Introduction

The agriculture industry depends on agricultural communicators to present scientific information and convey complex agricultural issues to diverse audiences (Watson & Robertson, 2011). Correspondingly, written communication skills have consistently been identified as one of the top proficiencies agricultural communications graduates should possess to fulfill the demands of the profession (Doerfort & Miller, 2006; Irlbeck & Ackers, 2009; Morgan, 2012; Sprecker & Rudd, 1997; Steede, Gorham & Irlbeck, 2016). However, instructors and employers across the industry agree agricultural communications graduates do not demonstrate career preparedness in this skill area (Banwart, 2017; Irlbeck & Ackers, 2009; Leal, 2016; Lingwall & Kuehn, 2013; Morgan, 2010). While there is mounting consensus writing is an essential skill, there are opposing views as to what educators can do to improve writing education and performance (Graham, Harris & Santangelo, 2015).

Historically, researchers have investigated the development of student's writing skills focusing on the way in which writers engage in composition (Faigley, 1990; Hairston, 1990), the underlying cognitive processes involved in writing (Flower & Hayes, 1981; Scardamalia, Bereiter, & Goelman, 1982), and the affective factors that influence writing (Beach, 1989; Faigley, Cherry, Jolliffe & Skinner, 1985). However, because these studies investigate different aspects of the writing process, they pose a number of alternative approaches for implementing writing instruction. Self-efficacy is another promising approach that uses a sociocognitive lens for exploring the relationship between students' performance and their belief in their writing abilities (Pajares, 2003). Defined by Bandura (1986) as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391), self-efficacy beliefs serve as a foundation for human motivation, well-being, and personal accomplishment (Johnson, Pajares & Usher, 2007). Students who are efficacious are more likely to demonstrate characteristics such as hard work, persistence, and determination to complete a challenging task, such as writing (Walker, 2003). Helping students advance from struggling writers to skilled wordsmiths requires an understanding of their individual skills, strategies, knowledge, and motivation as well as the environment in which writing occurs (Graham et al., 2015). In an effort to better prepare agricultural communication students for the important role of articulating information and building a relationship of trust and shared values among producers and consumers, the study sought to capture how agricultural communications students experience writing development and the underlying factors and complex sociocognitive processes involved.

Literature Review

Social cognitive theory is founded on Bandura's model of reciprocal causation involving three elements: cognition, behavior, and environmental influences (Bandura, 1989). In this triadic model, behavioral, cognitive, and environmental influences do not function equally or occur simultaneously. Rather, these different sources of influence operate as interacting determinants of one another (Jalaluddin, 2017). The link between cognition, behavior, and environmental influences is further explored through the concept of self-efficacy. As an underlying component of social cognitive theory, self-efficacy beliefs refer to one's perceptions of their ability to complete a specific task (Walker, 2003). Researchers have consistently demonstrated the relationship between self-efficacy beliefs and writing performance among students of all ages, genders, and ethnicities (e.g., Pajares & Johnson, 1994, 1996; Pajares,

Miller, & Johnson, 1999; Pajares & Valiante, 1999, 2001; Schunk & Swartz, 1993; Shell, Colvin, & Bruning, 1995; Zimmerman & Bandura, 1994). "Student's confidence in their writing capabilities influences their writing motivation as well as various writing outcomes in school" (Pajares, 2003, pg. 141). However, the scope of students' writing self-efficacy varies by level, strength, and generality. For example, a student's self-belief may differ from one domain of writing to another. Therefore, they may not consider themselves efficacious across all types or styles of writing (Pajares, 2003).

Sources of Self-Efficacy and Beliefs about Writing

According to Bandura (1977), there are four sources of information from which individuals develop their self-efficacy beliefs. These sources include mastery experience, vicarious experience, social persuasion, and physiological states. Mastery experience, or the interpretation of one's performance, is outcome-based and thought to be the most influential source on how beliefs about ability are formed. When outcomes of past experiences are interpreted as successful, self-efficacy increases. When they are interpreted as unsuccessful, self-efficacy decreases. The second source, vicarious experience, occurs as a result of observations or social comparisons made of others. Learned through modeling, vicarious experience can play a powerful role in developing self-perceptions of competence. Self-efficacy beliefs also develop through social persuasion, or the verbal messages and feedback received from others. While positive messages tend to encourage or empower, negative persuasions often defeat and weaken self-efficacy beliefs. Finally, physiological and emotional states, including feelings of anxiety, stress, optimism, and pride, can serve as an indication of one's perceived ability.

Previous research on the sources of self-efficacy has primarily focused in areas such as math and science; however, studies have confirmed students also use these four sources of information to form their beliefs about writing. Using a Sources of Self-Efficacy Scale from Lent, Lopez, and Bieschke (1991), Johnson, Pajares, and Usher (2007) conducted a correlational study to determine which of Bandura's sources are related to writing self-efficacy. This application had not been previously used in the domain of writing and was thus a pivotal study advancing writing self-efficacy research. Based on their investigation, which included a sample of 1,256 students varying by gender and ranging from grades 4 to 11, all sources of self-efficacy were found to be predictive of writing self-efficacy, and as hypothesized, mastery experience was found to be the most predictive (Johnson et al., 2007). In addition to providing valuable information about the different sources that influence self-efficacy beliefs, the work of Johnson et al. (2007) initiated a shift towards using a qualitative approach to explore this construct. A majority of earlier self-efficacy research had been conducted using quantitative methods. Following the study, researchers called for a greater balance between quantitative and qualitative efforts aimed at exploring the development of writing self-efficacy beliefs and how students perceive these beliefs throughout their academic careers. Subsequently, other studies began to adopt qualitative methods to further investigate academic self-efficacy, motivation, and achievement in writing (Behizadeh, 2014; Usher, 2009).

Holmes (2016) employed a combination of qualitative approaches to capture gifted middle school students' experiences with writing and further explore how sources of information inform their self-efficacy beliefs. A qualitative phenomenological case study was used to provide a detailed account of how four students' writing self-efficacy developed as they interacted in the classroom and responded to their teacher's instructional approaches. Findings from the study

confirmed the students used all four sources of information to form their self-efficacy beliefs. Two additional sources also emerged from the data. These additional sources included self-regulated learning strategies and different types of writing assignments, which reflected the students' varying abilities for implementing writing strategies and their level of comfort using different writing styles. These results echoed findings from Usher (2009) and demonstrated that other salient forms of information influencing students' writing self-efficacy might exist beyond Bandura's hypothesized sources. In both studies, the samples were representative of adolescent writers who are in the developmental stages of writing. Self-efficacy researchers encourage the exploration of writing development in a variety of specific contexts and have called for a greater focus on the individual sources underlying students' perceived abilities (Klassen, 2002). Additional research is needed to understand how other student populations develop self-efficacy and interpret their abilities using different sources of information.

Studies concerning writing self-efficacy have received increasing attention in educational research and may provide valuable contributions to undergraduate programs like agricultural communications (Pintrich & De Groot, 1990). Students seeking an education in agricultural communications often pursue a mixed curriculum that includes a variety of science, communication, and agriculture courses where much emphasis is placed on writing (Kearl, 1983). Moreover, instructors across these disciplines have been tasked with increasing the amount of writing in their classrooms to better prepare students for workplace settings (Kastman & Booker, 1998). By identifying how agricultural communications students inform their self-efficacy beliefs, recommendations may be made on how writing instruction can be modified to maintain or improve students' confidence in their writing skills, enabling them to meet the expectations of employers and fulfill the demands of the profession.

Purpose of Study

Self-efficacy and the role of cognitive, behavioral, and environmental influences are supported by one of the largest bodies of literature on writing development. The study aimed to contribute to the body of knowledge by implementing a theoretical framework within the writing research paradigm, specifically through the lens of social cognitive theory. Social cognitive theorists encourage the exploration of writing development in a variety of specific contexts and have called for a greater focus on the individual sources underlying students' perceived abilities (Klassen, 2002). Thus, the purpose of the study was to explore how agricultural communications students perceive writing self-efficacy within their college courses. The objectives were to 1.) understand what sources of information shape agricultural communications students' self-efficacy beliefs and 2.) explore ways writing instruction can be improved to strengthen agricultural communications students' writing development.

Methods

The study used a qualitative research design to capture how agricultural communications students perceive writing self-efficacy as well as the underlying factors and complex sociocognitive processes involved in their writing development. Phenomenological qualitative methods allow researchers to study phenomena and attempt to understand how people interpret or make sense of their world (Denzin & Lincoln, 2011). Additionally, they are useful when a "complex, detailed understanding of the issue is needed" (Creswell & Poth, 2018, pg. 46),

making this a useful approach for describing the essence of agricultural communications students' experiences with writing. The following sampling, data collection, and analysis procedures were used to gain an understanding about the sources that shape students' writing self-efficacy.

Participant Recruitment

The population of interest for the study included junior and senior agricultural communications undergraduate students at Iowa State University (ISU). Upperclassmen were recruited for the study because they enroll in advanced-level food, agriculture, social sciences and communications courses and are nearing entry into the workforce. Therefore, they have more experiences to draw on when describing their writing self-efficacy and sense of career preparedness. Participants were identified using purposeful sampling via email invitation. As the most common form of non-probability sampling, purposeful sampling "is based on the assumption that the investigator wants to discover, understand and gain insight and therefore must select a sample from which the most can be learned" (Merriam & Tisdell, 2016, pg. 96). To initiate the recruitment process, an email was sent to all students enrolled in the agricultural communications program. Juniors and seniors over the age of 18 were invited to participate in the study. Two follow-up emails were sent following the initial invitation to participate. As a result, three students indicated they were interested in participating in the study. We chose to use snowball sampling, a form of purposeful sampling, to recruit additional participants. As early participants were interviewed, they were asked to refer other agricultural communications peers, allowing us to expand the network of students and gain insights from other information-rich interviews (Merriam & Tisdell, 2016). Personalized emails were sent to all potential leads. Forty juniors and seniors were identified using snowball sampling and 10 additional students agreed to participate in the study. Of the 13 agricultural communication students interviewed, six participants were juniors and seven were seniors. Additionally, all participants were female. Pseudonyms were assigned to each participant.

Data Collection

The primary method of data collection involved two one-on-one interviews with each participant. Each interview lasted up to one hour. While the first interview asked participants to describe their writing self-efficacy in relation to their past writing performance, the types of courses they enroll in, and the forms of feedback they receive, the second interview focused on participants' interactions with feedback and how they internalize feedback messages to inform their writing beliefs. Prior to the second interview, participants were also asked to submit three writing samples along with a reflective exercise summarizing how each sample represented a time when they experienced varying degrees of self-efficacy, ranging from high to low. These writing samples were used to prompt participants' different experiences with writing and feedback. We chose to follow a semi-structured interview format and used a list of guided questions to afford us the flexibility to clarify responses and ask additional questions that emerged during the course of the interviews (Glesne, 2011). The interview guide consisted of questions concerning the types of writing participants experience in their courses, the way they perceive themselves as writers, and how their instructors approach writing instruction; for example: What sort of work habits do you have when working on a writing assignment? How do

you think your instructors would describe you as a writer? A panel of experts with backgrounds in agricultural communications and interdisciplinary writing were asked to review the interview protocol prior to data collection. This step was taken to enhance the reliability of the study, ensure clarity, and anticipate potential interview responses (Yeong, Ismail, Ismail & Hamzah, 2018). Additionally, the interview protocol was pilot tested with students from the population of interest to ensure the purpose of the study could be met using the instrument. Minor revisions were made to add clarity and avoid misinterpretations. Interviews were preferred for the study instead of focus groups because writing is an individual task that can trigger feelings of inadequacy for students who experience low efficacy characteristics (Walker, 2003). Therefore, one-on-one interviews provided a safer, more comfortable environment for participants who consented to participate in the study.

Procedures

Following data collection, interviews were audio-recorded and transcribed using Rev.com, an online transcription service, and each participant was provided a pseudonym to ensure confidentiality. This step allowed us to present rich, personal accounts without compromising participants' identities (Kaiser, 2009). Using the constant comparative method, we analyzed the transcripts with a team of five external coders. Student responses were broken down using open and axial coding to generate codes or smaller units of meaning. This systematic process of comparing codes and grouping categories, referred to as thematic analysis, was used to identify emerging themes. The goal of thematic analysis is to identify patterns in the data. However, this requires more than a simple summarization. A good thematic analysis goes a step further by interpreting such patterns and making sense of the data (Maguire & Delahunt, 2017). According to Braun and Clark (2006), data can be distinguished by two levels of themes: semantic or latent. While semantic themes represent surface-level meanings of any statement spoken or written by participants, latent themes take a deeper dive into the underlying ideas or assumptions that may be interpreted from these statements. For the study, we applied a latent thematic approach using keywords or phrases as the unit of analysis to shape the findings into a final narrative (Creswell & Poth, 2018).

After reviewing the interview transcripts and making notes of early impressions, we worked individually to generate initial codes. Line by line coding was used to complete an inductive analysis of the data. No pre-set codes were used to guide the study. Therefore, the themes that were derived aimed to capture patterns of codes that recurred in the data. Once the preliminary themes were identified, we worked with the coding team to gather all data that was relevant to each theme and discuss how well the themes were supported by the data set. Multiple perspectives were needed to work within the entire context of the data set, and assumptions or prejudices were bracketed and set aside to allow all units of data to be treated with equal weight or value during data analysis. This process, called horizontalization, involves "an interweaving of person, conscious experience and the phenomenon" (Moustakas, p. 96, 1994) to arrive at themes that are descriptive and represent the essence of the experience being studied (Merriam & Tisdale, 2016). Although few discrepancies existed between coding members as the themes and subthemes were generated, any overlap or inconsistencies were addressed through thorough discussions about how the themes were derived and interpreted. After consensus was reached, the themes were defined, named, and relevant data and quotes were gathered. These quotes were selected based on the key words or phrases they contained identifying the essence or latent

meaning of each theme. Together, the quotes created a thematic map illustrating how the major themes and subthemes interacted and related to one another (Braun & Clarke, 2006).
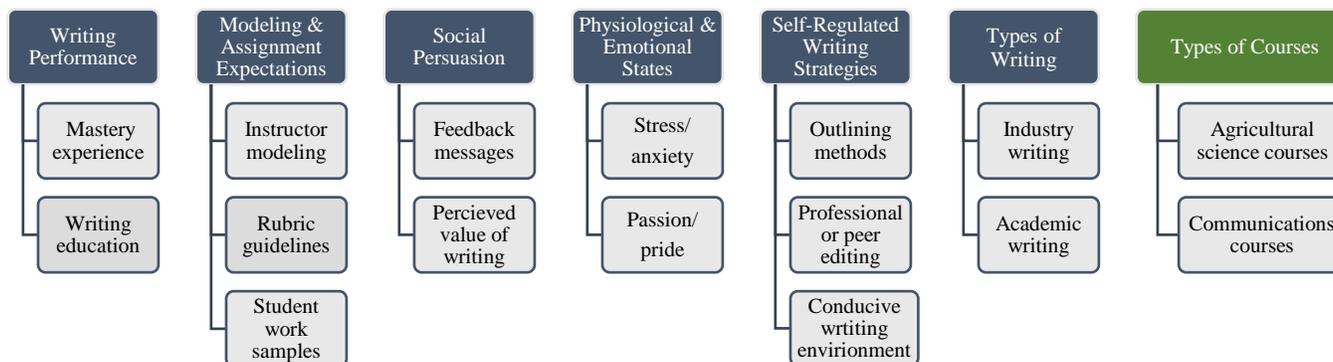
In an effort to meet the qualitative research criteria proposed by Lincoln and Guba (1985), several steps were taken to ensure the credibility, transferability, dependability, and confirmability of the study. These criteria refer to the confidence that can be placed in the research findings, the degree to which they can be transferred to other contexts or settings, the stability or consistency of the findings, and the degree to which the results can be corroborated by other researchers. Credibility was established through pilot testing of the interview protocol and data triangulation, which involved follow-up interviews with each research participant. Transferability was achieved using a combination of purposive sampling techniques, including snowball sampling, to form a qualified sample and to reach data saturation. To ensure dependability, an audit trail consisting of instrument development materials, interview audio recordings, transcripts, field notes, and information relating to the synthesis of findings was maintained to authenticate how the data were collected, how categories were derived, and how decisions were made throughout the study (Merriam & Tisdell, 2016). This audit trail was also used to enhance the confirmability of the study along with the implementation of analyst triangulation to compare findings and avoid biases. A team of five external coders was trained and recruited to assist with codebook development, increasing coding accuracy and the reliability of the study through rich data analysis that may not have otherwise been achieved by the researcher. Consistency among the coding team was achieved by comparing and combining the codes to evaluate their fit and usefulness.

Findings

Seven major themes emerged as a result of the study outlining the underlying factors that inform agricultural communications students' self-efficacy beliefs. The first two themes (writing performance and modeling and assignment expectations) aligned with Bandura's hypothesized sources of mastery experience and vicarious experience; however, the interviews revealed a deeper interpretation of how students perceive successes and failures and different forms of modeling in their writing. Subsequently, these themes were named using broader terms to encompass students' mastery and vicarious experiences as well as other underlying factors such as quality of writing education and rubric guidelines. Because the third and fourth themes more closely aligned with Bandura's sources of self-efficacy (social persuasion, physiological and emotional states), they were named to be congruent with the literature. The fifth and sixth themes (self-regulated writing strategies, types of writing) expanded upon Bandura's framework echoing studies by Holmes (2016) and Usher (2009). Finally, a seventh theme that surfaced from the present study explored a new source of information providing an additional direction for self-efficacy research. Figure 1 summarizes the major themes and subthemes and highlights the sources of self-efficacy not previously noted or explained in the literature.

Figure 1

Sources of Self-Efficacy

Writing Performance	Modeling & Assignment Expectations	Social Persuasion	Physiological & Emotional States	Self-Regulated Writing Strategies	Types of Writing	Types of Courses
Mastery experience	Instructor modeling	Feedback messages	Stress/ anxiety	Outlining methods	Industry writing	Agricultural science courses
Writing education	Rubric guidelines	Percieved value of writing	Passion/ pride	Professional or peer editing	Academic writing	Communications courses
	Student work samples			Conducive wrtiting envirionment		

Theme One: Writing Performance

One of the primary ways participants described their writing self-efficacy was through their interpretations of past writing performance. The findings revealed two specific subthemes, including mastery experience and quality of early writing education.

Mastery Experience

Rather than focusing on failures or setbacks, many participants concentrated on outcomes of past mastery experiences they deemed to be successful. Participants revealed their mastery experiences had a positive effect on their writing self-efficacy even if the experiences were initially uncomfortable. For example, Bella shared how writing her first news story made her feel more confident in her ability to master other writing styles. "I had never written a news report before. I think it showed me my skills improved and that I can do this type of writing. It opened my eyes to different writing styles." Another participant, Abby, recalled the sense of accomplishment she felt when working on her first feature story. "I didn't have any experience with communications practices before, so to put together a photo, a cutline, and a very clear one-page story was a proud moment for me."

Writing Education

The quality of writing education was found to be another contributing factor influencing writing self-efficacy. Although a majority of participants said they were well-equipped to engage in college-level writing, several participants suggested their past writing education placed them at a disadvantage, limiting their potential to succeed. Harley said: "Growing up, I hated writing.... My school really didn't give me a strong foundation in writing. That affected me when I got into college…I still wouldn't say I'm a strong writer, but I'm much better than I was."

Other participants concurred, sharing how their individual educational backgrounds left them feeling behind or unprepared to complete basic writing tasks, such as putting together a thesis statement. Compared to their peers, it was more difficult for participants who encountered educational setbacks to develop their self-efficacy and improve their writing in a faster-paced learning environment. However, participants demonstrated their ability to persevere through these obstacles. For instance, Faith shared how her time at community college allowed her to make a smoother transition. "I definitely feel like I have improved through more writing practice going from community college to ISU. Iowa State expects more professional writing, longer assignments, and better grammar and word usage. I feel like I have progressed greatly."

Theme Two: Modeling and Assignment Expectations

A second way participants expressed their writing self-efficacy was through modeling or observing the success and failures of others, such as their instructors or peers, and meeting assignment expectations.

Instructor Modeling

A number of participants noted how difficult it is for them to model writing because no two instructors use the same approach when teaching writing. Consequently, instructor modeling often requires adopting a new writing style, which can weaken self-efficacy beliefs. Jasmine said: "It's hard to change your style for each professor. One class might be very fact-based, so they don't want that fluff or extra wording…whereas another professor expects more of an over-explanation…that doesn't help my writing." Another participant, Emery, voiced her frustration over the lack of instructor modeling. "Some instructors just expect you to know how to write, and they don't really teach you any more about how to write."

Rubric Guidelines

Similarly, participants frequently noted the use of rubrics as a form of modeling in the classroom. However, participants shared how this approach can also be ineffective. Harley said: "Generally, professors will give you a rubric and go over the outline of what they expect the writing assignment to look like in the end, but they don't give you any clue as far as how you should go about it." Abby similarly stated: "When the rubric guidelines are not clearly stated, it sets me up for failure because I don't know what the professor wants to see in a paper."

Student Work Samples

Although instructor modeling and unclear rubric guidelines did not have a positive impact on participants' writing self-efficacy, there are ways participants have learned to compensate for these limiting modeling experiences and assignment expectations. For instance, some participants rely on student work samples as a form of modeling. According to Georgia, observing previous work submitted by peers is a helpful tool for evaluating her writing. "I really enjoy it when instructors have examples they have held onto…something a student did that was really well done and it's what they want you to shoot for…it helps with my writing, especially with things I've never written before." In instances where samples are not available, participants

seek out their own examples from peers or online. When these samples are provided, participants say they are able to better understand their instructor's expectations and are more likely to retain what they have learned. Bella said:

> When instructors explain the assignment thoroughly and then also share a lot of examples, it helps me understand what exactly they're looking for in their papers. There is better recall or longevity in the skills you learned because you had that example to go off of.

Theme Three: Social Persuasion

Another way participants substantiated their beliefs about writing was through verbal messages, or other forms of feedback, and general statements about their perceived value of writing.

Feedback Messages

Many participants emphasized the influential role feedback has played in building their confidence and improving their writing skills. Dani said: "I feel like writing is one of my strong suits in the ag comm field. I've received pretty good feedback about my writing, which has helped me grow my confidence." For participants who do not recognize writing as one of their top skills, praise and recognition have an even greater impact on writing self-efficacy because these students tend to view feedback in a negative way. Participants also showed appreciation of constructive criticism. Many recognized the positive outcomes of feedback and its function to help rather than hurt their writing self-efficacy. Isabelle shared a personal example of how feedback can sometimes be a needed reality check.

> When you come into college all high and mighty on yourself, there are thousands of other students that are all in the same position as you and you take a step back. You realize you still have abilities, but you become more willing to take criticism to improve.

Perceived Value of Writing

In contrast, when it comes to perceived value of writing, many participants do not have a positive perception of the work they are asked to engage in and struggle to see its value in their writing development. Mainly, participants indicated their instructors rarely explain the importance and uses of their writing activities, which causes a disconnect between the task and learning objectives. Consequently, some participants develop an aversion toward writing, especially when the task at hand is difficult to understand, or they fail to grasp the purpose of the writing activity. For example, Lilly described how she struggled with a creative writing assignment that required her to evaluate the design elements and art principles of a movie poster. "The assignment was a learning curve for me… I didn't understand how it was applicable to developing my writing skills."

Theme Four: Physiological and Emotional States

Feelings and emotional responses to writing experiences was a fourth way participants described their writing self-efficacy. These responses were predominantly characterized within two categories: stress or anxiety, and passion or pride.

Stress or Anxiety

Within the category of stress or anxiety, participants shared how their feelings of fear can be damaging to their writing self-efficacy. Callie described the anxiety she experienced when preparing for a written final exam.

It was a 7:30 a.m. final. I pulled an all-nighter in pure terror worrying about this final. They handed me a blank piece of paper and wanted me to fill it in with everything I knew off the top of my head…it made me doubt my skills.

Several other participants also admitted they experience intense feelings of apprehension and dread when it comes to writing. In many cases, these feelings of doubt or concern overshadow the positive sentiments students hold about their writing. Emery said: "I am definitely self-conscious of my writing. I've never loved writing…it makes me nervous."

Passion or Pride

Not all experiences with physiological and emotional states were harmful to participants' writing self-efficacy. A small number of participants described instances where they experienced feelings of passion or pride toward their writing. For example, Harley shared how passion helps increase her writing self-efficacy by allowing her to feel connected to her work. "Usually, my writing assignments are most successful when I get to explore topics that I care about." Participants also highlighted the feelings of passion and pride they experienced when completing work that could be included in their writing portfolios or referenced during job interviews. Abby recalled writing her first feature story: "The piece made me really proud of myself...it was one of the first pieces that I put in my portfolio."

Theme Five: Self-Regulated Writing Strategies

Self-regulated writing strategies such as outlining, professional or peer editing, and conducive writing environments were other areas participants used to describe self-efficacy.

Outlining

While some participants prefer outlining, others choose to skip this step. Faith said: "My process takes a few days. I think about what I'm writing before I start with bullets and creating an outline. My outlines are usually very detailed. I would say I'm organized in that way." Other participants use a less formal approach and write all their thoughts down before going through several rounds of revisions. However, participants indicated that such outlining and revision strategies do not always translate to higher levels of writing self-efficacy. Georgia remarked she

uses outlines, but acknowledged the drafting process can sometimes hinder her writing ability. "I really don't like reviewing my work and so as I write my first couple of paragraphs, I go over that so many times before I let myself carry on…I don't know how useful that is to my writing."

Professional or Peer Editing

Several participants touched on the benefits of using the university writing center and highlighted how strategies like reading their writing out loud with a professional is a helpful tool for building confidence in their writing. Emery shared:

> [My instructor] highly recommended we go to the writing center…that helped my writing quite a bit. It takes a lot of time, but I think it helps having someone else read it who is not your professor because they're looking at it from a different point of view.

In other cases, strategies for editing and maintaining writing self-efficacy are as simple as initiating a peer review with a friend or a colleague. According to participants, this step helps them catch simple grammar, spelling, and punctuation mistakes they may have overlooked. Jill stated: "I check punctuation and spelling because I know when I'm on a roll I'm not always paying attention to the details…so I'll typically ask my roommates to check my work."

Conducive Writing Environment

Furthermore, participants emphasized the importance of situating themselves within an environment conducive to writing. This strategy limits disruptions in their physical surroundings, like cell phone use or loud noises, as well as indirect obstacles, such as deadlines. Lilly said, "For one assignment I had to lock myself in my room, put my phone away and write like a mad man…that was the solution." Deadlines can also be detrimental to students' writing self-efficacy. According to Molly, "I really hate being forced to write in class. I feel like it's not a conducive environment, ever. And having a time limit to write something by the end of the class and turn it in doesn't help my writing."

Theme Six: Types of Writing

As participants described their writing self-efficacy beliefs, they often compared academic writing versus industry-oriented writing. That is, they attributed their self-efficacy to the types of writing they have engaged in and whether or not it is relevant and applicable to future careers in agricultural communications.

Academic Writing

Several participants were critical of academic writing assignments such as reflection papers, self-assessments, and writing academic journal articles. These were among the most prevalent types of writing participants indicated they had experience with, and participants did not feel they had adequate support in learning how to be successful at these assignments, nor did they find them valuable to their writing development. Molly expressed her negative perceptions of reflection papers. "One reason I don't like reflections is because the audience that I'm writing

to is myself…it's not really helping anyone else, and it's only to prove to the professor that I know something."

Moreover, some participants noted an overall lack of writing projects being assigned in their courses. As juniors and seniors, these participants expressed dissatisfaction in having few opportunities to practice and improve their writing skills as they prepare for their careers.

Industry Writing

Conversely, participants communicated their desire for more writing assignments that mirror industry practices. News stories, science communication, and interview style stories were among the types of writing participants desired gaining more experience in compared to scholarly styles. Emery proposed incorporating social media in the classroom to help enhance students' writing skills and prepare them for the real-world. "Social media is widely popular today in educating about agriculture. There are job positions out there for social media, so it's important we learn how to maneuver that."

Another argument demonstrated how failing to prepare students for industry writing can take a toll on their writing self-efficacy. Abby described a recent internship experience.

> All of my teachers have had great comments about my writing ability...and then I go out to the workforce and I feel overwhelmed because when I write something it comes back mostly in red. Obviously writing for industry and writing English papers is very different, and it was hard to adjust."

Theme Seven: Types of Courses

Just as participants described how different types of writing influences their writing self-efficacy, they drew similar parallels to the types of courses they enroll in, specifically with regard to whether their courses are agricultural science or communications courses.

Agricultural Science Courses

Participants shared that although agriculture classes account for a majority of their coursework, these classes typically don't focus heavily on writing. While participants may feel more passionate about agricultural topics, they do not always get feedback that helps them improve their writing development. Emery said: "A lot of agriculture classes that I've written papers in, writing is not the main focus, so professors just assume your writing is good…they don't help you with your writing skills." Similarly, Abby shared: "Agriculture courses make me feel really good about my writing, but I'm concerned about that because I've only had writing classes with ag instructors, I think journalism instructors might be stricter." Thus, participants are uncertain of whether their writing skills are advancing in their agricultural science courses.

Communications Courses

Participants value communications courses more highly when it comes to improving their writing skills. Several participants commented that instructors in the communications courses are often less lenient with writing errors and expect their writing to be more clear, concise, and

presented in a thoughtful manner. Additionally, participants highlighted being pushed to try more technical types of writing in their communications courses compared to their agricultural science courses. Although participants are likely to feel more confident when writing about agricultural topics, this does not necessarily equate to better opportunities for writing development. On the contrary, participants pointed to instances where they actually felt more pride and experienced greater growth when finishing a writing project that focused on unfamiliar subject matter. Molly explained: "I wrote an article on cystic ovarian syndrome…it was fun and challenging to learn about it and distill the information down. I'm proud of it because it's something I knew nothing about." Furthermore, when asked how different types of courses influence writing development, Kim said: "I put more effort into classes that focus on communication or composition. When it comes to writing for agriculture courses, the professors just care about content. Whereas with writing classes, they pay more attention to your writing style and skills."

Conclusions and Recommendations

Agricultural communications students use a variety of sources to inform their self-efficacy beliefs, though the level, strength, and generality of these beliefs vary student-to-student and across different domains of writing (Pajares, 2003). In the study, participants showed evidence of moving between the highs and lows of their writing self-efficacy as they described interpretations of their writing performance, interactions with modeling, feedback messages and their perceived value of writing, feelings of anxiety and optimism, self-regulated learning strategies, different types of writing, and different types of courses.

Participants described their mastery experiences with writing by citing specific examples of their growth. Although some of these accounts were negative in nature, there was an underlying sense of achievement and acknowledgement that skilled writers develop over time and not overnight. Three ways agricultural communications students encounter vicarious experiences include modeling instructors' approaches to writing, following rubrics and reviewing examples of other student work. While each of these underlying factors has the potential to aid student writing, these tactics were perceived as mostly unsuccessful due to directions and expectations students say are too discrepant. With regard to social persuasion, students highly value the feedback they receive about their writing, but they don't always hold their writing assignments in high regard. Consequently, students lose interest in their writing development and become passive learners. Emotional states such as stress or anxiety, and passion or pride, impact how students experience confidence or lack of confidence in their writing. It is evident these experiences stick with students and influence their judgments about their writing performance. Each of these findings echoed the four sources of information Bandura (1977) used to describe self-efficacy beliefs, however the underlying subthemes pointed to the specific ways agricultural communications students experience writing.

Shifting to alternative sources of self-efficacy, such as self-regulated writing strategies, students are conscious of their writing habits, using outside resources, and creating a conducive writing environment when approaching writing tasks. Although students have different preferences and use different combinations of these strategies, their efforts reveal the steps they are willing to take to enhance their writing abilities as an extension of their self-efficacy beliefs. Participants also articulated their desire for writing experiences that closely mirror industry practice rather than composition that is more scholarly in nature, such as reflections. Of the themes described, this area differed from other self-efficacy studies that demonstrated the value

of reflections as a transformational learning tool (Leggette, Redwine, & Busick, 2020; Redwine, Leggette, & Prather, 2017). Finally, participants shared their writing experiences when enrolling in agricultural science versus communications courses. While agricultural science courses allow students to engross themselves in pertinent agricultural topics, they look to their communications courses to provide them with the writing rigor they need to improve their skills.

Comparing these indicators to other self-efficacy studies, the findings confirm agricultural communications students use all four of Bandura's hypothesized sources of self-efficacy as well as two alternative sources beyond his proposed framework. The first alternative source paralleled results from Holmes (2016) and Usher (2009) which found self-regulated learning strategies inform students' self-efficacy beliefs. Similarly, agricultural communications students reported using several methods, practices, and pre-writing techniques such as outlining, peer editing and creating a conducive writing environment to boost their confidence in their writing abilities. The second alternative source of self-efficacy identified in the study revealed agricultural communications students expect their writing assignments to focus on industry-related practices rather than traditional academic prose. Holmes (2016) too acknowledged that different types of writing influence students' writing self-efficacy, however these orientations were not exclusive to types of writing used in the workforce. This was a key finding that helped inform recommendations for practice.

One of the major theoretical contributions of the study emerged from the seventh theme which compares and contrasts the quality of writing education in students' agricultural science courses versus their communications courses. Agriculture science courses account for a majority of agricultural communications students' major specific requirements at ISU. Although students shared they feel comfortable with their writing performance in these classes, they explained this ease also gives them a false sense of success as agriculture courses typically do not emphasize writing. Consequently, students feel they are not receiving the rigor and writing practice they need to improve their writing skills and increase their self-efficacy when comparing their agriculture courses to their communications courses. As a new underlying source of writing self-efficacy uncovered in the study, this key finding helps to provide a more comprehensive framework for identifying the cognitive, behavioral, and environmental factors influencing students' writing self-efficacy.

Recommendations

While participants gave examples of how their writing self-efficacy has been positively influenced through mastery experience, social persuasion, and self-regulated writing strategies, it is evident much more can be done to improve students' confidence in their writing abilities. With regard to mastery experience, care must be taken to accept that not all students have the same skill level when entering college (Leal, 2016). There is also an opportunity to capitalize on students' "aha" moments when they do achieve success in their writing. By acknowledging these moments, instructors can accentuate the positive in students' writing development and encourage them to push further as they build up their confidence.

In relation to vicarious experience, it is important to recognize that students in agricultural communications often pursue a mixed curriculum that includes a combination of science, communication, and agriculture courses (Kearl, 1983). Therefore, establishing consistent methods for modeling and observation across the curriculum may be problematic. However, individual instructors can discuss expectations for the semester, including preferred

writing style choices, and prepare rubrics that provide clear direction as to how assignments should be completed. A verbal explanation of the rubric guidelines may be needed in addition to written directions. If appropriate, providing students with other examples of student work may serve as another useful tool for setting expectations and providing clear direction.

Based on student responses it is clear feedback plays a central role in building students writing self-efficacy (Bandura, 2008). Communicating a combination of positive and negative feedback messages to students may help maintain and strengthen their writing self-efficacy. Steps must also be taken to improve agricultural communications students' perceived value of writing. Before each assignment, instructors could spend more time linking writing to learning, building meaning, and helping students draw connections to real-world applications.

Physiological and emotional states such as intense feelings of fear or a strong sense of pride permeate agricultural communications students' writing self-efficacy. Because these feelings are likely internalized by students and not shared with instructors it is imperative to regularly check in with students, either on an individual basis or by addressing the class, to mitigate fears or highlight student successes. These checkpoints may also be a good time to review course expectations, share deadline reminders or provide supplemental resources that help students gauge their progress.

In terms of self-regulated learning strategies, agricultural communications students are already employing a variety of techniques to hedge their writing development, but there are additional steps instructors can take to promote good writing practices. For example, while many students choose to create outlines before beginning the writing process, instructors can encourage the use of alternative prewriting activities such as listing, clustering and freewriting. Additionally, students should be encouraged to seek outside assistance and engage in repetitive writing practice to expand their skill set as self-regulated learners (Pajares, 2003).

To satisfy students' desire for practical writing exercises, instructors should incorporate more industry-related writing, like crafting social media posts, to enhance students' self-efficacy beliefs. However, business writing should not become the sole focus of instruction at the expense of other writing styles. Rather, educators should strive for a balance of academic and industry-oriented writing. By achieving this balance, instructors can continue teaching students how to attain a scholarly level of writing and write to a variety of audiences while preparing them for their professional careers (Irani & Doerfert, 2013; Tucker, Whaley, & Cano, 2003).

Finally, courses should shift from a singular focus on content to an instructional synergy between content and skills that include writing. To support this shift, academic departments can be more proactive in identifying existing courses within the major or across other disciplines that provide the rigor students need to develop their written communications skills. Designing specialized courses that emphasize writing instruction may also help to fill this need.

Implications

For decades, researchers have investigated the underlying factors and complex sociocognitive processes involved in writing development. Subsequently, many theoretical and conceptual frameworks on writing have emerged as roadmaps for contributing knowledge, providing meaning, and guiding future research (Becker, 2006). More recently, researchers have encouraged the adoption of these frameworks in disciplines like agricultural communications where writing is a critical part of the curriculum. Agricultural communicators know writing is an essential skill, but few studies inform the profession how to administer effective writing

instruction or are grounded in writing theory (Leggette, Rutherford, Dunsford & Costello, 2015). Additional studies that apply long-standing frameworks, such as social cognitive theory and the construct of self-efficacy, are needed to provide insights on how to improve writing instruction while increasing the theoretical rigor of agricultural communications research and practice.

Due to the narrow scope of the study and the nature of qualitative research, the findings have limited power to make broader generalizations. Future research studies should be conducted throughout the agricultural communications discipline and beyond to determine how students experience writing development. In addition to employing qualitative methods such as in-depth interviews or focus groups, survey studies would serve as a valuable tool for quantifying the underlying factors that influence students' self-efficacy beliefs. More research is needed to identify what underlying factors are most influential in shaping students' writing self-efficacy, and how cognitive, behavioral, and environmental influences impact writing development. Additionally, researchers should consider how other prominent writing theories inform writing instruction such as cognitive process theory or sociocultural theory of writing.

References

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*(2), 191-215. http://dx.doi.org/10.1037/0033-295X.84.2.191

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice Hall.

Bandura, A. (1989). Social cognitive theory. In R. Vasta (Ed.), *Annals of child development* (Vol. 6, pp. 1-60). JAI Press.

Bandura, A. (2008). An agentic perspective on positive psychology. In S. J. Lopez (Eds.), *Praeger perspectives. Positive psychology: Exploring the best in people*, *Vol. 1. Discovering human strengths* (pp. 167–196). Praeger Publishers/Greenwood Publishing Group.

Banwart, H. M. (2017). *Perceptions of agricultural communications students' skills & experience* (Unpublished creative component). Iowa State University, Ames, Iowa.

Beach, R. (1989). Showing students how to assess: Demonstrating techniques for response in the writing conference. In C.M. Anson (Ed.) Writing and Response (pp. 127-148). NCTE.

Becker, A. (2006). A review of writing model research based on cognitive processes. In *Revision: History, theory, and practice* (pp. 25–49). Parlor Press.

Behizadeh, N. (2014). Adolescent perspectives on authentic writing instruction. *Journal of Language & Literacy Education*, *10*(1), 27-44. http://jolle.coe.uga.edu/wp-content/uploads/2014/04/Adolescent-Perspectives-Behizadeh.pdf

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101. http://dx.doi.org/10.1191/1478088706qp063oa

Creswell, J., & Poth, C. (2018). *Qualitative inquiry and research design: Choosing among five approaches.* SAGE Publications, Inc.

Denzin, N. K., & Lincoln, Y. S. (2011). *The SAGE Handbook of Qualitative Research*. Sage.

Doerfert, D. L., & Miller, R. P. (2006). What are agriculture industry professionals trying to tell us? Implications for university-level agricultural communications curricula. *Journal of Applied Communications*, *90*(3), 17-31. https://doi.org/10.4148/1051-0834.1273

Faigley, L. (1990) Subverting the electronic network: Teaching writing using networked computers. In D. Daiker & M. Morenberg (Eds.) *The writing teacher as researcher: Essays in the theory and practice of class-based research* (pp. 290-311) Portsmouth: Boynton/Cook.

Faigley, L., Cherry, R.D., Joliffe, D.A., Skinner, A.M. (1985) *Assessing writer's knowledge and processes of composing*. Norwood, NJ: Ablex Publishing Corporation.

Flower, L., & Hayes, J.R. (1981). A cognitive process theory of writing. *College Composition and Communication*, *32*(4), 365-387. http://dx.doi.org/10.2307/356600

Glesne, C. (2011). *Becoming qualitative researchers: An introduction*. Pearson Education, Inc.

Graham, S., Harris, K., Santangelo, T. (2015). Research-based writing practices and the common core: Meta-analysis and meta-synthesis. *The Elementary School Journal*, *115*(4), 498-522. https://doi.org/10.1086/681964

Hairston, M. (1990). The winds of change: Thomas Kuhn and the revolution in the teaching of writing. In R. L. Graves (Ed.), *Rhetoric and composition* (pp. 37-15). Heinemann.

Holmes, Mary E. (2016). *Sources of self-efficacy information for writing: A qualitative inquiry*. [Master's thesis, University of Nebraska-Lincoln]. http://digitalcommons.unl.edu/cehsdiss/260

Irani, T. & Doerfert, D. (2013). Preparing for the next 150 years of agricultural communications. *Journal of Applied Communications*, *97*(2), 6-13. https://doi.org/10.4148/ 1051-0834.1109

Irlbeck, E.G., & Akers, C.L. (2009). Perceptions of recent agricultural communications graduates' workplace habits and communications skills. *Journal of Agricultural Education*, *50*(4), 63-71. https://doi:10.5032/jae.2009.04063

Jalaluddin, I. (2017). Rural area learners' writing self-efficacy development: A qualitative and quantitative approach. *Al-ta'lim Journal*, *24*(3), 255-265. http://dx.doi.org/10.15548/jt.v24i3.336

Johnson, M. J., Pajares, F., & Usher, E. L. (2007). Sources of writing self-efficacy beliefs of elementary, middle, and high school students. *Research in the Teaching of English*, *42*(1), 104-120. https://sites.education.uky.edu/motivation/files/2013/08/PajaresJohnsonUsherRTE2007.pdf

Kaiser K. (2009). Protecting respondent confidentiality in qualitative research. *Qualitative Health Research*, *19*(11), 1632–1641. https://doi.org/10.1177/1049732309350879

Kastman, Lee-Ann M. & Susan L. Booker. (1998). Writing across the disciplines in agriculture. *Language and Learning in the Disciplines*, *2*(3),36-43. https://wac.colostate.edu/llad/v2n3/kastman.pdf

Kearl, B. (1983). The past and future of agricultural communications: Part I: A look at the past. *ACE Quarterly*, *66(*4), 1-7. https://files.eric.ed.gov/fulltext/ED384733.pdf

Klassen, R. (2002) Writing in early adolescence: A review of the role of self-efficacy beliefs. *Educational Psychology Review*, *14*, 173-203. https://doi.org/10.1023/A:1014626805572

Leal, A. (2016). *Career readiness of agricultural communication baccalaureate graduates: A three-tiered perspective*. [Doctoral dissertation, University of Florida]. https://ufdc.ufl.edu/UFE0049760/00001

Leggette, H. R., Jarvis, H., & Walther, D. (2015). Developing writing identity in an advanced agricultural communications media writing course. *Journal of Applied Communications*, *99*(1) 38-51. https://doi.org/10.4148/1051-0834.1041

Leggette, H. R., Redwine, T., & Busick, B. (2020). Through Reflective Lenses: Enhancing Students' Perceptions of Their Media Writing Skills. *Journalism & Mass Communication Educator*, *75*(1), 81–97. https://doi.org/10.1177/1077695819852256

Leggette, H. R., Rutherford, T., Dunsford, D., Costello, L. (2015). A review and evaluation of prominent theories of writing. *Journal of Applied Communications*, *99*(3), 1-17. https://doi.org/10.4148/1051-0834.1056

Lent, R. W., Lopez, F. G., & Bieschke, K. J. (1991). Mathematics self-efficacy: Sources and relation to science-based career choice. *Journal of Counseling Psychology*, *38(*4*)*, 424-430. https://doi.org/10.1037/0022-0167.38.4.424

Lincoln, Y. S. & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE Publications.

Lingwall, A., & Kuehn, S. (2013). Measuring Student Self-Perceptions of Writing Skills in Programs of Journalism and Mass Communication. *Journalism & Mass Communication Educator*, *68*(4), 365–386. https://doi.org/10.1177/1077695813506991

Maguire, M., & Delahunt, B. (2017). Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. *All Ireland Journal of Teaching and Learning in Higher Education*, *9*(3), 1-14. http://ojs.aishe.org/index.php/aishe-j/article/view/335

Merriam, S., & Tisdell, E. (2016). *Qualitative research: A guide to design and implementation*. Jossey-Bass.

Morgan, A. C. (2010). Competencies needed by agricultural communication graduates: An industry perspective. *Journal of Applied Communications*, *94*(1), 19-32. https://doi.org/10.4148/1051-0834.1184

Morgan, A. C. (2012). Competencies needed by agricultural communication undergraduates: A focus group study of alumni. *Journal of Applied Communications*, *96*(2), 17-29. https://doi.org/10.4148/1051-0834.1146

Moustakas, C. E. (1994). *Phenomenological research methods*. Sage Publications, Inc.

Pajares, F. (2003). Self-efficacy beliefs, motivation and achievement in writing: A review of the literature. *Reading & Writing Quarterly*, *19*, 123-158. https://doi.org/10.1080/10573560308222

Pajares, F., & Johnson, M. J. (1994). Confidence and competence in writing: The role of writing self- efficacy, outcome expectancy, and apprehension. *Research in the Teaching of English*, *28*, 313–331.

Pajares, F., & Johnson, M. J. (1996). Self-efficacy beliefs and the writing performance of entering high school students. *Psychology in the Schools*, *33*(2), 163–175. https://doi.org/10.1002/(SICI)1520-6807(199604)33:2<163::AID-PITS10>3.0.CO;2-C

Pajares, F., Miller, M. D., & Johnson, M. J. (1999). Gender differences in writing self-beliefs of elementary school students. *Journal of Educational Psychology*, *91*, 50–61. https://doi.org/10.1037/0022-0663.91.1.50

Pajares, F., & Valiante, G. (1999). Grade level and gender differences in the writing self-beliefs of middle school students. *Contemporary Educational Psychology*, *24*, 390–405. https://doi.org/10.1006/ceps.1998.0995

Pajares, F., & Valiante, G. (2001). Gender differences in writing motivation and achievement of middle school students: A function of gender orientation? *Contemporary Educational Psychology, 26*(3), 366-381. https://doi.org/10.1006/ceps.2000.1069

Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology*, *82*, 33-40. https://doi.org/10.1037/0022-0663.82.1.33

Redwine, T., Leggette, H. R.. & Prather, B. (2017). A case study of using metacognitive reflections to enhance writing skills and strategies in an agricultural media writing

course. *Journal of Applied Communications 101*(1). https://doi.org/10.4148/1051-0834.1014

Scardamalia, M., Bereiter, C., & Goelman, H. (1982). The role of production factors in writing ability. In M. Nystrand (Ed.), *What writers know: The language, process and structure of written discourse* (pp. 173-210). New York: Academic Press.

Schunk, D. H., & Swartz, C. W. (1993). Goals and progress feedback: Effects on self-efficacy and writing achievement. *Contemporary Educational Psychology*, *18*(3), 337-354. https://doi.org/10.1006/ceps.1993.1024

Shell, D. F., Colvin, C., & Bruning, R. H. (1995). Self-efficacy, attributions, and outcome expectancy mechanisms in reading and writing achievement: Grade-level and achievement-level differences. *Journal of Educational Psychology*, *87*(3), 386–398. https://doi.org/10.1037/0022-0663.87.3.386

Sprecker, K. J., & Rudd, R. D. (1997). Opinions of instructors, practitioners, and alumni concerning curricular requirements of agricultural communication students at the University of Florida. *Journal of Agricultural Education*, *38*(1), 6-13. https://doi.org/10.5032/jae.1997.01006

Steede, G. M., Gorham, L. M., & Irlbeck, E. (2016). Exploring perspectives of the student competencies needed to advocate for agriculture. *Journal of Applied Communications, 100*(4), 55-67. https://doi.org/10.4148/1051-0834.1242

Tucker, M., Whaley, S. R., & Cano, J. (2003). Agricultural education and agricultural communications: Striking a proper balance in the academy. *Journal of Agricultural Education*, *44*(1), 22-30. http://doi.org/10.5032/jae.2003.01022

Usher, E. L. (2009). Sources of middle school students' self-efficacy in mathematics: A qualitative investigation. *American Educational Research Journal*, *46*(1), 275 - 314. https://doi.org/10.3102/0002831208324517

Walker, B. J. (2003). The cultiation of student self-efficacy in ready and writing. *Reading & Writing Quarterly*, *19*(2), 173-187. http://doi.org/10.1080/10573560308217

Yeong, M. L., Ismail, R., Ismail, N., Hamzah, M. (2018). Interview protocol refinement: Fine-tuning qualitative research interview questions for multi-racial populations in Malasia. *The Qualitative Report*, *23*(11), 2700-2713. https://nsuworks.nova.edu/tqr/vol23/iss11/7/

Zimmerman, B. J., & Bandura, A. (1994). Impact of self-regulatory influences on writing course attainment. *American Educational Research Journal*, *31*(4), 845–862. https://doi.org/10.3102/00028312031004845