

**An assessment of undergraduate research skills in agricultural communications**

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### **Introduction / Need for Research**

Many scholars have identified a variety of benefits stemming from undergraduate research experiences. For universities, undergraduate research opportunities can lead students to pursue graduate studies (Lopatto, 2004). For students, growth in cognitive ability is often a reward of participating in research. Students who participated in undergraduate research have noted gains in understanding contemporary concepts within a field or discipline, along with interpreting data and communicating results (Kardash, 2000). Undergraduate researchers have also cited benefits such as gaining knowledge about a topic, improving one's resume, learning how to conduct research, and preparing for graduate school (Craney et al., 2011).

Employers, too, cite the value of research skills held by potential employees and have indicated a stronger likelihood to consider a job candidate who has participated in a collaborative research project (Hart Research Associates, 2015). The potential to equip agricultural communications students with an additional set of valuable skills through undergraduate research appears evident. However, despite the clear benefits, agricultural communication has traditionally lacked assessments of undergraduate research.

### **Theoretical Framework**

Learning is a process of constructing meaning, and constructivism explains how learners make sense of their experiences (Doolittle & Camp, 1999; Savery & Duffy, 1995). Proponents of constructivism argue that understanding is created through interaction and negotiation with one's environment (Savery & Duffy, 1995), and knowledge is gained when individuals take ownership of creating it (Driscoll, 2000). Constructivism also emphasizes the role of reflection as a means to evaluate personal knowledge and to help the learner interpret his or her experiences (Savery & Duffy, 1995). The teacher's role, in constructivist pedagogy, is to engage with the student in a two-way dialogue to share and construct meaning based upon an activity of reciprocal interest (Hunter, Laursen, & Seymour, 2007).

Splan, Porr, and Broyles (2011) found constructivist learning theory to correspond with undergraduate research specifically, and concluded that learning experiences should be authentic, student-centered, active, and facilitated through social negotiation. At the same time, undergraduate research provides a platform for problem-based learning driven by open-ended, challenging, or ill-structured questions. The student researcher's role allows for engagement in creating knowledge by taking ownership of an authentic learning task (Splan et al., 2011). As constructivism encourages the integration of real-work environments or issues to create authentic learning contexts, undergraduate research is an applicable fit (Doolittle & Camp, 1999).

### **Methodology**

Students in a senior-level capstone course in agricultural communications in Spring 2018 and Spring 2019 at Texas Tech University were included in this study. Students in both groups were placed into groups and assigned an agricultural organization to research. Initially, students performed web searches to better understand their organization's purpose, activities, and existing online presence. Student groups had to formulate research objectives and select an appropriate study timeframe. Then they used Meltwater, a social media monitoring platform, to search for

relevant online content. To conclude their research projects, students created detailed reports to answer the research objectives, present their findings, and offer suggestions for future improvements or changes to their organizations' online social media presences.

Students completed a questionnaire about their research project experiences at the end of the semester. The instrument included eight statements to determine the impacts of the project on research skills and benefits of the research process (Hunter et al., 2007; Savery, 2003; Trosset, Lopatto, & Elgin, 2008) using a 5-point Likert-type scale where 1 = *strongly disagree* and 5 = *strongly agree*. Thirty-two of 34 students in the 2018 class, and 43 of 48 students in the 2019 class completed the survey, resulting in 77 usable responses. Descriptive statistics were used to analyze the data.

### Results

Students indicated they enjoyed researching and monitoring their organization on social media and despite some challenges in using the social media monitoring program, they appreciated the opportunity to synthesize collected data. Students also expressed frustration associated with the lack of content from the organizations they were tasked to research. However, students indicated overall agreement in the development of research multiple research skills. Most prominently, students indicated intent to produce a meaningful final report ( $M = 4.43$ ,  $SD = .55$ ) and that they were involved in designing some aspect of the project ( $M = 4.19$ ,  $SD = .78$ ). Additionally, this experience enabled students to sort and select data appropriate for addressing the research purpose ( $M = 4.08$ ,  $SD = .68$ ) and encouraged them to use social media metrics platforms in the future ( $M = 3.87$ ,  $SD = .92$ ). Students also agreed the research project exposed them to what research in agricultural communications could be ( $M = 3.85$ ,  $SD = .78$ ) and while working on the project students encountered a sense of curiosity ( $M = 3.82$ ,  $SD = .91$ ). Finally, the students expressed less agreement overall on the statements "working on this project increased my interest in the agricultural communications profession" ( $M = 3.21$ ,  $SD = .87$ ), and "I searched for additional information to complete the project" ( $M = 3.13$ ,  $SD = 1.13$ ).

### Conclusions & Implications

While the research opportunity for these undergraduates afforded them the chance to take ownership of a learning task (Splan et al., 2011) driven by an open-ended question and sought to be reflective real-world issues (Doolittle & Camp, 1999), many participants expressed frustration with the ambiguous nature of the project. However, the fact that the majority indicated agreement with statements of research skills and benefits aligns with Savery and Duffey (1995) and other constructivists that learning occurred, as evidenced in the student reflections of the experience. It is possible that allowing more flexibility in the research topic, rather than assigning topics, may lessen frustrations with the research process, as topics of mutual interest for both student and teacher are hallmarks of meaningful undergraduate research experiences (Hunter et al., 2007).

As the benefits of undergraduate research have been clearly documented in the literature (Craney et al., 2011; Kardash, 2000; Nagda et al., 1998), agricultural communications instructors are encouraged to integrate opportunities for undergraduate research into class curriculum, and actively engage with the students in the projects. Instructors should refer to the tenants of constructivism to create meaningful undergraduate research opportunities.

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