

Student Perceptions of a First Time Experience with Peer Teaching in a Meat Science Course

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Introduction and Need for Research

One of the many challenges facing instructors today is understanding how their chosen teaching methods impact student knowledge, success and retention of the subject matter. Research states students have preferred learning styles and will excel at a greater level if the instructor teaches as the students prefer to learn (Chew, 2016). However, for many instructors, this is not always feasible due to lack of resources, time, or pedagogical background. Estep, Roberts and Carter (2012) reported that improving the learning of undergraduate students relies on the quality and type of teaching methods presented. Peer teaching has been found to improve student involvement, engagement, active learning, and leadership within and beyond the classroom experience (Estep, Roberts & Carter, 2012). In this study, a Meat Science course previously taught using instructor lecture as the sole teaching strategy for 16 years examined student perceptions of implementing peer teaching in the classroom for the first time.

Conceptual Framework

Anderson (2016) stated, “Learners who are engaged, motivated, and willing to take responsibility for their learning will achieve more than learners who undertake a minimum amount of learning and do not engage with learning opportunities,” (p. 53). Student-centered learning is one approach used to improve student engagement that focuses on work done outside of the classroom, group discussions, presentations, and peer teaching (Lehman, 2011; Stevenson & Harris, 2014; Wright, 2011). Through peer teaching, students are given the ability to share their knowledge of a topic and create an inclusive classroom atmosphere, as all must participate either in the audience or as the peer teacher. Estep and Roberts (2011) found that decision making, problem solving, and leadership are critical for a student-centered approach. As a peer teacher, students are exposed to each of these concepts as they make decisions about how and what to teach. Stevenson and Harris (2014) stated that, “The deepest learning occurs in the absence of the instructor” (p. 103). The peer teaching method offers a way to engage each student as pillars for one another’s learning. To become a mini-expert, students must research extensively on their topic and thus, learn more about it (Johnson, et al., 2016). This approach provides students a stage for engagement. The “teachers” are engaged during the lesson as they present and the audience is more likely to remain attentive while listening to their peers (Courneya, Pratt, & Collins, 2008).

Purpose and Objectives

This study aligned with the AAAE National Research Agenda Research Priority 4: Meaningful, Engaged Learning in All Environments. The purpose of the study was to assess students’ perspectives regarding the implementation of peer teaching in a Meat Science course at Montana State University in the spring of 2017. The objectives were: 1.) Describe students’ academic rank, major, and learning styles 2.) Describe the students’ knowledge change using peer teaching, 3.) Describe students’ perceptions of peer teaching, and 4.) Compare differences in student quiz performance using peer teaching to years that did not utilize peer teaching.

Methodology

The sample was students (N=33) in a Meat Science course in the spring of 2017. An outline of expectations for a 10 minute peer teaching session was provided to students on the first day of class as they were randomly assigned a topic to teach. Peer teaching sessions were taught over a 4 week period. Survey methodology was utilized as students received two questionnaires. Learning styles were assessed at the beginning of the semester using the VARK survey (Fleming, 2012) to examine any differences in perceptions towards peer teaching. Successive information relating to peer teaching was gathered through a post-pre questionnaire to gain a

more accurate measure of knowledge (Taylor-Powell & Renner, 2000). The post-pre questionnaire was administered after all peer teaching topics were completed and asked students to rate their level of knowledge before and after peer teaching, positive and negative perceptions of the experience, and retention of information. All data was entered into Excel and analyzed using descriptive statistics. Content analysis was conducted on written answers which included coding of similarities and differences into themes (Hsieh & Shannon, 2005).

Results

Usable data was provided by 31 students for a response rate of 93.94%. Students ranged from one sophomore, eight juniors (26%) and 22 seniors (71%). The dominant major represented was Animal Science (n=28). Seven students identified as visual learners, 19 as kinesthetic, and four were mixed visual or auditory learners. Before peer teaching, the majority of students “sometimes” understood the topics. After peer teaching, the majority of students “often understood” the topics. Students expressed several common themes about improvements for peer teaching including more teaching time, handouts, access to slides, a better outline of teaching expectations, and different topics to teach. Five (16%) students believed no changes were needed and one student thought the instructor should teach. Finally, quiz scores from 2011- 2017 were compared on similar topics (Table 1). The overall course grade was not examined because it included several different topics beyond those in the peer teaching sessions.

Year	# of Students	High Quiz Score	Low Quiz Score	Quiz Average
2011	26	93.33	13.33	50.06
2012	27	103.33	10.00	60.58
2013*	28	116.67	38.33	83.45
2014	28	106.67	20.00	57.92
2015	31	101.67	20.00	59.66
2016*	34	123.33	58.33	85.71
2017	33	111.67	26.67	68.97

*Table 1: Students quiz scores in the Meat Science course from 2011-2017. * Denotes years when group quizzes were given.*

Conclusions, Recommendations, and Implications

Sixty-one percent of the students identified as kinesthetic learners (Fleming, 2012). Therefore, it is important for teaching strategies to include hands-on learning, touching, and manipulation activities for engagement. Based on the post-pre questionnaire, seven of the 31 students improved knowledge in all topic areas after peer teaching and 27 students improved knowledge in greater than 50% of the topic areas. Next, all students reported they did enjoy some aspect of peer teaching whether it was researching information, listening to peers, teaching others, or simply a change in teaching format from the daily lecture. These results show that students were more involved and responsible for their learning supporting Anderson’s (2016) findings. Students also offered ideas to foster better teaching and learning in the future such as interactive, visual and hands-on activities. Almost all students (n= 30) stated that they learned from listening to and leading peer teaching. Overall, peer teaching seems to have benefitted students in this class as the average quiz score in 2017 was higher than any of the previous years, except for those with group quizzes. Different ways of incorporating peer teaching deserves more research. Apart from simply lecturing to one another, perhaps peer teachers could provide flipped teaching, extended activities, research projects, and other ideas to incorporate various learning styles. Further research should include other colleges and classes, and a longitudinal study of this course to note differences or similarities as students and teaching strategies change.

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