International Food and Agribusiness Management Review
Volume 18 Issue 2, 2015

Millennials Leaning In: Can Women in Agribusiness Benefit from Technology and Social Collaboration in Higher Education?

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Abstract

A gender gap exists in both pay differences and leadership roles. Higher education plays a role in preparing the next generation to close this gender gap. The tools employed in higher education have been shown to impact student confidence and confidence going into their careers. As a means to identifying differences in the impact of a web-based course discussion between male and female students, a survey of 408 Agribusiness students was conducted. Compared with males, the online course discussion had more impact on female students in terms of their knowledge of current events, interest in the course topics, and confidence going into the job interviews. In addition, female students attributed the web-based discussion to improved written communication skills. Use of social technology with current content could potentially empower the female students to enhance learning and gain confidence.

Keywords: agribusiness students, social media, online discussion, gender, women

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Introduction

Women account for nearly half of the labor force in the US but earn less than men for each hour worked (Pew 2014). In 1964, women earned $0.59 for every dollar paid to men (US Census Bureau 2012). Over time, the difference between male and female wages has narrowed. This narrowing of the wage gap is often attributed to women's educational achievements, participation in the labor force, and presence in lucrative occupations (Pew 2014). Today, as women enter the workforce there is a decent chance of parity in wages. However, men's wages increase at a rate faster than women's, leading to full-time working women earning, on average, just 77% of what their male counterparts earn (US Census Bureau 2012). To make up the wage difference, women would have to work an extra 60 days each year to make what men do.

Education is one factor that is often used to explain differential earnings. However, a study conducted among the alumni of an Agribusiness department at a US university found that a gender gap exists for their alumni, suggesting that education is not the only explanatory factor. In that particular study, females earned 19% less than males that graduated from the same program (Qenani-Petrela and Wolf 2007). Women outnumber men in higher education degrees obtained, yet the differences in wage are still apparent (National Center for Education Statistics 2012). Blau and Kahn (2007) found that education can ease wage disparity by up to 7%, but that educational attainment and job characteristics do not fully explain the wage gap. One contributing factor to the gender gap is that women are less likely to ask for a raise and to engage in negotiations (Bohnet and Greig 2007).

Unlike the wage gap, the power gap between genders has remained relatively unchanged in the last 20 years and women are continually underrepresented in business leadership positions (Catalyst 2010, Catalyst 2009, Foust-Cummings and Pomeroy 2008, Eagly and Carli 2007). In 2014, women held CEO positions in just 24 of the Fortune 500 companies (Catalyst 2014). Research suggests that compared to men, women are less self-assured, are less likely to speak, are less likely to promote their accomplishments, and are more likely to be dismissive in regard to praise received (Sandberg 2013; Voyles and Williams 2004). Women are less likely to engage in interruptive behavior during conversations, a trait often attributed to perceived confidence (Zimmerman and West 1975, Case 1988, Craig and Pitts 1990). Ely (1995) found that more than half of women in male-dominated firms were unlikely to question their firm's negative views of women and internalize the firm's depiction of women as depictions of themselves.

Millennials are those born, roughly speaking, in the 1980s and 1990s. As Millennial women progress through their careers, they will likely be met with wages that diverge further and further from their male counterparts (Pew 2014). However, relative to prior generations, Millennial women recognize this gap and are more likely to indicate that changes still need to be made about equality in the workplace (Pew 2014). Sheryl Sandberg's bestselling book "Lean In: Women, Work, and the Will to Lead" has sparked the "Lean In Era" and created a renewed interest and emphasis on gender equality in the workplace (Pew 2014). More than 75% of the global workforce will be made up of Millennials by 2025, creating an opportunity for Millennials to shape the gender disparity in the workforce as they "Lean In" through their careers (Winograd and Hais 2014).

Pew Research (2014) suggests that Millennials appear to be particularly interested in narrowing the gender disparities in the workforce. Higher education plays an important role in preparing students for their careers and providing skill sets that will allow them to succeed professionally. Individual confidence and assertiveness are often used to explain the gender leadership gaps in business (Pesonen, Tienari, and Vanhala 2009, Babcock and Laschever 2003). Heath, Flynn, and Holt (2014) suggest that preparation is a key to overcoming the tendency of women to hold back in business meetings. Questions still remain regarding the role of higher education in preparing students (male and female) with the skills necessary for career success.

The objective of this research is to examine if the use of one higher education instruction tool has an impact on females' confidence within the classroom environment and their confidence going into a job interview. The psychology literature suggests a relationship between confidence during higher education and positive interview outcomes (Steffy and Shaw 1989). Perhaps, if confidence can be created such that female students are more self-assured in the classroom, perhaps the foundation obtained during the educational experience will then carryover into obtaining positive outcomes from job interviews. Confidence among employees is further shown to be positively related to occupational prestige and income, thus elevating the importance of building confidence in our students, even if we cannot directly connect confidence in the classroom to confidence in a later career (Kammeyer-Mueller, Judge, and Piccolo 2007).

In this research, the objective was isolated to the use of a web-based discussion board to discuss current events that related to course concepts. Through online, social discussion outside of the classroom, female students can gain experience in voicing their opinions. Will this experience translate into enhanced learning and improved confidence going into job interviews?

Literature Review

While gender differences are apparent in business, they are also apparent in the higher education classroom (Kaenzig, Hyatt, and Anderson 2007, Gallos 1993). Higher education tends to reward characteristics typically associated with masculinity, including assertiveness, individualism, boldness, and competitiveness (Burke 2013, Sadker and Sadker 1986, Brooks 1982). Male students are more likely to participate in class discussion (Brazelton 1998). In addition, classroom success may be different between genders. Particularly in the case of economics education, gender has been one of the most commonly studied student characteristics, with research suggesting that female students are less likely to develop the same level of economic understanding as male students (Brasfield, McCoy, and Milkman 2013).

The benefits of discussion as an educational tool have a long history of supporting research and are thought to improve communication skills, cooperative learning, critical thinking, and overall learning (Dallimore, Hertenstein, and Platt 2008; Prince 2004; Bender 2003). In particular, discussion plays an important role in Agribusiness capstone courses (Hall et al. 2003). With the availability of free and subscription-based web discussion tools designed for education, web-based discussions serve a valuable way to extend the discussion outside of class meetings (Hamann, Pollock, and Wilson 2012, Pettijohn and Pettijohn 2007). Web-based discussions provide an opportunity for students that are hesitant to speak-up in a classroom to build confidence. Ware (2004) demonstrated the value of online discussion boards in building the

confidence of English as a Second Language (ESL) students and Skinner (2010) demonstrated their value in the adjustment of international students to British university life. Further evidence suggests that women can build confidence through communication in women-only online communities that will better prepare them for communication in mixed-gender online communities (King 2000).

Social media use by college students has been a source of significant research in recent years. However, fewer studies focus on the use of social media as a classroom tool and, even fewer, on differences in outcomes from educational uses of social media based on gender. Nevertheless, online social interaction has been shown to have a valuable role in the educational process (Alrahmi, Othman, and Musa 2014, So and Brush 2008).

Gender differences carry over into the online environment. Bostock and Wu (2005) found gender differences in the online discussion behavior of students in a large online course. Female students posted to the online discussion board more frequently and were more likely to indicate a preference for the online discussion environment. Through coding of 700 online messages, Guiller and Durndell (2006) found that female students were more likely to make online comments that were in agreement with a fellow student, while male students were more likely to disagree and pose an alternative view. Female students prefer online discussion formats as they provide, to a certain extent, anonymity (Sullivan 2002).

It has been well documented that gender communication differences are similar in an online environment to a face-to-face environment (Guiller and Durndell 2006, Herring 2003, Sussman and Tyson 2000). However, there is little research to show how having this more comfortable environment for discussion affects face-to-face communication, especially for women. Peck (2012) showed some crossover between online and face-to-face interactions and attributed it to an improved sense of community through an online discussion tool. Although the research wasn't focused on communication specifically, Stricker, Weibel, and Wissmath (2006) found that students that voluntarily participated in a virtual learning environment to supplement class material, showed improved classroom performance. Similar research confirms the value of supplemental online course environments on student success (Francis and Shannon 2013, Mogus, Djurdjevic, and Suvak 2012).

Recent research among 232 Agribusiness students revealed that using a social media platform that delivers relevant current content and seamlessly encourages conversations about the content increased engagement among students (Cai, Higgins, and Wolf 2013). Students reported learning from classmates' comments, a better understanding of theoretical principles, improved critical thinking and improved written communication skills (Cai, Higgins, and Wolf 2013). Student interest in social media newsgroups is further confirmed through research by Clawson, Deen, and Oxley (2002).

Data and Methods

Five Agribusiness courses at a large university in the Western US were selected for this research. These courses include agricultural economics, food and fiber marketing, marketing research, marketing planning, and branded wine marketing. They were selected as a convenience sample,

based on the willingness of the course instructors to incorporate ValuePulse, a social news platform, as a course discussion board. Throughout the term students were required to login to ValuePulse and read news articles posted by the instructor related to class material and course concepts. Students were then required to post comments on the ValuePulse page for the article that they read (see Figure 1). Comments were required to be "substantial" in content and showcase the student's understanding of the course concepts or demonstrate the student's ability to relate the news article back to the course material.

Figure 1. ValuePulse used as an online course discussion forum

A total of 408 Agribusiness students that used ValuePulse in their classes were surveyed between January 2013 and March 2014. To evaluate the impact of this pedagogical tool, an electronic survey was designed consisting of 22 questions. The questions pertained to the student's perception of the ValuePulse tool, prior classroom discussion tools, use of ValuePulse features, engagement in the course as a result of online discussions, as well as a series of demographic questions. These students in the selected courses were encouraged to complete the survey at the end of the course's term, however incentives for completion of the survey were not provided. Among the 408 student respondents, 215 were male (52.7%) and 193 were female (47.3%). Respondents have spent an average of 2.93 years in college. Based on their personal experiences, over 90% of the surveyed students indicated that it is an excellent or very good idea to use ValuePulse as a course discussion platform and communication tool between professors and students.

Results

To better understand which social media tool is preferred by Agribusiness students, the students were asked which social media tool they think is appropriate for online discussions between students and faculty about important information regarding their coursework, with 5 being extremely appropriate and 1 being not appropriate. ValuePulse was ranked the highest, followed by LinkedIn, Facebook, and Twitter (see Figure 2). Specifically, 84% of the students think ValuePulse is extremely or very appropriate, and 47% and 13% of the students consider LinkedIn and Facebook as an effective tool, respectively. However, only 7% think the use of Twitter is appropriate.

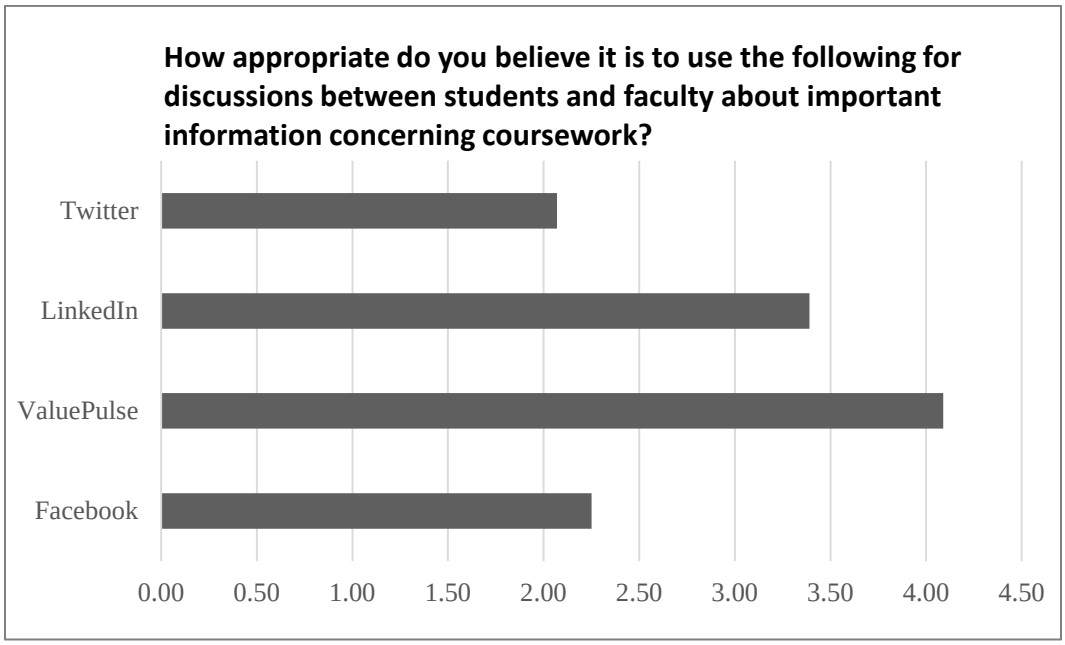

Figure 2. Social media used for discussions about coursework

It is interesting to find that Agribusiness students don't consider the two most popular social media tools Facebook and Twitter as appropriate tools for online discussions and communications regarding the coursework. There might be a wall between the academic use and personal uses students have for Facebook and Twitter.

More interestingly, there is a distinction between female and male opinions (see Table 1). Specifically, more male students think Facebook and Twitter can be used for discussion and communication tools for the coursework. However, more female students think that LinkedIn is an appropriate course discussion and communication forum. Female students have mainly used Facebook and Twitter for personal networking, so they seem to feel less comfortable employing those networks for course related conduct. However, LinkedIn is pictured as a professional network. More students, especially female students, believe that LinkedIn can serve as an instruction technology tool. There is a consensus among female and male students about

ValuePulse being an appropriate platform for course discussions and information exchange. This result could be because these surveyed students have all used ValuePulse in their courses and they have seen the value of using this tool.

Table 1. Comparisons of social media tools used for course discussions and communications

Social Media	Male	Female	P-value
Facebook	17%	7%	0.002**
ValuePulse	82%	86%	0.23
LinkedIn	40%	54%	0.005***
Twitter	10%	5%	0.046**

***p<0.01, **p<0.05

Eight questions were asked to understand whether using the social media as a tool for facilitating course-related discussions can escalate student engagement, enhance student active and collaborative learning, and improve student critical thinking and written communication skills. Overall, Agribusiness students agree or strongly agree that through online discussions they like being able to share opinions (91.2%), they are more engaged in the course (88.6%), they know more about the general news (86.2%) and their field of study (83.7%), they understand theoretical principles better (83.2%), they learned from reading their classmates' comments (81.3%), they have improved critical thinking skills (72.8%) and written communication skills (61.8%).

In addition, the survey data were analyzed using chi-squares to examine differences between the responses of the male and female Agribusiness students. Of the eight questions, the responses by males and females were significantly different in four instances (Table 2). While most students agreed that there were strong career and learning enhancements through online discussions, females attributed a more positive impact related to engagement in the course as a result of general knowledge of current events, improved written communication skills, and interest in the course topics by reading current industry news. These findings confirm previous studies conducted by Pew research (2013) that females are more engaged in social media, and females tend to be more active on social media and online discussion forums (Sullivan 2002; Bostock and Wu 2005; Duggan 2013).

In the learning enhancement category, our results in Table 2 showed that no significant differences between males and females were found in both critical thinking skills and learning that happened because of classmates' comments. However, the gender differences were significantly different in understanding of general news and written communication skills. It seems counterintuitive that males and females in our sample do not see differences in higher cognitive skills (i.e., critical thinking and reading) but do see differences in general skills (i.e., general news and written communication). Therefore, we conducted additional analyses by

partitioning the sample. Given no better understanding of general news and higher written skills, four scenarios regarding the gender differences were analyzed: (1) improved critical thinking skills and enhanced learning from classmates' comments; (2) improved critical thinking skills but no enhanced learning from classmates' comments; (3) enhanced learning from classmates' comments but no improved critical thinking skills; and (4) no improved critical thinking skills and no enhanced learning from classmates' comments. In the first three scenarios, there was a significantly higher percentage of males than females (4% vs. 0%, 6% vs. 0%, and 7% vs. 1%). In our sample, males tend to believe their cognitive skills can increase without a higher general skill. Meanwhile, is there a gender difference in the cognitive skills given the higher general skills?

Table 2. Comparisons of female and male responses to engagement, learning, and job

Survey Questions	Male	Female	P-value
Engagement Percent Agree or Strongly Agree			
I like being able to share my opinions with the students in my group or class	92%	90%	0.500
I feel more engaged and interested in the course topics by reading current industry news	85%	93%	0.013**
Reading and discussing current articles about course topics is more valuable to me than reading cases in my textbook	86%	89%	0.393
Learning Enhancement Percent Agree or Strongly Agree			
My critical thinking skills have improved	71%	75%	0.444
I learned more by reading my classmates' comments	81%	82%	0.774
I feel I know more about the general news	81%	92%	0.001***
My written communication skills have improved	57%	67%	0.048**
Interview Preparation Percent Agree or Strongly Agree			
I feel more prepared for job interviews because I have been discussing current industry issues online	63%	73%	0.039**

***p<0.01, **p<0.05

When a student thinks that she/he has a better understanding of general news and improved written skills, we would like to know whether the student also has: (a) improved critical thinking skills and enhanced learning from classmates' comments; (b) improved critical thinking skills but no enhanced learning from classmates' comments; (c) enhanced learning from classmates' comments but no improved critical thinking skills; or (d) no improved critical thinking skills and no enhanced learning from classmates' comments. Interestingly, a significant gender difference was found in scenario (a). Specifically, 58% of the female students indicated higher cognitive skills when their general skills improve. By contrast, only 44% of the male students indicated that both cognitive and general skills improve. When there is significant gender difference in

general skills, the difference between females and males in the cognitive skills can become insignificant because females in our sample, compared with males, tend to have more consistent opinions about their general and cognitive skills.

With regard to the impact of using a social discussion platform on job preparation (shown in Figure 3), nearly three-quarters of the Agribusiness females that used the social platform to discuss relevant and current course material felt more prepared for job interviews, while less than two-thirds of male respondents agreed they felt more prepared for their job interviews. That difference in confidence could make a significant difference. Confidence, or the lack of confidence among women, has been argued to be one of the key factors in the gender gap (Kay and Shipman 2014). The implications of this finding suggest that Agribusiness faculty that use social technology with current content could potentially empower the female students with the confidence they need to "lean in" and carry confidence with them into a job interview. When it comes to females' employability, they need to be more proactive. Providing a social platform for students to voice their opinions and discuss current industry issues can help women stay up-to-date with what is happening in the real world, apply the principles and theories they learn in the classroom to practical problems, become more proactive and be willing to take the initiative to prepare for job interviews properly, all of which serves to build self-assurance and confidence going into a job interview. Confidence going into a job interview, even self-reported, has been shown to have positive implications for job interview outcomes (Kammeyer-Mueller, Judge, and Piccolo 2007; Kanfer et al. 2001; Steffy and Shaw 1989).

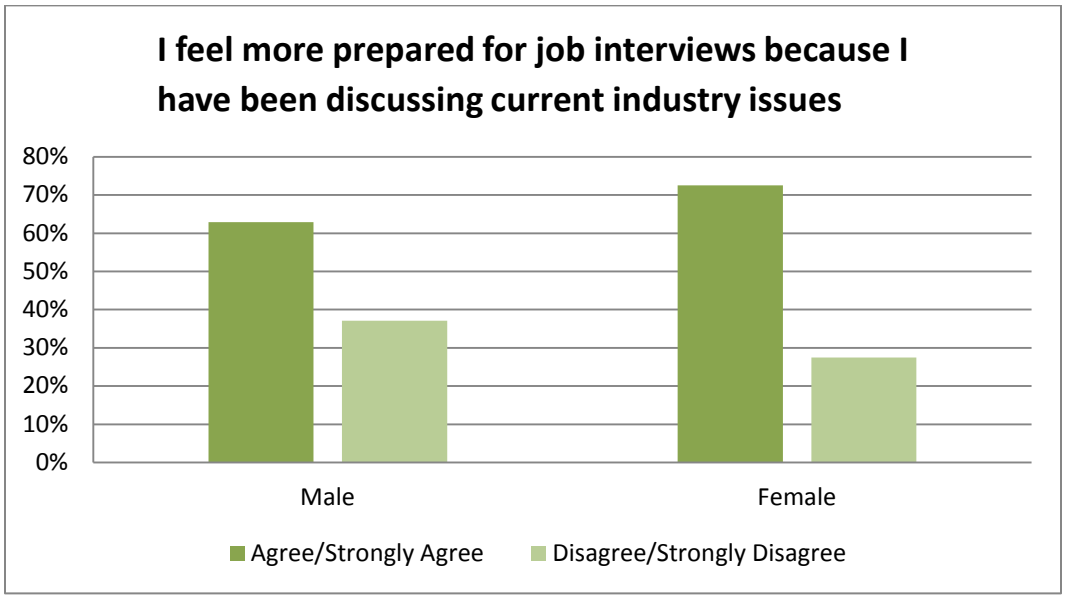

Figure 3. Female students indicate more readiness for job interviews because of online discussions

Conclusions

This study explored how the use of social media to facilitate course-related discussions can support Agribusiness female students to "lean in" and improve their confidence leading up to

future job interviews. Prior research suggests that women are vulnerable to interruptions during face-to-face group discussions, less likely to be called on by instructors, less likely to rate their skills as above average, less likely to voice an opinion and more likely to make their statements shorter and at a lower volume. Although there have been improvements with regard to gender equity in classrooms, additional work is needed (Sullivan 2011; Sullivan 2012).

The use of social media for course-related discussions appears to offer a unique advantage over the discussions in the classroom. Our survey data suggest that the real-time, interactive and dynamic nature of the online discussion tool may help Agribusiness instructors create more female-friendly learning environments for their female students. Specifically, through online discussions, female students were less likely to be interrupted, they were given the opportunity to formulate opinions, gain confidence in their opinions among their peers, and become more knowledgeable about industry trends and general news. Most importantly, through online discussions, female students feel they are more prepared and have gained additional confidence going into job interviews. This result suggests to educators that providing a social platform for females to discuss current industry issues can help them become more proactive and willing to share an opinion among their peers, and eventually become better prepared for job interviews.

While this research does suggest the value of using a discussion platform, there are limitations to the study. First and foremost, the use of a convenience sample in one university during a short period of time and lack of psychometric data presents a limitation. Secondly, the study asked about preparedness for job interviews as a result of industry discussions, however no control was provided for students that are considering a career outside of the industries covered on the discussion boards. Finally, instructors of these five courses all happened to be female. This could potentially have inserted bias into the responses made by female respondents and/or their engagement in the course. Additional research is needed to determine if these limitations had an impact on the outcome.

Will activity on a social learning platform empower female students and cause them to “lean in” and close the gender gap in their careers? This question is yet to be answered. We do know that use of this particular educational tool appears to have positive impacts on students of both genders, but that the impacts may be even more pronounced for women. If social media discussions can improve learning and communication skills and improve confidence leading into job interviews, can the use of social media in higher education help close the gender gap in the workforce?

Several previous studies have shown that the online course environment can improve student classroom performance (Stricker, Weibel, and Wissmath 2006; Mogus, Djurdjevic, and Suvak 2012; Francis and Shannon 2013). In order to provide similar conclusions about the long-term effect of online discussions on female success in particular, further research is needed. Future research may examine the benefits for female students of using an online discussion tool throughout the duration of their college studies and after they graduate. Such a longitudinal study may provide additional information and evidence about whether the reported confidence from female students in the present study can carry out into the classroom environment, an interview situation, and even the beginning stages of their career.

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