

A Study of Students' Attitudes towards Project- Based Learning and their Achievement Goal Orientation

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Abstract

The purpose of this research is to study primary students' attitude towards project-based learning in science and their achievement goal orientation at the practicing school, Central China Normal University. A total of 50 primary students (25 males and 25 females) from practicing school at the Central China Normal University participated in this study. Students worked in groups actively and participated enthusiastically in this study. Questionnaire was developed by the researcher under the guidance of the supervisor based on the related literature. After that the four-part survey questionnaire was given to students to collect data on background, achievement goal orientations, attitudes towards group work and perceptions of their group members' performances. The data were analyzed by descriptive and inferential statistics. The correlation analysis showed no significant relationship between attitudes towards group work and profiles of achievement goal orientations. However there is a correlation between attitudes towards group work and how subjects perceive their team members' collaboration on contribution to task, discussing and listening, and team functioning behaviors. The results showed that there was a significant relationship between mastery and ego orientations, negative relationship between GPA and work avoidant orientation. Finally males were significantly more work avoidant than females.

Introduction

According to Alessi and Trollip (2001) collaborative learning is "...suggesting environment in which learners work on a shared project or goal" (p.34). In a project-based collaborative learning setting, students learn from each other, reflect their own and team members' ideas, to experience group interdependence which as a main ingredient in this process. However, learners' perceptions of achievement goal orientation, and how they see group work may affect the success of this process.

Significance of the Study

According to Grainger et al., (2008), if the classroom is an effective learning environment, students will achieve more, have more positive attitudes toward education, and have more solid basic skills throughout their lives. In an effective learning environment, teachers have thorough knowledge of their subjects. Moreover they have good achievement goal orientation and to get students to collaborate successfully in learning. They are interested in the subjects that they teach, are usually able to show the need for their subjects, and they consider the success of their students important. Good teachers are able to assess learning effectively. They also are able to control their classes and treat all students equally.

For these reasons, it is crucial to study students' attitudes towards project-based learning, their achievement goal orientation and collaboration behaviors.

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Purposes of the Study

Main purpose

-To study primary students' attitude towards project-based learning in science and their achievement goal orientation

Specific Purposes

-To study participants' achievement goal orientations, attitudes towards group work and perceptions of their group members' performances in terms of effective collaborative

behaviors

-To study a significant difference between male and female students' achievement goal orientations, attitudes towards group work and effective collaboration behaviors

-To study a significant relationship between students' achievement goal orientations, attitudes towards group work, effective collaboration behaviors and GPA

Research Questions

The research questions are

(1) What are the participants' achievement goal orientations, attitudes towards group work and perceptions of their group members' performances in terms of effective collaborative behaviors?

(2) Is there a significant difference between male and female students' achievement goal orientations, attitudes towards group work and effective collaboration behaviors?

(3) Is there a significant relationship between students' achievement goal orientations, attitudes towards group work, effective collaboration behaviors and GPAs?

Definitions of the Key Terms

Attitude

An attitude is the tendency to think, feel or act positively or negatively toward objects in our environment (Eagly & Chaiker, 1993; Petty, 1995, cited in Salta & Tzougraki, 2004).

Project-Based Learning

According to Krajcik, Czerniak and Berger (1999), Project-based learning approach engages learners in exploring important and meaningful questions through a process of investigation and collaboration.

Theoretical Framework of the Study

According to Buck Institute of Education (1999), project-based learning is an innovative model for teaching and learning. It focuses on the central concepts and principles of a discipline, involves students in problem-solving investigation and other meaningful tasks, allows students to work autonomously to construct their own knowledge, and culminates in realistic products.

Thomas (2000) also tries to define this approach, and emphasizes that in the project-based learning environment students are, in fact, investigating solutions to a problem. They build their own knowledge by active learning, interacting with the environment as suggested by the constructivist approach, working independently or collaborating in teams, while the teacher directs and guides, and they make a real product.

Green (1998) notes that learning by means of a project is likely to increase motivation and give the students a sense of satisfaction. It also helps to develop long-term learning skills. Krajcik, Czerniak and Berger (1999) suggest four benefits for the student. Firstly, learners develop deep, integrated understanding of content and process. Secondly, students learn to work together to solve problems. Collaboration involves sharing ideas to find answer to questions. In order to succeed in the real world, students need to know how to work with people from different backgrounds. Thirdly, this approach promotes responsibility and independent learning. As a final benefit, this approach actively engages students in various types of tasks, thereby meeting the learning needs of many different students.

Individual characteristics of team members such as achievement goal orientation, attitudes towards group work and collaboration affect project-based learning process and the outcomes of the process. In reaching instructional goals, students' perceptions of achievement, understanding of learning, studying habits, and interactions with others in the teaching and learning environment are some of the determining factors. As Eggen and Kauchak (1999) stated, one way of reaching these goals is "guiding students in setting their own goals" (p.417). While guiding students, the distinction between performance oriented and learning oriented goals are important.

Eggen and Kauchak (1999) defined performance goal as "focus on demonstrating high ability and avoiding failure. In a performance orientation, learning isn't viewed as a goal in itself, but rather as a means to end, such as a high-test score or good grade" (p.418). Learning goals, on the other side, focus on the challenge and mastery of a task (Pintrich & Garcia, 1991; Stipek, 1996, cited in Eggen and Kauchak 1999). "Learning goals lead to task orientation, in which students focus on understanding and don't worry about failure or comparisons with other" (Eggen and Kauchak 1999, p.418).

Methodology

In order to examine the participants' achievement goal orientations, attitudes towards group work, effective collaboration behaviors, and the relationships among these variables in a project-based learning process, a case study was used. The study included primary students at the practicing school, Central China Normal University. For this purpose a specific course concerning science was selected, and students taking the course formed the sample of the study. A survey technique was used to collect the related data.

Sample

(50) primary students who study in science from the practicing school at the Central China Normal University were selected to investigate students' achievement goal orientation, attitudes towards group work and perceptions of group members' collaboration behaviors.

Students were assigned to the project groups randomly considering gender and achievement (high, average and low achievers) clusters to make sure that students from both genders and different achievement levels were represented in the project teams.

Instrumentation

A four-part survey questionnaire was developed to collect data on background variables, students' achievement goal orientation, students' attitudes towards group work and their perceptions of their group members' performances.

Procedure

During the study, the group members worked together in science activities so the students focused on their projects. During this period, each group was assigned a specific weekly time period for consultation, and the group members were consulting their instructors on their projects and reports. At the end of the each consultation period, each group received feedback related with their projects and report. This procedure was an iterative procedure, and until the end of the project there were revisions. After that to share what they had done, they presented their projects to their classmates. A pilot study was carried out with a group of 30 students in 2017 to refine the developed questionnaire. The pilot produced evidence of the validity and reliability of the measure. After that, questionnaires were distributed to primary students at the practicing school, Central China Normal University. After one week later, these questionnaires were recollected and the respondent rate was 100%.

Data Analysis

The data gathered with the questionnaire were analyzed by descriptive and inferential statistics. First descriptive analysis of the item in three scales in terms of means and percentages were carried out. Second, sub-scales scores were calculated for each category under achievement goal orientation scale and collaboration rubric scales then relationship between achievement goal orientations, attitudes toward group work and collaboration rubrics. After, the relationship between achievement goal orientations, attitudes towards group work, and the effective collaboration rubric scores were analyzed through a correlation coefficient test. Finally t-test was performed to find out if there is a significant difference based on gender.

Findings

As it is presented in Table 1, descriptive results of the study are shown. Moreover t-test results showed no significant difference between males and females' attitude towards group work, and perception of effective collaboration rubric. In relation to achievement goal orientation profiles, t-test results indicated that there were no significant differences between males and females on mastery orientation and ego-social orientation. There was a significant difference between males and females in work avoidant profile indicating that males are significantly more work avoidant than females.

Table 1.

Conclusion and Suggestions

In this study, males are significantly more work avoidant than the females. We can conclude from this result that female students are more involved with the science project.

Investigating the relationship between achievement goal orientations, attitudes towards group work and students' perceptions of group members' collaboration behaviors is important from several perspectives. First of all to be successful, educational development process requires effective teamwork and project management. For that reason, each team member's goal orientation, their attitudes toward group work and their contributions to collaboration process are important for the outcome of educational development process.

Since each individual has different goal orientation and attitude toward group work, it would be valuable to examine which type of goal orientation is effective in different stages of development process. The results of this study offer some explanation in terms of influence of goal orientations on attitudes towards group work and collaboration in educational development process. In addition, the findings of this study will provide valuable information for educators in forming the development team to benefit more from this process. Finally, this study provides insights for teachers in forming the project groups.

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