times during the semester, teachers currently involved in the delivery of special education services were invited to the class to discuss delivery options at the preschool, elementary and secondary levels.

Additionally the students were divided into cooperative learning groups that solved authentic problems that involved unique learning situations that may be encountered in general education classes. These groups were designed to include both general and special education majors. After each group had time to discuss and propose courses of action, the class as a whole than discussed the options the groups had described. Pre and post course data were completed by 24 students.

Statistical techniques were used to determine if there were significant differences between the students in the classes on the demographic variables measured. There were no significant differences in the age of the students, the gender or their ratings of prior experiences with exceptional learners. The only significant difference noted was in the class standing of the students, $F(1,141)=6.755$, $p>.01$. The student class level was rank ordered from 1-5, representing freshman, sophomore, junior, senior and graduate standing respectively. In the Experimental class (M=3.04) the students were beginning their junior year, while in the traditional class (M=2.67) students were half way through the sophomore year. (See Table 1)

Measures

The study consisted of a paper and pencil survey. The survey included demographic information of age, gender, class standing, major and minor. In addition, on a five point Likert scale, the student rated their perceptions of their knowledge (Sharkey, 1990) and prior experiences with exceptional learners and attitudes toward mainstreaming. The survey also assessed student perceptions of motivation and learning using items from the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich, P., Smith, D. A. F., Garcia, T. & McKeachie, W., 1991) and an objective measure of learning (the Fill-in-the-Structure Technique, Naveh-Benjamin & Lin, 1990). The students also answered questions that described which of four models of helping best described their beliefs.

MSLQ. is a self-report instrument designed to assess college students' motivational orientations and learning strategies. After reading the descriptive statement, the students circled their responses on a five-point likert scale. For the purpose of this study three questions from each of five components of motivation were used and none of the learning strategy questions. Questions were selected on the basis high factor ratings and applicability to the course. The motivation components measured were three value components (intrinsic goal orientation, extrinsic goal orientation and task value) and two expectancy components (control beliefs and self-efficacy for learning and performance). A typical question for each component is listed below.

Intrinsic goal orientation

In a class like this, I prefer course material that really challenges me so I can learn new things.

Extrinsic goal orientation

Getting a good grade in this class is the most satisfying thing for me right now

Task value

It is important for me to learnt the course material in this class.

Control beliefs

If I try hard enough, then I will understand the course material.

Self-Efficacy for learning and performance

I am confident I can understand the basic concepts taught in this course.

Fill-In-The-Structure Technique is a measure of conceptual organization and knowledge of a topic (Naveh-Benjamin & Lin, 1990). The concepts for the structure were based on the common text used in both classes and the goals agreed upon by

instructors of both classes. The students were presented with a partially completed structure and the appropriate words to fill-in the blanks. The results of this measure are described in Table 2 as actual knowledge and are based on a maximum of score of 14.

Helping Orientations is a twenty-five question measure that assesses four models of helping and coping orientation (Michlitsch & Frankel, 1989). The students were asked to respond to a statement on a five point Likert Scale about helping. The anchors for the scale were strongly agree to strongly disagree. For the purpose of this study only twelve questions of the original twenty-five were used. Three questions for each helping orientation were selected on the basis of high factor loading. The statements used for each model of helping are listed below.

Expertise

For the best results people should rely upon experts to solve their problems.
Life's problems are too complicated. People have to rely upon skilled people for proper assistance and/or treatment.
People would be a lot better off if they followed the advice of experts.

Direct Guidance

Behind every problem faced is someone not doing something they should have.
People's biggest limitation is their unwillingness to accept proper moral guidelines.
There is always a right way and a wrong way to do things.

Self-generating

The real solution to people's problems must come from them.
People are ultimately responsible for the problems they have.
When things are tough, people have to rely on themselves and try harder.

Empowerment

People need the cooperation of others to compensate for the obstacles imposed upon them by their situations.
People should help others help themselves
Often people do not solve their own problems because they are held back by circumstances.

Procedure

The students completed a survey during the first class meeting of the semester. The first week was selected to minimize the effect of new learning that might be attributed to even introductory lectures. The survey was administered and collected by either the author or a graduate assistant who had been trained. The students were informed of the purpose of the study and that their participation was voluntary and anonymous. The students created a code that was used in matching the pre and post class surveys. The survey was re-administered during the last week of the semester.

There was no way to identify particular students so it was not possible to find those students who completed a pre-course survey, but did not complete the post-course survey. In all 144 students completed both the pre and post-course surveys.

Results

An initial multivariate analyses of variance was completed comparing the changes in the students' in the traditional class with those in the experimental class on the five motivational and expectancy variables on the pre course and post course survey. This was followed by an analysis of the changes in perceptions of knowledge and actual knowledge of the students in both classes.

Motivation and Expectancy Components. The results of the MANOVA on the changes in the students' ratings of their intrinsic goal orientation pre and post-tests showed a significant difference between the two classes, $F=9.35$, $p<.01$, (See Table 2). The students in the experimental class experienced a slight increase in intrinsic goal orientation, while the students in the traditional course showed a slight decline. A similar pattern was noted in the self-efficacy variable, $F=13.11$, $p<.01$. This result suggests that in the experimental course students experienced a sense of empowerment. Course differences in the changes in extrinsic goal orientation, task value, and competency beliefs were not significant, . However, an inspection of the means shows that in the experimental course positive changes were noted in the extrinsic goal orientation, control beliefs and self-efficacy.

Knowledge. An analysis of variance was computed for the change in perceived knowledge as indicated by the students ratings of their perceptions of their knowledge about students with special learning needs. As expected, students in both classes indicated a perceived increase in knowledge. However the analysis resulted in a significant difference between the courses, $F=12.96$, $p<.01$. The measure of actual knowledge, the Fill-in-the-Structure technique, confirmed that the students in both courses did actually demonstrate an increased understanding of the course content. This was shown by an increase in the number of correct blanks (maximum 14 possible) completed on the structure. However, the students in the experimental course demonstrated greater gains in actual knowledge, $F=5.23$, $p<.05$. This indicates that the students in the experimental course gained more knowledge about the course content than the students in the traditional class. (See Table 3).

Correlation Motivation and Expectancy Components and Knowledge. The next analysis completed compared the changes in the motivation and expectancy variables with the changes in course knowledge as measured by the knowledge tree. A significantly positive correlation was noted between change in knowledge and change in efficacy for performance, task value and control beliefs. This indicates that as students learned more about the content they became more comfortable with the content, valued the content and indicated more control in determining the course outcome.

Models of Helping. The last analyses completed compared changes in means on the models of helping. The changes in this area were small and only one model reflected a significant difference between changes in the students in the two courses. The change in the Empowerment model was significant $F=7.08$, $p<.01$. A review of the means indicates that the change was in the desired direction, with students seemingly accepting that people are responsible for deriving some of the solutions to their own problems. A Pearson correlation indicated that the change in student empowerment beliefs was positively related to change in their beliefs about control beliefs. A further analysis indicated that there was a strong correlation between pre and post test statements for both control beliefs and empowerment beliefs. This would be expected if the measures were reliable. However, there was not a significant correlation between control beliefs and empowerment beliefs at the pre and post levels, only in the changes. (See Table 4)

Discussion

This research investigated the motivation, perceptions that influence student learning in an experimental section of the standard introductory to special education course. Additionally, the students' views about helping were investigated. The results indicate small but consistent changes in students' attitudes even in the course of one semester. However, the larger issue is the curricular implications that are raised by this study.

The students in the experimental section showed an increase in their intrinsic motivation over the course of the semester. As a group the students indicated that they wanted to learn the information. This is in contrast to those students in the traditional program which showed a decrease in intrinsic motivation. This suggests that students in the experimental course did see value and perhaps would be more likely to continue to learn and apply the knowledge gained from the course.

A similar pattern of the students in the experimental group showing slight gains in self-efficacy, while their counterparts in the traditional course demonstrated slight decreases. This change suggests that the students in the experimental course began to believe they could successful in completing what was expected in the course. An emerging trend suggests that students in the experimental course showed increases in intrinsic motivation and self-efficacy beliefs. Based on motivational and learning theory one would predict that learning would also increase.

On both measures of knowledge obtained in this study the changes between the pretest and post test were significant. All of the students' perceptions of their own knowledge increased over the semester. Because students in the experimental section rated their initial knowledge slightly lower than those in the traditional section, the changes resulting in the significant increase in perceived knowledge is even more notable. Interestingly on the measure of actual knowledge, the Fill-in-the-Structure technique the students in the experimental course began with slightly more knowledge than those in the traditional class. This makes the change in knowledge even more compelling, because these students had to demonstrate a much greater gain to reflect a significant change.

These results suggest that students in the experimental course were reporting changes in intrinsic motivation, self-efficacy beliefs, perceived and actual knowledge. However it is possible that a few students could influence these findings. The correlation matrix confirmed that the changes in student knowledge were related in a significant and positive way to self-efficacy and intrinsic motivation. Changes in knowledge were also related positively to control beliefs. This suggests an additional component. As students increased their knowledge, they also experienced increases in the beliefs about their ability to determine their own outcome in the course.

From a teaching and learning perspective these results suggest that it is possible to make a real difference in the motivation, self-efficacy and knowledge beliefs in students. As a result of enrolling in this course students can develop a sense of confidence about successfully completing the course, see the value in the course and demonstrate actual knowledge increases. It would be interesting to know if this will make a difference to the students when they begin teaching in their own class.

It is not possible to gain a definitive answer to this question from the present study. However the student responses to the models of helping portion of the questionnaire provide some tantalizing insights. Of the four models only the empowerment model reflected change-based differences between the two courses. Students in the experimental course showed a positive change in empowerment. This suggests that as the course progressed they were more apt to change their belief that people could be empowered to assist in solving their own problems.

The same students that showed significant changes and a positive correlation in knowledge, intrinsic motivation, self-efficacy and control beliefs were giving others the same kind of control over solving their problems. This could translate into future teachers who would be willing to assist students with special learning needs to have some control over their learning and not turn the helping role into a controlling situation where the expert teacher determines what happens to the students.

This study suggests that more than traditional content may be taught to university students in courses. It is possible to present information that may also result in attitude and belief changes. This preliminary research suggests that the attitudes of preservice teachers toward their helping orientation may be modified as a result of a course. For

perspective teachers who will be in positions that allow them to help learners with special needs as well as all the students in their classrooms this is significant information. Encouraging future teachers to adopt an empowerment model when assisting learners may lead to more independent-thinking students.

While the results of this study are encouraging, there are several limiting factors. First, the sample sizes were small in the experimental course. Secondly the students were self-selected which may bias the sample in the experimental course. Thirdly, it is not possible to determine which of the experimental course components are accountable for the changes reported in the students' motivations, knowledge and model of helping. While this certainly would be an interesting line of research, it was beyond the scope of the current project.

Future directions for continuing research could include a longitudinal study following some of the students through the remainder of their curriculum and student teaching to determine if the students attitudes continue to change and more importantly if they continued to follow an empowerment model when actually working in the classroom. It would also be useful to know if preschool and elementary teachers have different helping beliefs than do secondary level teachers.

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Table 1
Distribution by class level for the students in the traditional and experimental class.

Class level	Experimental	Traditional
	percent (actual)	percent (actual)
Freshmen	0 (0)	.02 (2)
Sophomores	21 (5)	35 (44)
Juniors	58 (14)	52 (65)
Seniors	17 (4)	6 (8)
Graduates	.4 (1)	0 (0)
Not reported	0 (0)	4 (5)

Table 2
Pre-test and Post-test means of Motivation Variables by Class

Variable	Class	Pre-test	Post-test	Change	F	Significance
Intrinsic Goal	Experimental	4.4	4.5	.1	9.35	<.01
	Traditional	4.3	4.1	-.2		
Extrinsic Goal	Experimental	3.4	3.8	.2	1.62	ns
	Traditional	3.1	3.4	.3		
Task Value	Experimental	4.9	4.8	-.1	2.54	ns
	Traditional	4.8	4.6	-.2		
Control Beliefs	Experimental	4.3	4.4	.1	.44	ns
	Traditional	4.3	4.2	-.1		
Self-Efficacy	Experimental	4.4	4.4	0	133.11	<.001
	Traditional	4.4	4.0	-.4		

Table 3
Pre-test and Post-test means of Perceived and Actual Knowledge by Class

Variable	Class	Pre-test	Post-test	Change	F	Significance
Perceived Knowledge	Experimental	1.9	3.6	1.7	12.96	<.001
	Traditional	2.0	3.1	1.1		
Actual Knowledge	Experimental	7.4	10.7	3.39	5.23	<.05
	Traditional	6.2	8.0	1.79		

Table 4
Correlation coefficients for changes in knowledge and empowerment and changes in the motivational variables

Variables	Change in knowledge	Change in Empowerment
Intrinsic Goal Orientation	.063	.135
Self-Efficacy	.246**	.092
Extrinsic Goal Orientation	.019	-.10
Task Value	.201**	.031
Control Beliefs	.168**	.209*

note: *p<.05, **p<.01