Likelihood of Agricultural Undergraduate Student Predisposition to Join Classroom Discussion Based Upon Critical Thinking Style, Gender, and Academic Performance

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Introduction

Students' engagement in classroom discussions plays an important role in active learning. Wade (1994) described an ideal class discussion as the majority of students engaging, participating in subject matter that is interesting, learning, and responding constructively to other students' comments, questions, and suggestions. Student classroom engagement can predict achievement of learning outcomes (Skinner, Zimmer-Gembeck, & Connell, 1998) and reflect student motivation (Skinner, & Belmont, 1993). Enhancing student classroom engagement could facilitate student learning and nurture student's critical thinking ability (Cohen, 1991; Crone, 1997). Research indicated that there are relationships between classroom discussion participation and class size (Hyde & Ruth, 2002), timing (Howard & Henney, 1998), course policies (Boniecki & Moore, 2003) and instructor sex (Crawford & MacLeod, 1990). However, most of these studies focused on external factors related to classroom discussion participation. Little research has explored the relationship between student characteristics and students' participation in classroom discussions. This study intends to contribute to filling the gap.

Theoretical Framework

Social development theory (Vygotsky, 1980) was used to guide this study. According to Vygotsky (1978), each student operates within a range of ability, and educators would best facilitate learning by presenting students with work that challenges them. The theory emphasizes the importance of social interactions in student learning. The learning process is developed through social interactions between students and a skillful professor, as well as with other students (Vygotsky, 1980). Encouraging classroom participation helps students improve their learning skills and enhances their motivation, creativity, and imagination (Rogoff, 1990). In school settings, students do not only learn from the instructors, they also learn from other students (Wilson, 2001).

Purpose & Objectives

The purpose of this research was to predict the likelihood of agriculture undergraduate students to participate in classroom discussions based upon academic performance, gender and critical thinking style. The objectives were to

1). Describe students' critical thinking style, gender, and academic performance.
2). Examine the association among critical thinking style, gender, academic performance, and participation in classroom discussions.

Methodology

A descriptive correlational research design was utilized in this study. The convenience sampling method was used for data collection from 104 agricultural undergraduate students at Texas Tech University. Critical think style was measured by the University of Florida Critical Thinking Inventory (UFCTI). Critical thinking style is described as the way of individual thinking in order to learn topics or acquire information (Lamm, 2015). The UFCTI has 20 items using Likert-type scale that ranges from 1= *Strongly Disagree*, 2 = *Disagree*, 3 = *Neutral*, 4 = *Agree*, 5 = *Strongly Agree*. UFCTI was developed to measure an individual's critical thinking style ranging from engagement to seeking information. Academic performance was measured by self-reported grade point averages (GPA) ranging from 1.0 to 4.0. The classroom discussion participation was identified by the question 'Do you like to participate in classroom discussions?' Particularly, it was measured through a nominal scale of 1= Yes and 0=No. Logistic regression was conducted to assess if GPA, gender and critical thinking style were

significant predictors of classroom discussion participation. The assumptions of normality, independence of errors and multicollinearity and linearity of the logit were checked and satisfied.

Results

A total 104 undergraduate agricultural students participated in this study. The sample included 67 (64%) females and 37 (36%) males. The students average GPA was 3.36 (M = 3.36, SD = .51). The UFCTI scores can range between 26 and 130. A score of 79 or higher indicates the student has a "seeking information" critical thinking style. A score of 78 or lower indicates an "engagement" critical thinking style. Students' overall critical thinking style scores in this study ranged from 64 to 91 (M = 74.76, SD = 3.60). The majority of these students (n = 68, 65.4%) stated that they like to participate in classroom discussions. The Nagelkerke R^2 estimate indicated that (R^2 =.11), 11% of the variance in classroom discussion can be predicted by a linear combination of GPA, gender and critical thinking style, χ^2 = 8.22, df = 3, N = 104, p =.04. However, individually, only gender was a significant predictor of classroom discussion, (β = 1.44, χ^2 = 7.02, p < .05). Specifically, male students are more likely to join classroom discussions. The results agree with the study from Crawford and MacLeod (1990) who found that males would participate classroom discussions more actively.

Conclusions and Recommendations

Although by most measures of effect, a R^2 of .11 is relatively small, this study provides quantitative evidence for understanding the relationships between classroom discussion and gender, academic performance, and critical thinking style. This study indicated that gender is a significant predictor for the classroom discussion. Male students were more likely to indicate that they participate in classroom discussions than female students. Students with an *information seeking* critical thinking style were more likely to participate in classroom discussions than those with an *engagement* style. This could be attributed to the characteristic of the seeking information style that desires to know the truth about topics and thus investigates a subject more deeply (Lamm & Irani, 2011). Additionally, this research agrees with the assertions of Vygotsky's (1980) theory that critical thinking can be cultivated within a social-historical context. We recommend that educators nurture classroom environments that encourage female students to participate classroom discussions. Additionally, in order to encourage students with engagement critical thinking style, instructors should conduct more interactive activities, such as group discussions or classroom debates. A replication of this study in different universities and involving a larger sample would be valuable in the future.

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